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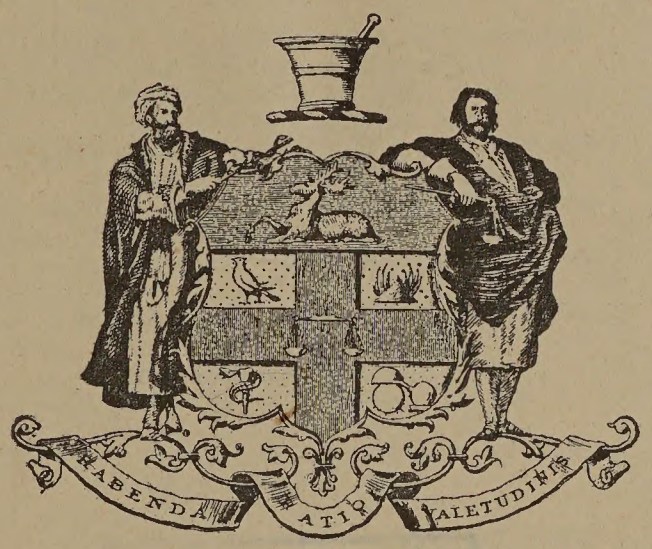

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INDEX TO VOLUME I.

(FOURTH SERIES.)

A.

Abadie, Dr. — Intravenous Injection of Cyanide of Mercury, 91.
Aberdeen and North of Scotland Society of Chemists and Druggists, 23, 299.
— Chemists', Assistants', and Apprentices' Association, 489, 527.
Abernethy—Malakin, 51.
Abraham, A. C.—The Revision of the British Pharmacopœia, 369.
Acacia, Gummosis in (Lutz), 536.
— Gum, Test for the Purity of, 322.
Accumulator, A new Form of (Warren), 445.
— Oxyhydrogen, An (Warren), 76.
Acetate Bath for Photography, 323.
Acetic Acid, Determination of, in Vinegar (Leeds), 262.
Acetylene, New Process for the Manufacture of Alcohol from (Moissan), 69.
— Relative Poisonous Power of (Gréhant), 386.
— Theory of Luminosity, The (Lewes), 426.
— Theory of Luminosity, The, and the Temperature of Flames (Smithells), 426.
— The Production of (Symes), 383.
— Toxicocity of (Gréhant), 453.
Acne, Lotion for (Wolff), 363.
— Preparations for the Treatment of, 155.
Acokanthera Schimperi (Fraser and Tillie), 76, 111.
Aconine Derivatives, New (Dunstan and Carr), 453.
Aconite Alkaloids, Contributions to our Knowledge of the—The Constitution of Pseudaconitine (Dunstan and Carr), 54.
Aconitine in Neuralgia (Hunsberger), 391.
— Research, The (Martin), 41.
Aconitines of the Market (Dohme), 255.
Addison's Disease, Suprarenal Capsule Extract in (Langlois), 195.
Address, Mr. Martin's Conference (Kemp), 126.
Adhatoda Vasica, The Alkaloid of (Hooper), 356.
Adonis Vernalis and Codeine with Bromide in Epilepsy (Bechterew), 391.
Adulteration of Food and Drugs, The, 235.
— Safeguards against, Editorial Remarks on, 207.
Africa, Central, Horticultural Conditions in, 169.
Agar-Agar in Glycerin Suppositories (Ryan), 537; (McKellar), 547.
Agar, Clear Nutritive, Preparation of (Bleisch), 458.
Ailanthus Excelsa, Bark of (Hooper), 345.
Ailanthus Root Tubercles on (Andreæ), 535.
Air, Liquid, The Preparation of (Dewar), 483, 546.
Alarm, A Whistill (Clague), 180.
Albertazzi—Argentamine in Gonorrhœa, 363.
Albumin, Action of Resorcin on (Carrez), 26.
— in Urine, Detection of (Carrez), 26.
Albuminoids and Fat in Milk, Determination of (Van Hamel-Roos), 472.
Alchemy and Pharmacy, Their Mystery and Romance (Thompson), 3, 117, 241, 393.
Alcohol, Action of, on Mercurous Iodide (François), 534.
— Action of, on Soluble Ferments (Dastre), 535.
— Ageing of, by Artificial Means (Villon), 49.
— An, from Lanolin (Marchetti), 74.
— Consumption of, in France, 213, 444.
— Dates as a Source of (Lebny), 191.
— from Acetylene, New process for the manufacture of (Moissan), 69.
— Synthetic Production of, (Caro), 73.
— The Recovery of, from Tincture Marcs (Bird), 157.
— Vapour, Fruit Preserved in (Petit), 504.
Alcoholic Beverages, Potency of (Daremberg), 360.
— Fermentation (Reitsch and Herselin), 262.
— Intoxication, Acute, Treatment of (Sallard), 155.
Algæ and Fungi of Drinking Water (Istvanffi), 59.
Algosin, Purification of Oils by, (Villon), 453.
Alkali Manufacture, Electrolytic, A New System of (Hargreaves, and Bird), 485.
— Process, The Castner-Kellner (Hargreaves), 409.
Alkaloids, Action of, on Plants (Marcacci), 366.
— in the Solanaceæ, Localisation of the (Molle), 502.
— of the Veratrums (Allen), 242.
Allain, L.—Preservation of Chloroform, 261.
Allen, A. H.—Alkaloids of the Veratrums, 242.
— A. H.—Beeswax and the Food and Drugs Act, 45.
— A. H.—Some Phenomena of Polarised Light, 410, 468.
— A. H.—Sugar in Urine, 307.
Almonds, Bitter, Essence of, Preservation of 50.
Aloe Africana, 316.
Aloes, Compound Decoction of (Brown), 441
Aloi, Professor A.—Effect of Electricity on Plants, 536.
Aluminium and Silicon in Plants (Camusat), 536.
— Factory at Larne, 385.
— Flashlight, 465.
— Sodium in (Moissan), 534.
— Utensils (Balland), 263.
Ammonium Ichthyol Sulphonate, A Reaction of (H. Wyatt, Jun.), 508.
Amber, English (Conwentz), 263.
America, Impossibility of a National Pharmacy Law in, 381.
— North, The Teaching of Pharmacy in (Hallberg), 60.
— Pharmacy in, and its Needs, 208.
— Progress of Pharmacy in, 77.
— Substitution in (Schweitzer), 357.
American Degree of Bachelor of Science in Pharmacy, 70.
— Pharmaceutical Association, The, 208 271, 273.
Ames—Oxyphosphate of Copper in Dentistry, 216.
— Solution of Iodine in Cassia Oil in Dental Work, 28.
Ammonia as a Germicide (von Rigler), 26.
— Oleate of, as a Cleansing Agent, 28.
Amygdonitril Glucoside (Fischer), 73.
Amylase (Effront), 16.
Amylo-Carbol, 392.
Anagyrine and Cytisine, Localisation of (Guérin), 535.
Analyses, Somerset House, Cornwall and, 429.
Analysis, Qualitative Chemical, Viewed in the Light of Recent Research (Muir), 468.
Analyst, Yorkshire, Report of a, 320.
Analysts' Certificates as Evidence, 337.
Anarcotine, a Neglected Alkaloid of Opium (Sir Wm. Roberts), 129.
Anderson, A. P.—Grand Period of Growth in the Gourd, 110.
Andreæ, E.—Root Tubercles on Ailanthus, 535.
André, Dr.—Injection of Guaiacol for Local Anæsthesia, 471.
Andrographis Paniculata, The Histology of (H. G. Greenish), 413.
Ang-Khak, a Fungoid Pigment, 211.
Animal "Materia Medica," 86.
— Oils and the New Pharmacopœia—The Properties of "Oleum Anserinis" or Goose-Grease (L. Symes), 19, 98.
Annuitants, Benevolent Fund, Election of (Batt), 461.

Ant-Destroyer and Weed-Killer, Poisonous, The Sale of, 510, 530.
Annuitant, Death of an, on the Benevolent Fund, 503.
Anthracis, Liquor, in Diseases of the Skin (Fischel), 238, 239.
Anti-Adulteration Association (Registered), The, 504.
— -Cutting Agitation, Editorial Remarks on the, 523; ("Progress"), 552.
— -*Cutting Record*, 424; Editorial Remarks on the, 404; ("Professionalism"), 502.
— -Diphtheritic Serum, 49.
Antifebrine, Phenacetine, and Antipyrine, Distinctive Test for, 455.
Antimony and Arsenic, Poisoning by (Doremus), 262.
— and Tin in an Alloy, Separation and Determination of (Menglin), 417.
Antinonnin (Hary and Miller), 365; (Aubry), 365.
Antiphthisin, 323.
Antipyrine and Camphor in Croupous Pneumonia (Ivanov), 91.
— and Diphenols (Patein and Dufau), 366.
— Antifebrine and Phenacetine, Distinctive Test for, 455.
— in Infantile Diarrhœa (Saint-Phillipe), 175.
— in Pruritus (Arnstein), 343.
— Salol Mixture as Uterine Hæmostatic (Bralent), 71.
Antisepsis, Boric Acid (Oliviéro), 381.
Antiseptic Dressings, "Percentage" in, 406.
— Mercury Oxycyanide as an (Monod), 470.
Antitoxin, Diphtheria (Guérin and Macé), 178.
— Diphtheria, as a Culture Medium (Wright and Semple), 337.
— Snake Poison, The Discovery of, 525.
— Treatment of Hydrophobia, 259.
— Treatment of Diphtheria, The, 111.
Antivenene, Further Observations on (Fraser), 59.
Ants and Orchids (Hart), 454.
— The Relation of, to Plants (Weiss), 466.
Aperient Powder, 239.
Apocyanum Cannabinum, The Therapeutic Action of (Dobschewsky), 551.
Apolysine, a new Antipyretic, 363.
Apothecaries' Company, Freedom of the, 67.
— Society of, Editorial Remarks on the, 271.
Apothecary Shop, The Passing of the (Rosenham), 246.
Apotheker Verein of the Netherlands, 85.
— Verein, Swiss, Annual Meeting at Bern, 134.
Apothekers' Concessions in Germany, 172.
Appeal Cases, Edinburgh, Judgment in the, 396; Editorial Remarks on the, 379.
Appliances, Pharmaceutical, Novelties in, 440.
Apprenticeship in Pharmacy, The *Western Druggist* on, 317.
Apprentices, The Opportunities of ("Embryo"), 364.
Aqua Camphoræ and Aqua Chloroformi (Elborne), 109.
Arabic, Gum, Test for the Purity of, 322.
Arachis Meal in Diabetes (Stern), 391.
Arctowski, H.—Crystallised Bromine, 317.
Argentamine in Gonorrhœa (Albertazzi), 363.
Argon and Helium (Bouchard; Troost and Ouvrard), 261.
— as an Ideal Thermometric Substance (Quinan), 8.
— Award of the Barnard Medal to the Discoverers of, 65.
Argon, Award of the Hodgkin Prizes to the Discoverers of, 171.
— Award of the Lecomte Prize to the Discoverers of, 525.
— Separation of, by Means of Barium Compounds (Limb), 534.
— The Prevalence of (Troost and Bouchard), 550.
Argonin (Liebrecht), 365.
Aristol for Cracked Nipples, 91.
Arnstein—Antipyrine in Pruritus, 343.
Aromadendrin and Eudesmin (Maiden and Smith), 261.
Arsenic Administered in mistake for Milk of Sulphur (Hartland), 450.
— and Antimony, Poisoning by (Doremus), 262.
— Delicate Test for (Carnot), 74.
Arsenical Hydrogen in Tanning, 465.
Arsenium Iodide, The Dose of (Brown), 280.
Artocarpus Integrifolia, Dye from (Perkin and Cope), 299.
Asaprol in Chorea (Moncor), 363.
Ashton, C. S.—Mandrakes, 488.
— C. S.—Ol. Chillie, 364.
— C. S.—Zincol Lint, 492.
Aspergillus, Emulsin of (Bourquelot and Hérissey), 453.
Assimilation, Dependence of the Leaf on (Jost), 476.
Associations, Local, Federation of (J. Smith), 383.
Attfield, Professor—The Coming of Age of the School of Pharmacy Students' Association, 526.
Atmosphere, Investigating the Composition of the, in Paris, 360.
Aubry, Professor—Antinonnin, 365.

B.

Babington, Professor, Death of, 87.
— Professor, Herbarium of the late, 318.
Bacterial Cells, The Structure of (Wager), 263.
Bactericide, Pyroligneous acid as a (Goriansky), 72.
Badman, W. R.—Benevolent Fund, a Suggestion, 324.
Bailey, Dr. G. H.—The Volatilisation of Salts During Evaporation, 505.
Baillon, Professor, Death of, 89.
Balance, A New Form of (Phillips), 76.
Ballaud—Aluminium Utensils, 263.
Balsam of Peru, Note on, 198.
— of Peru with Oils, Dispensing of, 92.
Banana Flour, 518.
Bankruptcies in 1894, 191.
Barbey, G.—Colutic Acid, 261.
Barbery, G.—Cuscutin, 202.
Barbier, P., and Bouveault, L.—Essence of Linaloes, 177.
Barium Butyrate and the Determination of Butyric Acid (Willcox), 466.
— Thiosulphate for Standardising Iodine Solution (Plimpton and Chorley), 438.
Bark of Ailanthus Excelsa (Hooper), 345.
Barnouvin, H.—Action of Sulphuretted Hydrogen on Plants, 263.
Baths, Hot Sand, in Chronic Rheumatism (Grawitza), 71.
Battandier—Bucconine, 70.
Battery Cell, Novel Galvanic (Morisot), 179.
Bay Rum, Formula for, 174.
Bechterew—Adonis Vernalis and Codeine with Bromide in Epilepsy, 391.
Bee Culture in France, 201.
— -Stings and White Poppies, 363.
Bees, Ants, and Their Ways (Wishart), 489.
Beeswax and the Food and Drugs Act (Allen), 45.
— Is it a Drug? 45, 212.
— The Production of, in Chile, 237.
Beevor—Thyroid Extract in Universal Alopecia, 215.
Belfast, Milk Adulteration in, 213.
Belgian Method of Making Cerates, 51.
Belgium, Pharmacists and Medical Men in, 188.
Bell, Prof. A. Graham—Communication of Sound by Light Rays, 65.
Benevolent Fund Annuitants, Election of, (Butt), 461.
— Fund, a Suggestion (Badman), 324.
— Fund Election (Proctor), 481.
— Fund, Pharmaceutical, Editorial Remarks on the, 463.
— Fund, The Work of the, Editorial Remarks on, 503.
Benzoin, Siam, 264.
Benzo-Naphthol in Tropical Dysentery (Clark), 238.
Bergamot, Essence of, Adulteration of (Campolo), 442.
Berkshire, Flora of (Druce), 299.
Berlin Medical Supply Company, 342.
Bern, The Pharmaceutical Institute at, 221, 235.
Bernario—Citrophene, 238.
Bertrand, G. and Phisalix, C.—Calcium Hypochlorite in Snake-bite, 278.
— G., and Phisalix, C.—Snake Antitoxin, 535.
— G.—Laccase, 89, 178.
Bertram, G., and Mallèvre, A.—Pectase in Plants, 535.
Beta-Naphthol-Bismuth (Engel), 391.
Bevan, E. J.—Formalin as a Milk Preservative, 75.
Bicycle Tyre Cement, 51.
Bigelow and Hamilton — Digestibility of Bread containing Alum, etc., 465.
Bilberry Juice, Inspissated, in Eczema (Winternitz), 175.
Biology of the Flower, Research on the, 464.
Bird, F. C. J.—Acetic Extract of Ipecacuanha, 158.
— F. C. J.—The Recovery of Alcohol from Tincture Marcs, 157.
Bismuth Phosphate, Soluble, in Gastric Catarrh, 391.
Blackburn, Technical Education in ("One of the Class"), 344.
"Black-eye," The Treatment of, 211.
Blacking to be used without a Brush, Formula for, 412.
Blaud's Pills, Modified Formula (Ravá), 470.
Bleisch, Dr. M.—Preparation of Clear Nutritive Agar, 458.
Blenkiser, Dr.—Removal of Blood Stains, 405.
Blood, Determination of the Alkalinity of (Limbeck), 519.
— Stains, Removal of (Blenkiser), 405.
Blood, F.—Proposals for a Protective Duty 405.
Bca, P.—Eucalyptus Ointment, 539.
— Over-concentration in Pharmacy, 527.
Bocconine (Battandier), 70.
Boisse, De—The Active Principle of Dalmatian Insect Flowers, 367.
Bolivian Plants, New, 43.
Bolton Grocers' Association, 274.
— Pharmaceutical Association, 489.
Bondurant—Solanum Carolinense in Epilepsy, 51.
Bonnier, G.—Effect of Electric Light on Vegetation, 536.

Books, Preservation of, in the Tropics, 381.
Boole, Miss L. E., Dunstan, W. R., and—Croton Oil: "An Inquiry into the Nature of its Vesicating Constituent," 5.
Borax-Carmine as a Staining Fluid (Squire), 482.
— -Carmine Staining Solution, Improved (Radais), 347.
Bordeaux, Société de Pharmacie de, 208.
Boric Acid Antisepsis (Oliviéro), 381.
— Acid, Solubility of, 89.
Bosworth—Zinc Phosphide in Hay Fever, 215.
Botanic Garden, Chelsea, 371.
Botanical Notes, 59, 110.
— Specimens, To Preserve Colours in Drying, 155.
Botanist's Rambles in Northern Spain, A (Wardleworth), 428.
Bournemouth, Description of, 55.
— District, Natural History of the, 57.
— Pharmaceutical Association, 103.
Bouchard and Troost—The Prevalence of Argon, 550.
— C.—Argon and Helium, 261.
Bougies, Medicated Gelatin (Schröder), 537.
Bourquelot, E., and Hérissey, H.—Emulsin of Aspergillus, 453.
— E.—Volemite, 453.
Bowman, Dr. F. H.—Electrical Measurements, 331.
Bradley, A.—Prescription Difficulties and Ways Out of Them, 225.
Braithwaite, J. O.—Caterpillar Ophthalmia, 80.
— J. O.—Note on a Sample of Spurious Tolu Balsam, 145.
Bralent—Salol-Antipyrin Mixture as Uterine Hæmostatic, 71.
Bread Containing Alum, etc., Digestibility of (Bigelow and Hamilton), 465.
Breslauer, Dr.—The Antiseptic Value of Ointment Bases, 317.
Brewers' Yeast in Diabetes (Cassaët), 391.
Brewster—Puff Ball for Alveolar Hæmorrhage and Surgical Dental Cases, 91.
Brighton Association of Pharmacy (Annual Excursion), 212.
— Junior Association of Pharmacy (Inaugural Meeting), 340; 428, 488.
Brilliantine, Formula for, 174.
Bristol, Proposed Chemists', Assistants', and Apprentices' Association at ("Medicus"), 260.
British Association for the Advancement of Science:—
Annual Meeting at Ipswich, 230, 249.
Botanical Section, Editorial Remarks on the, 251.
Meeting Place for 1897, 274.
Presidential Address (Sir Douglas Galton), 230, 252, 267.
— Institute of Preventive Medicine, The, 168.
— Institute of Public Health at Hull, The, 151.
— Medical Association, Annual Meeting of the, 20, 43, 85, 129, 165.
Brodie—To Clean Rusty Instruments, 155.
Bromine, Crystallised (Arctowski), 317.
Brown, J. F.—A Dispensing Difficulty, 156.
— J. F.—Camphorated Oil, 432.
— J. F.—Compound Decoction of Aloes, 441.
— J. F.—The Dose of Iodide of Arsenium, 280.
— Professor Crum—Osmotic Pressure, 446.
Browne, F.—Chinese Opium, 493.
— Lennox—Diphtheria and its Associates, 6.
Brun, L. de—Preparation of Petroleum from Blubber, 155.
Brunotel—New Embedding Material for Vegetable Tissues, 146.
Brunton, Dr. Lauder—Hydroxylamine Hydrochlorate as a Substitute for Nitro-Glycerin and Amyl Nitrite, 343.
Brussels, Pharmaceutical Congress at, 193.
Buboes, Iodoform for (Bullier), 195.
Burkard and Seifert—Antiseptic Action of Saccharin, 178.
Burns, Antiseptic Treatment of, 551.
— Painful, Application for, 91.
— Picric Acid for, 278.
— Superficial, Ointment for, 91.
— Treatment of, 91.
Burton, W. K.—Sensitiveness of Picrated Gelatin, 533.
Bütschli, O.—Structure of Cellulose and Chitin, 462.
Butt, E. N.—Election of Benevolent Fund Annuitants, 461.
Butter and Margarine, The Relative Digestibility of (Jolles), 357.
— Emperor, 455.
— Rancid, To Sweeten, 412.
Butyric Acid, The Determination of, and Barium Butyrate (Willcox), 466.

C.

Cactine in Cardiac Hypertrophy (Campbell), 215.
Caffeine as a Base (Tanret), 261.
Cajeput Oil in Pneumonia (Foy), 391.
Calcium Bisulphite in Skin Diseases (Leistikow), 195.
— Borate in Infantile Diarrhœa, 91.
— Cyanate (Faure), 366.
— Hypochlorite in Snake Bite (Phisalix and Bertrand), 278.
— Oxalate in the Pericarp of Umbelliferæ (Wettstein), 514.
Calmette, A.—Antivenomous Serum, 111.
— A.—The Relative Toxicocity of Serpent Venoms, 198.
Calomel, Test for Mercuric Chloride in, 75.
Calumba, A Fluorescent Constituent of (Gunn), 495.
Cambridge Pharmaceutical Association (Annual Excursion), 212; (Annual Meeting), 384; 409, 468.
Camera, Choice of a Photographic, 304.
Cameron, J. M.—The Evolution of Pharmacy, 436.
Campbell—Cactine in Cardiac Hypertrophy, 215.
Camphene, The Oxidation of (Marsh and Gardner), 505.
Camphoræ, Aqua (Elborne), 109.
— Linimentum (Hyslop), 364; (Fearnley), 392; (Brown), 432.
Camphor and Antipyrine in Croupous Pneumonia (Ivanov), 91.
— Monobromated, Tubular Prismatic Crystals of (Kebler), 533.
— Subcutaneous Injections of (Schilling), 380.
— The Price of, 272.
Camphorated Oil (Hyslop), 364; (Fearnley), 392; (Brown), 432.
Campion and Ranwez—False Ipecacuanha, 76.
Campolo, Dr. I.—Adulteration of Essence of Bergamot, 442.
Camusat—Silicon and Aluminium in Plants, 536.
Canada and the Metric System, 20.
Cancer Cure, Chinese, 317.
— of the Uterus, Pencils for, 174.
Cancer, Serotherapy in (Héricour and Richet), 453.
Cane Sugar, Citric Acid from (Phipson), 211.
Cannabis Indica, Essential Oil of (Vignolo), 454.
— Indica, The Chemistry of, 519.
— Indicæ Herba (Gehe), 97.
Cantharidin in Cystitis (Trendenberg), 215.
Caoutchouc and Gutta-Percha, Structure and Arrangement of the Laticiferous Tubes in Plants Yielding (Chimani), 2.
Carbolic Acid, The Sale of, The *Daily Telegraph* on, 301.
— Collodion and Liniment for Pruritis, 155.
Carbonic Acid, The Amount of, in the Atmospheric and Ground Air of Edinburgh (Stewart), 548.
Cardol (Spiegel and Dobrin), 455.
Carnot, A.—Delicate Test for Arsenic, 74.
Caro—Synthetic Production of Alcohol, 73.
Carpentier—Detection of Paraffin in Olive Oil, 397.
Carr, F. H., Dunstan, W. R., and—New Aconine Derivatives, 453.
— F. H., Dunstan, W. R., and—Note on Piperovatine, 445.
— F. H., Dunstan, W. R., and—The Constitution of Pseudaconitine, 54.
Carré, Dr.—Cocaine Hydrochlorate in Pertussis, 27.
Carrez—Action of Resorcin on Albumin, 26.
— Resorcin as a Reagent for Albumin in Urine, 26.
Casein Emulsion as an Ointment Basis (Unna), 51.
Cashew Nut, Composition of the Oil in the Pericarp of the (Spiegel and Dobrin), 455.
Cassaët—Brewers' Yeast in Diabetes, 391.
Cassia Oil as a Medium in Microscopy (Piffard), 458.
— Oil, Solution of Iodine in, for Dental Work (Ames), 28.
Castner-Kellner Alkali Process, The (Hargreaves), 409.
Castoreum and Civet (Simmonds), 215.
Castor-Oil Emulsion, Extemporaneous, 279.
— -Oil in Peruvian Balsam, 392.
— -Oil Plant, Cultivation of the, in Georgia (Davenport), 545.
Caterpillar Ophthalmia (Braithwaite), 80.
Cats and Diphtheria (Williams), 144.
Cell-Theory, Objections to the, 544.
Cells, Bacterial, The Structure of (Wager), 263.
— Plant, Reagent for Mucilage in (Guiraud), 366.
Cellulose and Chitin, Structure of (Bütschli), 462.
— Fermentation of (Omelianski), 454.
— Notes on the Staining of (Love), 290.
— The Staining of (Love), 458.
Celtic Leechbook, A (Stokes), 420.
Cement for Bicycle Tyres, 51.
— for Filling Teeth (Siekel), 91.
Cerates, Belgian Method of Making, 51.
Cerenville—Olive Oil in Dry Pleurisy, 175.
"Challenger" Expedition, Report of the, 11.
— Expedition, *Natural Science* and the, 43.
Chapell—Local Application of Creosote in Laryngeal Tuberculosis, 51.
Chapped Hands, Remedy for, 323.
Charcoal, Animal, as a Pill Excipient (Eviclé), 288.
Chatellier—Iodol in Aural Eczema, 238.
Chattaway, Dr.—Derivatives of Hydrazine, 426.
Chelsea Botanic Garden, 371.

Chemical Analysis, Qualitative, Viewed in the Light of Recent Research (Muir), 468.
— Reactions, The Influence of Water on (Hughes), 309.
— Society, The, 426, 445, 466, 505, 546.
Chemists' Assistants' Association (Smoking Concert), 301; (Inaugural Address, Hill), 321; 341, 382, 408, 427; (Conversazione and Dance), 446; 467, 506.
Chemist's Life, The Miseries of a, 272.
Chemist? What is a, Editorial Remarks on, 379,
Chemist? What is a, 522.
"Chemist," Misuse of the Term, Editorial Remarks on the, 523.
Chemists and Druggists, Registration of, Editorial Remarks on the, 443.
— and Spurious Drugs, Editorial Remarks on, 523.
— Prescribing by, 169.
Chemistry, Modern, The Growth of, 395.
— of Confectionery, The, 505.
— The Relation of to Civilisation (Walker), 265.
Chilblains, Application for, 91, 174.
— Fellitin as a Preventive of (Tollner), 455.
Children, Trional as a Hypnotic for, 238.
Chile, The Production of Beeswax in, 237.
Chillie Oleum, 323; (Ashton), 364.
Chilret—Sodium Salicylate in Exophthalmic Goitre, 175.
Chimani, Dr. O.—Structure and Arrangement of the Laticiferous Tubes in Plants Yielding Gutta-Percha and Caoutchouc, 2.
China, Advertising in, 111.
— Foreign Medicines in, 188.
— Morphine and Opium in, 208.
Chinese Cancer Cure, 317.
— Opium (F. Browne), 493.
Chiretta, A False (Ward), 180, 197.
Chitin and Cellulose, Structure of (Bütschli), 462.
Chlorates, Test for (Denigès), 470.
Chlorides, Metallic, Action of Nitric Oxide upon (Thomas), 74.
Chloroform Administration, The Dangers of ("Observer"), 110.
— as a Tenicide, 195.
— Preservation of (Allain), 261.
Chloroformi, Aqua (Elborne), 109.
Chlorosalol, 279.
Cholera Germs, Influence of Soap upon (Jolles), 155.
— Methyl Violet in (Neufeld), 195.
Cholesterins of Cryptogams (Gérard) 533.
Chorley and Plimpton—Barium Thiosulphate for Standardising Iodine Solution, 438.
Church, Dr. W. S.—The Rise of Physiology in England, 358.
Cinchona, Glycerin Tincture of (Davis), 136, 145.
Cinnamic Acid in Tuberculosis (Landerer), 391.
Citric Acid from Cane Sugar (Searle and Tankard), 74; (Phipson), 211.
— Acid in Diphtheria (Laser), 215.
Citrophen, 75; Bernario), 238.
Civet and Castoreum (Simmonds), 215.
Civilisation, The Relation of Chemistry to (Walker), 265.
Clague, T. M.—A Whistill Alarm, 180.
Clark—Benzo-Naphthol in Tropical Dysentery, 238.
— the Late Sir Andrew, Memorial to, 406.
Clarke, J. Jackson—The Revision of the British Pharmacopœia, 79.
Classes, Pharmaceutical, Establishment of, at Exeter, 275.
Cleaner," "Lightning, Formula for, 236.
Cleaning Compound, Electric, Formula for, 430.
Clowes, Professor F.—The Composition of the Limiting Explosive Mixtures of Various Combustible Gases with Air, 466.
— Professor F.—The Evolution of Carbon Monoxide by Alkaline Pyrogallol Solution during Absorption of Oxygen, 466.
Coagulation and Peptone (Gley and Pachon), 263.
Coal-Tar Colours, The (P. Frankland), 428.
Coating, Air-Tight, for Corks, 279.
Cocaine Hydrochlorate in Pertussis (Carré), 27.
— is a Scheduled Poison ("Cocaine"), 116.
— the Dangers of (The *Lancet* on) 86; 116.
— Weak Solutions of, for Anæsthesia, 195.
Cocks, J.—Pharmacists and the General Election, 42.
— J.—Suggestions for the New British Pharmacopœia, 383.
Codeine with Adonis Vernalis and Bromide in Epilepsy (Bechterew), 391.
Cod-liver Oil Constants (Parry and Sage), 119.
— -liver Oil Emulsion Case, Decision in the (Edinburgh), 46.
Codwell—Spray Solution for Whooping Cough, 91.
Coelst, J.—Dispensing Creosote, etc., in Pills, 279.
Coffee Drinking, Effects of Excessive, 129.
— Drinking, Heroic, in Strangulated Hernia and Intestinal Occlusion (Guérin), 175.
— English Grown, 425.
— Purgative, 174.
Cole and Elkington—Medicine Stamp Act, 432.
Collie—Properties of Helium, 73.
Collodion, Ammoniacal, for Insect Bites, 238.
Collusion, Alleged, between a Chemist and a Medical Man (Sydenham), 409.
Colocynth Plant, Cultivation of the, 8.
Colouring Matters, Artificial, in Wine, Detection of (Rinzaud), 470.
— Matter of Cucurbita (Kristelli), 366.
Colour, Photography, 32; (Vallot), 445.
— Reactions, Stand for, 440.
Colours, Natural, Photography in (Vallot), 445.
Colutic Acid (Barbey), 261.
Combustible Gases, The Composition of the Limiting Explosive Mixtures of Various, with Air (Clowes), 466.
Commercial Notes, 215, 390.
Companies Act and Chemists, The *Sun* on the, 131.
— Acts, Proposed Amendment of the, Editorial Remarks on the, 128.
Company Law (Stevens), 429.
— Pharmacy in Dublin, 360.
Confectionery, The Chemistry of, 505.
Concession Question in Germany, The, 341.
CONFERENCE, BRITISH PHARMACEUTICAL:—
Arrangements for the Meeting at Bournemouth, 20.
Bell and Hills' Fund, Presentation of Books from the, 106.
Bournemouth, Description of, 55.
— District, The Natural History of the, 57.
— Pharmaceutical Association, 103.
Delegates, Reception of, 105.
Executive, Meeting of the, 131.
— Report of the, 105.
Financial Statement, The, 105.
CONFERENCE, BRITISH PHARMACEUTICAL—(continued).
Formulary Committee, Report of the, 106
— Committee, Appointment of the, 106.
Letters of Apology, Receipt of, 105.
Meeting at Bournemouth, 93, 99, 104.
— at Liverpool, Date of the, 525.
Officers, Election of, 107.
Papers Read at the Bournemouth Meeting (See under subjects and authors' names)
Place of Meeting for 1896, 107.
President's Address (N. H. Martin), 93.
Programme of the Bournemouth Meeting, 58.
Thanks, Votes of, 107.
Congress, National Pharmaceutical, at Marseilles, 213, 451, 469.
— Pharmaceutical, at Brussels, 193.
Conwentz, Professor—English Amber, 263.
Co-operative Medicine in Brussels, 84.
Copaiba, Gurgun Balsam in (Dodge and Olcott), 76; (Kebler), 177.
— Pills, A New Formula for, 279.
Cope, F., and Perkin, A. G.—Dye from Artocarpus integrifolia, 299.
Copperin Peas, The *British Medical Journal*, on, 169.
— Oxyphosphate in Dentistry (Ames), 216.
— Solution of, Fungus Growing in a (Trabut) 59.
— Test for, 542.
Corks, Air-tight Coating for, 279.
Cornwall and Somerset House Analyses, 429.
Coronillin (Schlagdenhauffen and Reeb), 178.
Corrections, 43, 72, 92, 111, 136, 196, 344, 412, 441, 472.
Correspondence, 17, 28, 41, 52, 60, 72, 79, 92, 109, 116, 126, 136, 156, 176, 189, 196, 216, 240, 260, 280, 304, 324, 334, 344, 349, 364, 392, 412, 432, 441, 452, 461, 481, 492, 502, 512, 532, 552.
Correspondents, Answers to, 28, 52, 72, 92, 116, 136, 156, 176, 216, 240, 260, 280, 304, 324, 344, 364, 392, 412, 432, 452, 472, 492, 512, 532, 552.
Coryza, Acute, Treatment of (Morain), 175.
— Uranium Acetate in (Sten), 195.
Cotarnine Hydrochlorate—Stypticine (Gottschalk), 471.
Council Meetings, Editorial Remarks on the, 9, 127, 293, 403, 483.
Country Town, Pharmaceutical Education in a (Vogt), 219; ("Æsop"), 260; ("A Blackburn Chemist's Apprentice"), 260; (Vogt), 280; (Gray), 304.
Cownley, A. J., Paul, B. H., and—Action of Heat upon Alkaloids of Ipecacuanha, 2.
Crégny—A Ready Method of Determining the Sugar in Urine, 89.
Crémol, Fer (Merck), 366.
Creosol in Bronchitis and Tuberculosis, 91.
Creosote and Quinine Hydrochlorate in Whooping Cough (Francke), 27.
— Dispensing of, 31.
— Dispensing of, in Pills (Coelst), 279.
— Emulsion for Rectal Injection (Surchet), 215.
— Injection in Intestinal Tuberculosis (Simon), 175.
— in Pills (Van Nerom), 216.
— Local Application of, in Laryngeal Tuberculosis (Chapell), 51.
— Syrup of, 173.
Creosotum—Creosote (Ince), 305.
Cripps, R. A.—Notes of a Research upon Ipecacuanha, 159.
— R. A.—Some Official Infusions and their Concentrated Representatives, 506.

Croker, Dr. R.—Salicin and Salicylates in the Treatment of Psoriasis and other Skin Affections, 51.
Croonian Lectures (Marcet), 184.
Cross, Alderman W. G., Dinner given by, to the Shrewsbury Corporation, 410.
Cross-Pollination (McLeod), 59.
Croton Oil: "An Inquiry into the Nature of its Vesicating Constituent" (Dunstan and Boole), 5.
Cryptogams, Cholesterins of (Gérard), 533.
Crystals, Large, Preparation of (Kebler), 533; (Melckebeke), 534.
— Tubular Prismatic (Kebler), 533.
Cullen—Rapid Staining of Fresh Tissues, 146.
Curcurbita, Colouring Matter of (Kristelli), 366.
— Fœtidissima (Sayre and Lang), 179.
Curriculum, A Pharmaceutical, wanted (St. Cyr), 52.
Currie, W. L.—Presidential Address to the Glasgow and West of Scotland Pharmaceutical Association, 407.
Curry Powder, Recipe for, 323.
Cuscutin (Barbery), 202.
Cusparia, Tincture of (Sawyer), 44; (Southall), 80.
Cuticularisation and Cutin (Wisselingh), 190.
Cutin, Cuticularisation and (Wisselingh), 190.
Cutting, Price-, Progress in, 464.
— Protection against, in France, 153, 214, 238.
— Undue, in the Retail Trade (E. J. Smith), 447.
Cyr, E. L. N. St.—Wanted, A Pharmaceutical Curriculum, 52.
Cystisis, Pills for, 174.
Cytisine and Anagyrine, Localisation of (Guérin), 535.
— from Pilocarpine (Moer), 208.

D.

Daiber—Determination of Globulin in Urine, 73.
Dalmatian Insect Flowers; The Active Principle of (De Boisse), 367.
Daremberg—Potency of Alcoholic Beverages, 360.
Dark-Room, Protecting, from Fire, 216.
D'Arsonval, Professor—Ozone not a Microbicide, 49.
Dastre, A., and Floresco, N.—Liquefaction of Gelatin, 454.
— A.—Soluble Ferments and Alcohol, 535.
Dates as a Source of Alcohol (Lebny), 191.
Davenport, D. F.—Cultivation of the Castor Oil Plant in Georgia, 545.
Davis, F.—Glycerin Tincture of Cinchona, 136, 145.
— R. G.—Analysis of Ginger, 472.
Dawkins, Professor W. B.—A Forest Primeval, 485.
Decoction of Aloes, Compound (Brown), 441.
Decoctions and Infusions (Martindale), 415; (Hallaway), 462, 464.
Delphinium Zalil, 191.
Denigès, G.—New Tests for Nitrites, 365.
— G.—Potassium Chromate as a Milk Preservative, 262.
— G.—Test for Chlorates, 470.
Dental Association, British (West of England Branch): Annual Meeting (Barnstaple), 150.
Dentifrice, Antiseptic, 174.
Dentifrices, Liquid, 51, 174.
Depilatory Liquid, 174.
— Soap, 174.
Dewar, Professor — The Preparation of Liquid Air, 483, 546.
— Professor W.—The Liquefaction of Gases, 546.
Diabetes, Treatment of (Worms), 133.
Diamonds, Ingenious Optical Instrument for Testing, 465.
Diarrhœa Infantile, Antipyrine in (Saint-Phillipe), 175.
— Infantile, Biniodide of Mercury in (Luff), 215.
— Summer, among Children in Scotland.
— The Relation of the Soil to the Incidence of (Hunter), 548.
Diastase, Chemical Nature of (Osborne), 177.
— in Foliage Leaves (Green), 263.
Digestibility, The Relative, of Margarine and Butter (Jolles), 357.
Digitalin, The Preparation of (Kiliani), 29.
Digitalis and Digitalin (Franck), 49.
— the Active Principle of, Editorial Note on, 37.
β-Digitoxin (Kiliani), 120.
Diphenols and Antipyrine (Patein and Dufau), 366.
Diphtheria and Cats (Williams), 144.
— and its Associates (Lennox Browne), 6.
— and Speaking Tubes, 191.
— Antitoxin (Guérin and Macé), 178.
— Inoculation, Accidental, 19.
Disbrow, W. S.—Utility of Pharmacognosy to the Student of Pharmacy, 202.
Disease, Modern Tendencies in the Treatment of (Parsons), 549.
— The Battle Against: Diphtheria and its Associates (Lennox Browne), 6.
Disinfecting Apparatus, A New (Thresh), 357.
Disinfection of Cesspools (Vincent), 155.
— The Art of, 149.
Dispensers and Prescribers, Discussion on, at Edinburgh, 486.
— in Prisons' Service (A Prison's Compounder), 60.
— Public (Poor Law Dispenser), 42, 110.
Dispensing by Medical Men, 28.
— by Unqualified Persons in Unions, 425.
— Difficulty, A (J. F. Brown), 156.
— for the Poor in Scotland, Editorial Remarks on, 11.
— Medicine, Accuracy in, Editorial Remarks on, 315.
Dispensing Notes, 382, 449; (Dunlop), 547; (Robb), 547; (McKellar), 547; (Watson), 547; (Mackenzie), 547.
— Difficulties, 136, 156, 363.
— of Peruvian Balsam with Oils, 92.
— Queries (Duncan), 528.
Ditte, A.—Gold Sulphide, 79.
Dobrin and Spiegel—Cardol, 455.
Dobschewsky—The Therapeutic Action of Apocyanum Cannabinum, 551.
Doctors and Pharmacists, Responsibility of, 133.
Dodge and Olcott — Gurgun Balsam in Copaiba, 76.
Dohme, A. R. L.—Aconitines of the Market, 255.
— A.R.L.—Alkaloidal Value of Ipecacuanha Stems, 255.
— A. R. L. and Engelhardt, H.—Hydrastis Canadensis, 366.
Donations to the Museum, Recent (Holmes), 501.
Doremus, C. A.—Poisoning by Antimony and Arsenic, 262.
Dott, D. B.—Notes Relating to the Pharmacopœia, 495.
Dott, D. B.— Oil of Eucalyptus, 497.
— D. B.—Morphine and Morphine Hydrochloride, 496.
— D. B.—Opium, 497.
Dover, New School of Art at, 320.
Dressing for Wounds, Japanese, 318.
Dressings, Antiseptic, "Percentage" in, 382, 406.
— Sterilised Surgical, A Record of Experience (White), 138.
Drimys Granatensis, Chemical Examination of the Bark and Leaves of (Hesse), 53.
— Granatensis, Note on the Bark and Leaves of (Holmes), 54.
Druce, G. C.—Flora of Berkshire, 299.
— G. C., Appointment of, as Curator of the Fielding Herbarium at Oxford, 504.
Drug Business, Tricks in the, 208.
Drugging of Children (Edinburgh), 46.
Druggists in Germany, 342.
Drugs, Indigenous, The Use of, in India, 460, 464.
— Spurious, and Chemists, Editorial Remarks on, 523.
— The Use of (Gowers), 515.
Dublin University Biological Society, 549.
Duclaux, E.—Objections to the Use of Sterilised Milk, 445.
— E., Appointment of, as Director of the Pasteur Institute, 360.
Dufau, E., and Patein, G.—Antipyrine and Diphenols, 366.
Dumfries and Maxwelltown Junior Chemists' Assembly, 491.
Duncan, W.—Dispensing Queries, 528.
— W.—Gastrolobium Bilobum: the Poison weed of Western Australia, 527.
— W.—Note on a sample of Victorian Opium, 527.
Dunstan, Professor W. R.—Research on Podophyllum Emodi, 505.
— W. R., and Boole, L. E.—Croton Oil: "An Inquiry into the Nature of Its Vesicating Constituent," 5.
— W. R., and Carr, F. H.—New Aconine Derivatives, 453.
— W. R., and Carr, F. H.—Note on Piperovatine, 445.
— W. R., and Carr, F. H.—The Constitution of Pseudaconitine, 54.
Dutch East Indies, Useful Plants of the (Greshoff), 536.
Duty, Protective, Proposals for a (Blood) 405.
Duyk—Preparation of Fluid Extracts, 279.
Dye from Artocarpus Integrifolia (Perkin and Cope), 299.
Dyer, E. H.—Preparation of Tinct. Iodi, 412.
— W. T. Thiselton—Presidential Address to the Botanical Section of the British Association, 250.
Dysentery, Ipecacuanha in, 175.

E.

Easton's Syrup ("Vinsyr"), 109.
Eau Aromatique, 174.
Eczema, Chronic, Papain Ointment for, 175.
— Dry, Compound Resorcin Ointment in, 91.
— Inspissated Bilberry Juice in (Winternitz), 175.
Edinburgh Appeal Cases, Judgment in the, 396.
— Chemists', Assistants', and Apprentices' Association, 24, 68, 87, 447, 527.
— Chemists' Ball, 525.
— District Chemists' Trade Association, 19, 486.

Edinburgh Merchants and the Recent Pharmacy Prosecutions, 451.
— Pharmacy Athletic Club, 47, 87, 213, 257, 491.
— University Chemical Society, 446.
Education, The Value of a Good General (Simpson), 225.
— and Examination in Experimental Science (Gibson), 473.
— Commercial, London Chamber of Commerce Examinations in Connection with, 21.
— in Practical Pharmacy (Taylor), 217.
— Pharmaceutical (Haussmann), 220; (Kirkby), 439.
— Pharmaceutical, in a Country Town (Vogt), 219; ("Æsop"), 260; ("A Blackburn Chemist's Apprentice"), 260; (Vogt), 280; (Gray), 304.
— Technical, The *Daily Telegraph* on, 336.
— Technical, in Blackburn ("One of the Class"), 344.
Effront—Amylase, 16.
Elborne, W.—Aqua Camphoræ and Aqua Chloroformi, 109.
— W.—The Volumetric Solutions of the British Pharmacopœia, 164.
— W. — The Weights and Measures of the British Pharmacopœia *versus* the Metric System, 183, 203.
Electrical Energy, The Commercial Application of (Snell), 408.
Electricity, Accidents Caused by, 259.
— on Plants, Effect of (Aloi), 536.
Electric Light on Vegetation, Effect of (Bonnier), 536.
Electrical Measurements (Bowman), 331.
Elford—Cultivation of Lemons in Sicily, 10.
Embedding Material, New, for Vegetable Tissues (Brunotel), 146.
Emmenagogue Pills, Menar's, 174.
Emperor Butter, 455.
Employers and Workmen Act, Proceedings under the (Brigg), 131.
Emulsifying Agent, Irish Moss as an, (Walker), 408.
Emulsin of Aspergillus (Bourquelot and Hérissey), 453.
Emulsion, Castor-Oil, Extemporaneous, 279.
Emulsions, Petroleum, 72.
Engel—Beta-Naphthol-Bismuth, 391.
Engelhardt, H., and Dohme, A.R.L.—Hydrastis Canadensis, 366.
Erasure from the Register, List of Names of Pharmaceutical Chemists and Chemists and Druggists liable to, 424.
Ergot, A New Variety of (J. C. Umney), 536, 546.
— Fluid Extract of, Preparation of the, with Sodium Chloride, 58.
Erysipelas, Ichthyol Traumaticin in (Jubel-Rénog), 195.
Essence of Bergamot, Adulteration of (Campolo), 442.
"Essence," The Application of the Term (Hallaway), 464.
Ethical Aspects of the Pharmacy of To-day, Discussion on the, at Edinburgh, 486.
Eucalyptus in Measles (Oikonomos), 551.
— Ointment (Boa), 539.
Eudesmin and Aromadendrin (J. H. Maiden and H. G. Smith), 261.
Eudoxin, 75,
Europhen in Leprosy (Goldschmidt), 215.
Evaporation, The Volatilisation of Salts During (Bailey), 505.
Eviclé—Animal Charcoal as a Pill Excipient, 288.
Examination and Education in Experimental Science (Gibson), 473.
— The Major (Michell), 196.
Examinations in Connection with Commercial Education, 21.
— the Improvement of, Editorial remarks on, 335.
Examiners harmaceutical, in Ireland, Appointment of, 491.
Exeter Chemists' Association, 508.
— Pharmaceutical Classes at, 170, 275.
— The President of the Pharmaceutical Society at, 357.
Exhibition of Medicinal and Useful Plants at the Hague, 26, 70, 88, 113.
Expedition, the "Challenger," Report of, 11.
Extract of Grindelia Robusta, Non-resinous, 323.
Extracts, Fluid, An Examination of (Hau s mann), 243.
— Fluid, Preparation of (Duyk), 279.
Eye, the Human, Spectacles and their Relation to (Ivatt), 409.

F.

Factory-Girl or Pharmacist ("Pharmakos"), 441; ("Amused"), 461; ("Agnoskos"), 461; ("Pharmakos"), 481; ("Traveller"), 512; (F.C.S., M.P.S.), 512; ("Amused"), 552; ("Agnoskos"), 552.
Farr, E. H., aud Wright, R.—The Tinctures of the British Pharmacopœia, 180.
Fat and Albuminoids in Milk, Determination of (Van Hamel-Roos), 472.
— in Milk, The Standard of, 425.
Faure, C.—Calcium Cyanate, 366.
Favus, Ointment for Treatment of (Pirogoss), 214.
Fearnley, F.—Linimentum Camphoræ, 392.
Federation of Local Pharmaceutical Associations, 43, 86; (Smith), 383; (Discussion at Liverpool), 408; (Discussion at Edinburgh), 486.
— of Local Associations, Work and Policy of the (Symes), 467.
Fellitin (Tollner), 455.
Fer Crémol (Merck), 366.
Féré, Dr. Ch.—Borax as a Poison, 317.
Ferri, Pil. (Blaud), Improved Formula for (Ravá), 470.
Fermentation of Cellulose (Omelianski), 454.
Ferments, Soluble, and Alcohol (Dastre), 535.
Ferro-Prussiate Paper, 402.
Feulard—Naphthol in Itch, 343.
Fienga, Dr.—Paste for Acute Rheumatism, 91.
Filters, Tree Trunks as (Pfister), 65.
Fireproof Tree, A (Thomson), 316.
— Protecting Dark-Room from, 216.
Fir, Scotch, Oil of (Pinus sylvestris), and other Pine Oils (J. C. Umney), 161.
Firth College, Proposed Affiliation of, 67.
Fischel—Liquor Anthracis in Diseases of the Skin, 238, 239.
Fischer, E.—Amygdonitril Glucoside, 73.
— E.—Volemose, 453.
Fisher, Dr.—The Danger of Nicotine Fumigations, 356.
Fixing Dish, Home-made, 343.
Flames, The Temperature of, and the Acetylene Theory of Luminosity (Smithells), 426.
Flora of Berkshire (Druce), 299.
Floresco, N., and Dastre—Liquefaction of Gelatin, 454.
Flour, Banana, 518.
Flower, Research on the Biology of the, 464.
Fluorescent Constituent of Calumba, A (Gunn), 495.
Food and Drugs Act, Sale of, Appointment under the (Thurso), 131.
— and Drugs Act, Proceedings under the Sale of (Spirit of Nitrous Ether), 21; (Tincture of Rhubarb), 21; (Ground Ginger), 24; (White Wine Vinegar), 44; (Ground Ginger), 46; (Olive Oil), 86; (White Wine Vinegar), 112; (Tincture of Rhubarb), 171; (Seidlitz Powder), 171; (Rhubarb), 192; (Beeswax), 212; (Tincture of Rhubarb), 276; (Spirit of Nitre), 319; (Condensed Milk), 337; (Spirit of Nitre), 340; (Tincture of Rhubarb), 340; (Spirit of Nitre), 359; (Quinine Wine), 385; (Liquorice Powder), 385; (Beeswax), 385; (Tincture of Iodine), 385; (Tincture of Senna), 409; (Salicylic Acid in Orange Wine), 411; (Mercurial Ointment), 429; (Cinnamon), 430; (Spirit of Nitrous Ether, 451; (Quinine Wine), 490; (Tincture of Aloes), 528; (Tincture of Iodine), 528; (Linseed Meal), 529.
— and Drugs Act, Sale of, Glamorgan Analyst's Report on the, 278.
— and Drugs Act, Sale of, The Select Committee on the, 66.
— and Drugs, The Adulteration of, 235.
Foods, Prepared, and their Effects, 490.
Forcrand—Sodium Acetylide, 31.
Forest Primeval, A (Dawkins), 485.
Formalin as a Milk Preservative (Bevan), 75.
— as a Preservative (Hornell), 536.
— Technical Uses of, 111.
Formic Aldehyde in Consumption (Ghirelli), 214.
Formulæ and Preparations of the British Pharmacopœia, Short Notes on the (Ointments), 417, 434, 456; (Liniments), 514.
— for Artificial Serum, 92.
— Useful, 90, 174, 194.
Forret, J. A.—A Convenient Arrangement for Continuous Percolation, 538.
— J. A.—Simple Calculations for Analysis of Certain Mixtures, 538.
Foster, F.—Compressed Tablet Machines, 452.
Foy—Cajeput Oil in Pneumonia, 391.
France, Alcohol Consumption in, 213, 444.
— Bee Culture in, 201.
— Campaign Against Cutting-Prices in, 214.
— Consumption of Alcohol in, 213, 444.
— Cutting-Prices in, 214, 238.
Franck, F.—Digitalis and Digitalin, 49.
Francke, Dr.—Creosote and Quinine Hydrochlorate in Whooping Cough, 27.
François—Action of Alcohol on Mercurous Iodide, 534.
Fränkel, Dr. S.—The Active Principle of the Thyroid Gland, 525.
Frankland, Professor Percy—The Coal Tar Colours, 428.
Fraser, Professor T. R.—Further Observations on Antivenene, 59.
— Professor T. R., and Tillie, J.—Acokanthera Schimperi, 76, 111.
French Chemists' Assistants' Association (Annual Meeting), 549.
Friendly Words, Some (Maben), 17.
Fruit Preserved in Alcohol Vapour (Petit), 504.
— Growing, The Use of Potash in (Britton), 154.
Fumigations, Nicotine, The Danger of (Fisher), 356.
Fungi and Algæ of Drinking Water (Istvanffi), 59.

Fungus Growing in a Solution of Copper (Trabut), 59.
Furunculosis, Local Treatment of (Neuberger), 27.

G.

Galactogogue, Galega as a (Griniewitch), 195.
— Stinging Nettle as a (Griniewitch), 195.
Galega as a Galactogogue (Griniewitch), 195.
Galezowski—Mercury Phenate in Ophthalmic cases, 391.
Gallicin in Ophthalmic Practice, 175.
Gall, Floral Cluster, on Achillea Ptarmica, 92.
Galls, Development of (Küstenmacher), 536.
Galton, Sir Douglas—Presidential Address to the British Association, 230, 252, 267.
Galvanic Cell, Novel (Morisot), 179.
Garden, A Medicine, 112.
— Scholarships, 525.
Gardner, J. A., and Marsh, J. E.—On the Oxidation of Camphene, 505.
Gas Cylinders, Carriage of, 20.
Gases, Occlusion of (Mond, Ramsay, and Shields), 73.
— The Liquefaction of (Dewar), 546.
— Various, Combustible, The Composition of the Limiting Explosive Mixtures of, with Air (Clowes), 466.
Gastrolobium Bilobum: The Poison Weed of Western Australia (Duncan), 527.
Gauze, Antiseptic (Roberts). 382.
— Iodoform (Van Nerom), 392; (Prior), 472.
Gawalowski—Lead Ointment without Fat, 455.
Gehe—Herba Cannabis Indicæ, 97.
Gelatin Bougies, Medicated (Schröder), 537.
— Liquefaction of (Dastre and Floresco), 454.
— Picrated, Sensitiveness of (Burton), 533.
Gelatino-Chloride Paper, Tones on, 323.
General Medical Council, The, 463.
Gérard, E.—Cholesterins of Cryptogams, 533.
German, Lessons in, The *Daily Telegraph* on, 315.
Germany, Druggists in, 342.
— Promotion of Scientific Work in, 318.
Germicide, Ammonia as a (Rigler), 26.
Gibson, Professor J.—Education and Examination in Experimental Science, 473.
— Professor R. G. H.—Some Old-Time Herb Gardens, 508.
Ginger, Analysis of (R. G. Davis), 472.
— Beer, Preservation of, 239.
Girard—Parachlorphenol as an Antiseptic, 551.
Glasgow and West of Scotland Pharmaceutical Association, 257, 276, 360; (Presidential Address, Currie), 407; (Annual Conversazione), 446; 547.
Gley, E., and Pachon, V.—Peptone and Coagulation, 263.
Globulin in Urine, Determination of (Daiber), 73.
Glove Cleaner, 255.
Glucinium Carbide (Moissan), 342.
Gluzinski—Physiological Extract of Suprarenal Capsules, 91.
Glycerin and Cucumber, 116.
— and Cucumber, Green Colour for, 343.
— of Iodo-tannic acid, 392.
— Ovules and Suppositories (Lomuller), 182.
— The Presence of Trimethylene Glycol in (Noyes and Watkins), 534.
Glycero-phosphates, The Administration of (Robin), 71.
Glycol, Trimethylene, The Presence of, in Glycerin (Noyes and Watkins), 534.
Goebbel — Lead Chloride-Pyridine-Hydrochloride, and Derivatives, 126.
Gold Beaters' Skin, 196.
— Substitute, A New, 381.
— Sulphide (Ditte), 79.
Goldschmidt—Europhen in Leprosy, 215.
Goodman—Phytolacca Decandra in Epithelioma. 343.
Gool, R. Van—Magnesium Salicylate, 178.
Goose-Grease, "Oleum Anserinis," The Properties of (L. Symes), 98.
Goriansky—Pyroligneous Acid as a Bactericide, 72.
Gottschalk—Cotarnine Hydrochlorate (Stypticine), 471.
Gourd, Grand Period of Growth in the (Anderson), 110.
Gourfein, D.—Extract of the Suprarenal Capsules, 179.
Gowen, A.—Draft Pharmacy Bill, 364.
Gowers, Dr. W. R.—The Use of Drugs, 515.
Grannat—Medicated Saccharin Granules, 116.
Granules, Medicated Saccharin (Grannat), 116.
Grawitza—Hot Sand Baths in Chronic Rheumatism, 71.
Gray, P. B.—Pharmaceutical Education in a Country Town, 304.
Green, Professor J. R.—Diastase in Foliage Leaves, 263.
Greenish, Professor H. G.—The Histology of Andrographis Paniculata, 413.
— H. G.—The Quality of Commercial Powder of Ipecacuanha, 137.
Gréhant, N.—Relative Poisonous Power of Acetylene, 386, 453.
Greshoff, Dr.—Useful Plants of the Dutch East Indies, 536.
Grimbert, L.—Action of Friedländer's Pneumococcus on Sugars, 533.
Grindelia Robusta, Non-Resinous Extract of, 323.
Grocers and the Sale of Poisons, 319.
— the Sale of Poisons by, The *Dundee Advertiser* on, 384.
Guaiacol as a Local Anæsthetic (Lucas-Championnière), 134.
— Injection of, for Local Anæsthesia (André), 471.
— in Orchitis (Pucci), 471.
— in Typhoid Fever (Hull), 363.
— New Uses of, 168.
Guérin and Macé—Diphtheria Antitoxin, 178.
— Heroic Coffee Drinking, in Strangulated Hernia and Intestinal Occlusion, 175.
— M. P.—Localisation of Anagyrine and Cytisine, 535.
Guerrero—The Snow Flower, 322.
Guignard, M. L.—Presence of Emulsin in Manihot, 110.
Guiraud—Reagent for Mucilage in Plant Cells, 366.
Güladzë—Thyroid Feeding in Syphilis, 471.
Gum, Formation of (Lutz), 179.
Gummosis in Acacia (Lutz), 536.
Gunn, A.—A Fluorescent Constituent of Calumba, 495.
Gurgun Balsam in Copaiba (Dodge and Olcott), 76; (Kebler), 177.
Gurjun Balsam in Leprosy (Von Reisnen), 27.
Gutta-Percha and Caoutchouc, Structure and Arrangement of the Laticiferous Tubes in Plants Yielding (Chimani), 2.
Gutta-Percha, Bleaching, 28.
— -Percha, from Leaves, 170.
— -Percha, Substitute for, 51.
Guttmann—Trional as a Soporific, 27.

H.

Hæmorrhoids, Paint for, 174.
— Tar for (Lacruz), 195.
Hair-Dye, Brown, 194.
— Wash for the Nursery, 51.
Halifax and District Chemists' Association, 446.
Hallaway, J.—Infusions and Decoctions, 462.
— J.—The Application of the Term "Essence," 464.
Halberg, C. S. N.—The Teaching of Pharmacy in North America, 60.
Halliburton, W. D.—Peptone, 199.
Halogens, Action of the, upon Methyl Alcohol (Schützenberger), 74.
— Detection of (Raikow), 472.
Hamel-Roos, Van—Determination of Fat and Albuminoids in Milk, 472.
Hanbury Medal, Award of the, to Dr. August Vogl, 62, 64.
— Medal, Presentation of the, to Dr. August Vogl, 272, 286.
— Medallists, The, 289.
Hargreaves, J.—The Castner-Kellner Alkali Process, 409.
— and Bird—A New System of Electrolytic Alkali Manufacture, 485.
Harris, J. G.—Vin. Ferrugineux Amère, 344.
— J. G.—Thought Photography, 482.
Harrison, J.—Pharmaceutical Politics, 427.
Hart, J. H.—Ants and Orchids, 454.
Hary, C. O., and Miller, W. von.—Antionnin, 365.
Haussmann, F. W.—An Examination of Commercial Fluid Extracts, 243.
— F. W.—Pharmaceutical Education, 220.
Headache Liniment, 174.
Helium and Argon (Bouchard, Troost, and Ouvrard), 261.
— The Liquefying Point of (Olszewski), 317.
— The Properties of (Ramsay, Collie, and Travers), 73.
Hemp, Indian, The Chemistry of, 519.
Henbane Seed, Biennial, 484.
Hennig—Salophen for the Nerve-Symptoms of Influenza, 343.
Herb Gardens, Some Old-time (R. J. H. Gibson), 508.
Héricourt, J., and Richet, C.—Serotherapy in Cancer, 453.
Hérissey, H., and Bourquelot, E.—Emulsin of Aspergillus, 453.
Herselin and Rietsch—Alcoholic Fermentation, 262.
Hesse, Dr. O.—Chemical Examination of the Bark and Leaves of Drimys Granatensis, L., 53.
— Dr. O.—The Chemistry of Rhubarb, 325.
Hiffter, A.—The Physiological Action of Safrol, 342.
Hinde, A. H.—Pharmacy as a Profession, 532.
Hodgkins' Prize, Award of the, to Lord Rayleigh and Professor Ramsay, 429.
Holmes, E. M., Biography of, 170.
— E. M.—Kuro-moji Oil, 501.
— E. M.—Note on a New Variety of Jaborandi, 501.
— E. M.—Note on False White Horehound, 501.
— E. M.—Note on the Bark and Leaves of Drimys Granatensis, L., 54.

Holmes, E. M.—Oil of Tansy, 501.
— E. M.—Recent Donations to the Museum, 501.
— E. M.—Tea Seed Cake, Note on, 501.
— E. M.—The Jaborandi Leaves of Commerce, 484, 501, 520, 539.
Homocea Trade Marks, 432.
Homœopathic Medicines, Poisonous, Sale of, 92.
— Practitioners, British (Annual Congress at Leeds), 274.
Hooper, D.—The Alkaloid of Adhatoda Vasica, 356.
— D.— Bark of Ailanthus Excelsa, 345.
Horehound, False White, Note on (Holmes), 501.
Hornell, J.—Formalin as a Preservative, 536.
Horse Chestnuts to Prevent "Roaring" in Horses, 154.
Horticultural Conditions in Central Africa, 169.
Hour, Proposed New Sub-divisions of the, (de Sawanton), 255.
Howie, W. L.—"The Scottish Alps," 360.
Huchard—Theobromine as a Diuretic and Tonic, 391.
Hughes, R. E.—The Influence of water on Chemical Reactions, 309.
Hull—Guaiacol in Typhoid Fever, 363.
Hungary, Women Pharmacists in, 111.
Hunsberger—Aconitine in Neuralgia, 391.
Huxley, Professor, Sketch of the Life of the Late, 9, 27.
— The Late Professor, Memorial to, 43, 66, 85.
Hybridisation without Crossing (Millardet), 481.
Hydrargyri Unguentum? What is, 429.
Hydrastis Canadensis (Dohme and Engelhardt), 366.
Hydrazine, Derivatives of (Chattaway), 426.
Hydrophobia, The Antitoxin Treatment of, 259.
Hydroxylamine Hydrochlorate as a Substitute for Nitro-Glycerin and Amyl Nitrite (Lauder Brunton), 343.
Hygiene Exposition, International, in Paris, 26.
Hypophos. Co., Syrup, B.P.C. (Naylor), 143.
Hypophosphites and Phosphates used in Medicine, 513.
Hyslop, J. C.—Camphorated Oil, 364.
— J. C.—Inaugural Address to the Western Chemists' Association of London, 549.
— J. C.—The Revision of the Pharmacopœia, 156.

I.

Ice, Contaminated, 153.
Ichthyol, Ammonium, Sulphonate, A Reaction of (H. Wyatt, Jun.), 508.
— Applications for Burns (Leistikow), 455.
— for Cold in the Head, 239.
— in Pulmonary Tuberculosis (Scarpa), 51.
— in Urticaria (Lauz), 471.
— To Disguise the Odour of, 391.
— Traumaticin in Erysipelas (Jubel-Rénog), 195.
Illinois, New Pharmacy Law for, Editorial Remarks on the, 147.
— Pharmacy Law, 70.
Impey, Dr. W.—Leprosy and its Cure, 357.
Import Duties in the Dutch East Indies, 385.
Ince, J.—Creosotum—Creosote, 305.
Incompatibility, An (W. G. Smith), 98.
Indian Hemp, The Chemistry of, 519.
— Opium (Watt), 207.
India, Poisoning in, Editorial Comment on, 64.
— The Use of Indigenous Drugs in, 460, 464.
Indiarubber, African (De Wevre), 179.
Indigenous Drugs, The Use of, in India, 460, 464.
Influenza, Salophen for the Nerve-Symptoms of (Hennig), 343.
Infusions and Decoctions (Martindale), 415; (Hallaway), 462, 464.
— Concentrated (Proctor), 502.
— Some Official, and their Concentrated Representatives (Cripps), 506.
— The Value of ("A. R. M."), 552.
Inland Revenue Act, Proceedings under the (Leicester), 340.
— Revenue Expenditure, 191.
Inoculation, Accidental, with Diphtheria, 19.
Insect Bites, Ammoniacal Collodion for, 238.
— Flowers, Dalmatian, The Active Principle of (De Boisse), 367.
— Stings, Lotion to Prevent, 174.
Institute, British, of Preventive Medicine, The, 168.
— of Chemistry, Pass List, 86.
Internal Secretions, Editorial Remarks on, 187.
International Catalogue Committee, The, and the Royal Society, 129.
Introductory, 1.
Investigation of Toxic and Medicinal Plants, Editorial Remarks on the, 83.
Iodi, Tinct., Preparation of (Dyer), 412; ("Pharmacist"), 432.
Iodic Acid as a Hæmostatic, 343.
— Acid, Pharmacy of, 155.
Iodide of Potassium, Method of Exhibiting, to Avoid Iodism, 175.
Iodine Solution, Barium Thiosulphate for Standardising (Plimpton and Chorley), 438.
— Solution of, in Cassia Oil, in Dental Work (Ames), 28.
— Tincture of (Popiel), 74.
— Tincture of, in Maladies of the Nose and Pharynx (Wroblewski), 51.
Iodised Cotton (Soulard), 264.
Iodoform, A Deodorant of, 465.
— for Buboes (Bullier), 195.
— Gauze (Van Nerom), 392; (Prior), 472.
Iodoformin (Marquardt), 455.
Iodol in Aural Eczema (Chatellier), 238.
Iodophenosuccine, Phenosuccinic Acid, and Phenosuccine in Tuberculosis, 551.
Iodo-Tannic Acid, Glycerin of, 392.
Ipecacuanha, Acetic Extract of (Bird), 158.
— Alkaloids of, Action of Heat upon the (Paul and Cownley), 2.
— Alkaloids, The Pharmacology of the (Wild), 405, 435.
— False (Ranwez and Campion), 76.
— in Dysentery, 175.
— Notes of a Research upon (Cripps), 159.
— Stems, Alkaloidal Value of (Dohme), 255.
— The Quality of Commercial Powder of (Greenish), 137.
— Wine ("Vinsyr"), 109.
Ipoh Poison (Stapf), 177.
Ireland, Appointment of Pharmaceutical Examiners in, 491.
— Pharmaceutical Chemists' and Apothecaries' Assistants' Association of, 153, 172, 277.
— Pharmaceutical Society of, 48, 237, 259, 321, 322, 341, 430.
Irish Moss as an Emulsifying Agent, (Walker), 408.
— Pharmaceutical Register, Attempted Erasure from the, 410, 411.
Irish Pharmacy Act, Proceedings under the (Dublin), 25; (Roscommon), 25; (Dublin), 47, 132; (Dungannon), 132; (Rathfriland), 237; (Lisburn), 237, 258; (Belfast), 301, 431.
Iris Water Bath, 440.
Iron Perchloride in Solution, Effect of Light upon (Roeser), 313.
Isle of Man, Pharmaceutical Legislation for the, 358.
Istvanffi, G. V.—Algæ and Fungi of Drinking Water, 59.
Italy, The Sale of Quinine in, 525.
Ivanov—Camphor and Antipyrine in Croupous Pneumonia, 91.
Ivatt, A.—Spectacles and their Relations to the Human Eye, 409.

J.

Jaborandi, A New Variety of (Holmes), 501.
— Leaves of Commerce, The (Holmes), 484, 520, 539.
Jackson, J. J.—"Quackery, Limited," 126.
Japan, Sulphur Mining in, 149.
Jarry, R., and Villard, P.—Production of Low Temperatures, 75.
Java, Petroleum in, 264.
Jeeves, A. T.—Pharmacy as a Profession, 532.
Jolles—Influence of Soap upon Cholera Germs, 155.
— The Relative Digestibility of Margarine and Butter, 357.
Jones, N. C., and P. W.—The Still Alarm, 140.
Jörgensen, Dr.—The Production of Saké, 357.
— Dr.—Yeasts and Moulds, 178.
Jost, Dr. L.—Dependence of the Leaf on Assimilation, 476.
Journal and the Trade, The (Marsden), 502.
Journalism, A Curiosity in, 356.
Jury Service in France for Pharmacists, 549.

K.

Kebler, L. F., and La Wall, C. H.—Tincture of Opium, 454.
— L. F.—Gurgun Balsam in Copaiba, 177.
— L. F.—Tubular Prismatic Crystals, 533.
Kelling, B. W.—Restoration of Old Oil of Lemon, 273.
Kemp, H.—Mr. Martin's Conference Address, 126.
Kerosene as a Mosquito Preventive, 277.
— Turpentine, and Peppermint in Diphtheria (Papkoff), 71.
Kerr, Dr. J. L.—A New Method of Making Plaster of Paris, 548.
— Dr. J. L.—The Effect of Boiling on Milk, 545.
Kiliani, H.—β-Digitoxin, 120.
— H.—The Preparation of Digitalin, 291.
King, B. T.—Patented Medicines and Registered Names, 52.
Kinninmont Prize, The, 24.
Kirby, Mr. W. H., Death of, 256.
Kirkby, W.—Pharmaceutical Education, 439.
— W.—The Study of Pharmacognosy, 218.
Klar—Sugar in Urine, 290.
Kristelli, H. R. S. von—Colouring Matter of Cucurbita, 366.
Kuro-moji Oil, Note on (Holmes), 501.
Küstenmacher—Development of Galls, 536.

L.

Labbé and Oudin—Ozone in Whooping Cough, 175.
Laccase in Plants (Bertrand), 89, 178.
Lactophenin as an Antipyretic and Analgesic (Stein), 91.
Laing, A.—Pharmaceutical Organisation, 481.
— A.—Pharmacy as a Profession, 552.
Landerer—Cinnamic Acid in Tuberculosis, 391.
Langlois—Extract of Suprarenal Capsules for Injection, 239.
Lanolin, An Alcohol from (Marchetti), 74.
— Toilet Milk, 343.
Lantanine (Lugo-Vina), 365.
Lantern Slide Making, 459.
— Slides, Dense, 239.
— Slides from Process Blocks, 323.
— Slides, Preparation of, 412.
Lard, Examination of (Wesson), 262.
Larrey, Baron, Death of, 361.
Lascar, F.—Preparation of Aromatic Waters, 537.
Laser—Citric Acid in Diphtheria, 215.
Laticiferous Tubes in Plants Yielding Gutta-Percha and Caoutchouc, Structure and Arrangement of the (Chimani), 2.
Laurie, J.—The Metric System, 72.
Lauz—Ichthyol in Urticaria, 471.
La Wall, C. H., and Kebler, L. F.—Tincture of Opium, 454.
Law, Company (Stevens), 429.
Lead Chloride-Pyridine-Hydrochloride and Derivatives (Goebbel), 126.
— Ointment without Fat (Gawalowski), 455.
Leaf, Dependence of the, on Assimilation (Jost), 476.
Leaves, Foliage, Diastase in (Green), 263.
Leechbook, A Celtic (Stokes), 420.
Leech, Dr. D. J.—The Origin of the Practice of Medicine, 306.
Leeds, A. R.—Acetic Acid in Vinegar, 262.
Leeds Chemists' Association (Annual Meeting), 384.
Leistikow—Ichthyol Applications for Burns, 455.
Lemon, Old Oil of, Restoration of (Kelling), 273.
Lemons, Australian, 235.
— Cultivation of, in Sicily (Elford), 10.
Leprosy and its Cure (Impey), 357.
Lewes, Professor V.—The Acetylene Theory of Luminosity, 426.
Liebig, Biography of (Reynolds), 422.
Liebrecht, A.—Argonin, 365.
Light, Effect of, on Iron Perchloride Solution (Roeser), 313.
— Perception of (Sir G. G. Stokes), 130.
— Rays, Communication of Sound by (A. G. Bell), 65.
Limb, C.—Separation of Argon by Means of Barium Compounds, 534.
Limbeck, R. von—Determination of the Alkalinity of Blood, 519.
Linaloes, Essence of (Barbier and Bouveault), 177.
Lindera Sericea, Oil of (Wardleworth), 384.
Linford, Mr. J. S., Death of, 411.
Liniments of the British Pharmacopœia, Short Notes on the, 514.
Linimentum Camphoræ (Brown), 432.
Linnean Society of London, The, 485, 548.
Liquefaction of Gases, The (Dewar), 546.
Liquor Calcis Saccharatus (Taplin), 412.
Lister, Sir Joseph, Presentation to, 129.
Liverpool Chemists' Association, 380, 383, 428, 508.
— Pharmaceutical Students' Society (Annual Meeting), 318; (Smoking Concert), 359; 408, 449, 509, 528.
— Sundays in (Morgan), 364.
Liverseege, J. F.—Tincture of Lobelia, 141.
Lobelia, Tincture of (Liverseege), 141.
Locock's, Dr., Lotion, 363.
Loew, O.—Energy of Living Protoplasm, 378.
Lomuller, E.—Glycerin Ovules and Suppositories, 182.
London Institution, The, 466, 485.
Lotion, Dr. Locock's, 363.
Love, E. G.—Notes on the Staining of Cellulose, 290, 458.
Lucas-Championnière, Dr.—Guaiacol as a Local Anæsthetic, 134.
Luff—Biniodide of Mercury in Infantile Diarrhœa, 215.
Lugo-Vina—Lantanine, an Alkaloid from "Sacred Herb," 365.
Luminosity, The Acetylene Theory of, and the Temperature of Flames (Smithells), 426.
Lutz, L.—Active Principles of Senecio, 535.
— L.—Formation of Gum, 179.
— L.—Gummosis in Acacia, 536.

M.

Maben, T.—Some Friendly Words, 17.
Macdonald, Mr. J., Death of, 411.
Madrid College of Pharmacy, Incorporation of the, 452.
Magnesium Salicylate (van Gool), 178.
Maiden, J. H., and Smith, H. G.—Eudesmin and Aromadendrin, 261.
Malakin—Abernethy, 51.
Mallèvre, A., and Bertram, G.—Pectase in Plants, 535.
Malted Milk, 155.
Manchester Pharmaceutical Association (Inaugural Meeting), 339; 449, 525, 526.
Mandrakes (Ashton), 488.
Mange in Sheep, Nicotine Wash for, 214.
Mangin, M. L.—Mucilages in Plants, 110.
Manihot, Presence of Emulsin in (Guignard), 110.
Manures, Proper Methods of Applying, 154.
Manx Pharmacy Act, The Necessity of a, 320.
Maragliano, Professor—The Serum Treatment of Tuberculosis, 168.
Marble, To Clean, 384.
Marcacci, A.—Action of Alkaloids on Plants, 366.
Marcet, W.—Oxygen as a Fundamental Requirement of Living Matter, 184.
— W.—The Influence of Volition on Respiration, 266.
Marchetti—An Alcohol from Lanolin, 74.
Marcs, Tincture, The Recovery of Alcohol from (Bird), 157.
Margarine and Butter, The Relative Digestibility of (Jolles), 357.
Marsden, P. H.—The Journal and the Trade, 502.
Marseilles, Pharmaceutical Congress at, 213, 469.
Marsh, J. E., and Gardner, J. A.—On the Oxidation of Camphene, 505.
Martelli—Poivrette, 455.
Martin, N. H.—The Aconitine Research, 41.
Martindale, W.—Decoctions and Infusions, 415.
Mason College (Birmingham) Chemical Society, 428.
Masonic Lodge at St. Bartholomew's Hospital, Consecration of, 21.
Masticatories, 390.
Maze, M.—Ancient Thermometers, 179.
McLeod, J.—Cross-Pollination, 59.
Meat Extracts in China, 299.
Mecca Pilgrimage, The, 44.
Medical Defence Union and Doctors' Shops, 84.
— Practitioners' Association, Incorporated (Formation of a Plymouth Branch), 23.
— Reminiscences, Editorial Remarks on, 423.
Medicine, Accuracy in Dispensing, Editorial Remarks on, 315.
— Co-operative, in Brussels, 84.
— Preventive, The British Institute of, 168.
— Practice of, The Origin of the (Leech), 306.
— Stamp Duty Acts, Proceedings under the (Chiswick), 45; (Marylebone), 171, 191 (Ambleside), 358; (Gunnislake), 429 (Glasgow), 430.
— Stamps, Forgery of, 188.
Medicines, Misuse of, Editorial Remarks on the, 251.
— The Supply of, to the Poor (Glasgow), 24.
Medium, Oil of Cassia as a (Piffard), 458.
Melckebeke, R. van—Preparation of Large Crystals, 534.
Meldola, Professor R.—Presidential Address to the Chemical Section of the British Association, 249.
Menglin—Separation and Determination of Tin and Antimony in an Alloy, 417.
Mentholated Oil, 343.
Menthol, Solubility of, 239.
Merck, E.—Fer Crémol, 366.
Mercuric Chloride in Calomel, Test for, 75.
Mercurous Iodide, Action of Alcohol upon (François), 534.
Mercury as a Delicate Reagent for Platinum (Sonstadt), 269.
— Biniodide in Infantile Diarrhœa (Luff), 215.
— Cyanide, Intravenous Injection of (Abadie), 91.
— Oleate, Preparation of, 72.
— Oxycyanide as an Antiseptic (Monod), 470.
— Phenate, in Ophthalmic Cases (Galezowski), 391.
— Soziodol, Solution of, 239.
Metabolism, Elective, of Plants (Pfeffer), 366.
Methyl Alcohol, Action of the Halogens on (Schützenberger), 74.
— Violet in Cholera (Neufeld), 195.
Metric System, A Practical Simplification of the (Milhau), 484.
— System, The (Turver), 18; ("Gilgen"), 52; (Laurie), 72; (Turver). 109, 240.
— System, The, and Canada, 20.
— System, The *British Medical Journal* on the, 85.
— System, The, in Mexico, 300.
— System, The *Times* on the, 33.
— System, The, *versus* the Weights and Measures of the British Pharmacopœia (Elborne), 203.
Metropolitan College of Pharmacy (Annual Dinner), 450.
Meyer, A.—Composition and Growth of Starch Grains, 367.

Michell, S. C. F.—The Major Examination, 196.
Microbes, Composition of (Schweinitz and Dorset), 179.
— in River Water, 169.
Microscopical Notes, 146, 458.
Midland Chemists' Assistants' Association, 525.
— Pharmaceutical Association, 67, 337; (Opening of the Session), 359; 447.
Milhau, E. L.—A Practical Simplification of the Metric System, 484.
Milk Adulteration in Belfast, 213.
— Determination of Fat and Albuminoids in (Van Hamel-Roos), 472.
— Effect of Boiling on (Kerr), 545.
— Malted, 155.
— Preservative, Formalin as a (Bevan), 75.
— Preservative, Potassium Chlorate as a (Denigès), 262.
— Sterilised, Objections to the Use of (Duclaux), 445.
— The Proper Way to Sterilise (Morris), 149.
— The Standard of Fat in, 425.
Millardet, M. A.—Hybridisation without Crossing, 481.
Miller, W. Von, and Hary, C. O.—Antinonnin, 365.
— Zinc Stearate in Gonorrhœa, 175.
Minerals, The Heddle-Dudgeon Collection of, 257.
Mitchell, R. H.—Ointments, 509.
Moer, Dr. J. van de—Cytisine from Pilocarpine, 208.
Moissan—Analysis of Opium for Smoking, 75.
— Glucinium Carbide, 342.
— Metallic Silicides, 453.
— New Process for the Manufacture of Alcohol from Acetylene, 69.
— Sodium in Aluminium, 534.
Molle, M. P.—Localisation of the Alkaloids in the Solanaceæ, 502.
Mollière—Pilocarpine Ointment in Nephritis, 71.
Moncor—Asaprol in Chorea, 363.
Mond—Occlusion of Gases, 73.
Monod, Dr. C.—Mercury Oxycyanide as an Antiseptic, 470.
Monsell's Salt, The Preparation of (Westley), 457.
Month, The, 73, 177, 261, 365, 453, 533.
Morain—Treatment of Acute Coryza, 175.
Morisot, M.—Novel Galvanic Cell, 179.
Morphine and Morphine Hydrochloride (Dott), 496.
— and Opium in China, 208.
— in the Saliva, Excretion of (Rosenthal), 173.
Morris, M.—The Proper Way to Sterilise Milk, 149.
Mosquito Preventive, Kerosene as a, 277.
Moulds, Yeasts and (Jörgenson), 178.
Mounting Medium, Storax as a (Piffard), 458.
Mucilage in Plant Cells, Reagent for (Guiraud), 366.
Mucilages in Plants (Mangin), 110.
Muir, Pattison—Qualitative Chemical Analysis Viewed in the Light of Recent Research, 468.
Mumbray, R. G.—Carbolic Acid Poisonings, 52.
Mummery, J. H.—Hints on Photo-Micrography, 5, 227.
Munich Academy of Sciences (Election of Corresponding Members), 451.
Museum, Recent Donations to the (Holmes), 501.
Museum Report, Publication of the Pharmaceutical Society's, for 1893–94, 484.

N.

Naphthol in Itch (Feulard), 343.
Natural History Studies, Recent, in the S.E. of England (Sorby), 548.
— *Science* and the "Challenger" Expedition, 43.
Naylor, W. A. H.—Syrup. Hypophosph. Co., B.P.C., 143.
Nerom, G. van—Dispensing Creosote in Pills, 216.
Netherlands Apotheker Verein, 85.
Nettle, Stinging, as a Galactogogue (Griniewitch), 195.
Neuberger—Local Treatment of Furunculosis, 27.
Neuralgia Liniment, 174.
— Remedy for (Sabbatini), 323.
Newfoundland and North Mexican Plants for the Kew Herbarium, 45.
New Remedies, 27, 51, 71, 91, 155, 175, 195, 215, 238, 343, 363, 391, 471, 551.
— York College of Pharmacy, 229.
— York State Pharmaceutical Association—Report of the Committee on Pharmacy and Queries, 77.
— Zealand, Pharmacy in, 336.
Nickel Plating, 72.
Nicotine Fumigations, Danger of (Fisher), 356.
— Wash for Mange in Sheep, 214.
Nitric Oxide, Action of, upon Metallic Chlorides (Thomas), 74.
Nitrites, A New Test for (Plugge), 422.
— New Tests for (Denigès), 365.
Nitrogen and Phosphorescence (Séguy), 177.
Nitro-Glycerin, Alleged Overdose of (Poplar), 319.
— Glycerin Pastilles, The Use of, 317.
Noehmkoff—The Therapeutic Action of Piperazine, 71.
North of England School of Chemistry and Pharmacy, 385.
Notes and Queries, 28, 51, 72, 92, 116, 155, 216, 239, 279, 304, 323, 343, 363, 392, 412, 472.
Notkine—Thyroprotein, 365.
Nottingham and Notts. Chemists' Association, 384, 484.
— Pharmaceutical Education at, 147.
Novelties in Pharmaceutical Appliances, 440.
Noyes, A. A., and Watkins, W. H.—The Presence of Trimethylene Glycol in Glycerin, 534.

O.

Obituary, 27, 50, 136, 173, 214, 240, 260, 304, 324, 364, 387, 411, 432, 451, 512, 531, 551.
Occlusion of Gases (Mond, Ramsay and Shields), 73.
Ocinum Basilicum for Myosis of the Nasal Fossæ (Vargas), 51.
Odontalgic, 174.
Oikonomos—Eucalyptus in Measles, 551.
Oil Cloths, To Furbish, 359.
— from Rubber Tree Seeds, 454.
— of Cassia as a Medium (Piffard), 458.
— of Eucalyptus (Dott), 497.
— of Lindera Sericea (Wardleworth), 384.
— of Pinus Sylvestris (J. C. Umney), 542.
— of Scotch Fir (Pinus Sylvestris), and other Pine Oils (Umney), 161.
— of Tansy, Note on (Holmes), 501.
Oils, Essential, Notes on (Schimmel), 307 316, 328.
— Purification of, by Algosin (Villon), 453.
Ointment Bases, The Antiseptic Value of (Breslauer), 317.
Ointments (R. H. Mitchell), 509.
— of the British Pharmacopœia, Notes on the, 417, 434, 456.
Oleate of Mercury, Preparation of, 72.
Oleum Chillie (Ashton), 364.
Olive Crop, The, in South France, 385.
— Oil, Adulterated, 84.
— Oil, Detection of Paraffin in (Carpentier 397.
— Oil in Dry Pleurisy (Cerenville), 175.
Oliver, Dr. G.—The Therapeutic Employment of the Suprarenal Glands, 311.
Oliviéro, M.—Essence of Valerian, 542.
— M.—Boric Acid Antisepsis, 381.
Olszewski, Professor—The Liquefying Point of Helium, 317.
Omelianski, V.—Fermentation of Cellulose, 454.
Onions, The Effects of, on Diuresis and Perspiration, 169.
Opium (Dott), 497.
— and Morphine in China, 208.
— Chinese (F. Browne), 493.
— for Smoking, Analysis of (Moissan), 75.
— for Tincture (Kebler and La Wall), 454.
— Indian (G. Watt), 207.
— Poisoning, Potassium Permanganate as an Antidote to (Raw), 152.
— Victorian, Note on a Sample of (Duncan), 527.
Opticians, Chemists as, 359.
Orchids and Ants (Hart), 454.
Organisation, Pharmaceutical (Roper), 349; (Russell), 441; (Roper), 462; (Laing), 481.
Orthman—Salipyrin in Menorrhagia, 363.
Osborne, T. B.—Chemical Nature of Diastase, 177.
Osherovski—Phenol in Tetanus, 238.
Osmosis, Experiments in (Raoult), 169.
Osmotic Pressure (C. Brown), 446.
Ouvrard, L.—Argon and Helium, 261.
Over-Concentration in Pharmacy (Boa), 527.
Ovules and Suppositories, Glycerin (Lomuller), 182.
Oxygen as a Fundamental Requirement of Living Matter (Marcet), 184.
— Atmospheric, Origin of (Phipson), 533.
Oxyhydrogen, Accumulator, An (Warren), 76.
Ozone in Whooping Cough (Labbé and Oudin), 175.
— not a Microbicide (D'Arsonval), 49.

Pachon, V., and Gley, E.—Peptone and Coagulation, 263.
Palmetto, Extract of; A New Tanning Material, 4.
Papain Ointment for Chronic Eczema, 175.
Papasogli—Test for Saccharin, 386.
Paper, Wall, Composition for Cleaning, 321.
Parachlorphenol as an Antiseptic (Girard), 551.
— in Laryngeal Tuberculosis (Spengler), 471.
Park, C. J.—Pharmacists and the General Election, 42.
Parozzi—Phenol-sulphonate of Lime, 363.
Parrish's Chemical Food, The Preparation of, 412.

Parry, E. J., and Sage, C. E.—Cod-liver Oil Constants, 119.
— E. J.—Santal Wood Oil, 118.
Parsons, Dr. A. R.—Modern Tendencies in the Treatment of Disease, 549.
Pasteur Institute, Appointment of M. Duclaux as Director of the, 360.
— Professor, Funeral of, 322.
— Professor, Proposed Monument to, in Paris, 550.
— The Death of, 302; Editorial Remarks on, 294.
Pastilles, Gelatin (Robbins), 382.
Patchouli Plant, The (Sawer), 80.
Patein, G., and Dufau, E.—Antipyrine and Diphenols, 366.
Patented Medicines and Registered Names (King), 52.
Patent for Medicine, Proposed Revocation of a, 411.
— Medicine Stamp Duty Act (Cole and Elkington), 432.
— Medicine Stamps, Mutilation of (Northampton), 359, 385, 450.
— Office Business, 50.
Patents for Medicines, Revocation of, 389, 390.
Paul, Dr. B. H., and Cownley, A. J.—Action of Heat upon the Alkaloids of Ipecacuanha, 2.
Pearmain, T. H., and Moor, C. G.—Sandal Wood Oil, 179.
Peas, Copper in, The *British Medical Journal* on, 169.
Peck, E. S.—Elementary Pharmaceutical Education, 176.
Pectase in Plants (Bertram and Mallèvre), 535.
Pencils, Medicated, 194.
Penicillium Cupricum (Seynes), 535.
Pepsin, The Efficiency of (Snow), 316.
Pepsins, Digestive Power of (Snow), 178.
Peptone (Halliburton), 199.
— and Coagulation (Gley and Pachon), 263.
Percolation, Continuous, A Convenient Arrangement for (Forret), 538.
Pereira, Dr., Biography of, 525.
Perfuming Air, A Novel Means of, 357.
Perkin, A. G., and Cope, F.—Dye from Artocarpus Integrifolia, 299.
— A. G.—Some Constituents of the Root of Polygonum Cuspidatum, 445.
— W. H.—The Influence of Temperature on the Refractive Power, and on the Refraction Equivalents of Acetyl-Acetone and of Ortho- and Para-Toluidine, 466.
Permanganate of Lime for Sterilising Water, 69.
Peru, Balsam of, Note on, 198.
Peruvian Balsam, Castor Oil in, 392.
— Balsam with Oils, Dispensing of, 92.
Petit, A.—Fruit Preserved in Alcohol Vapour, 504.
— L.—Distribution of Stomates, 536.
Petroleum Emulsions, 72.
— from Blubber, Preparation of (L. de Brun), 155.
— in Java, 264.
Pfeffer, Professor W.—Elective Metabolism of Plants, 366.
Pfister—Tree Trunks as Filters, 65.
Pharmaceutical Association, American, 208, 271, 273.
— Chemists' and Apothecaries' Assistants' Association of Ireland, 132, 153, 172, 192, 277, 431.
— Classes at Exeter, 170, 275.
— Classes at Plymouth, 300.
Pharmaceutical Congress, National, at Marseilles, 213, 451, 469.
— Curiosities, 111.
— Education (Haussmann), 220; (Kirkby), 439.
— Education Elementary (Peck), 176.
— Education in a Country Town (Vogt), 219; ("Æsop"), 260; ("A Blackburn Chemist's Apprentice"), 260; (Vogt), 280; (Gray), 304.
— Examinations in Prussia, 470.
— Football and Cricket Club (Annual Smoking Concert), 450.
— Institute at Bern, The, 221, 235.
— *Journal*, The, and Trade (Proctor), 186.
— Legislation for the Isle of Man, 358.
— Organisation (Russell), 334; (Roper), 349; (Russell), 441; (Roper), 462; (Laing), 481.
— Politics (Harrison), 427.
— Qualification in the United States, Editorial Remarks on the Conditions of, 63.
— Reports, International, 504.
— *Review*, The, 445.
— Society of Ireland, Examination Results, 48, 69, 322, 341.
— Society of Ireland, 48, 152, 237, 259, 321; (Annual Meeting), 341, 430, 529.
— Society, The, and the Trade (Thomas), 61.
— Society, The Arms of the, 389.
— Testing (Proctor), 456.

Pharmaceutical Society of Great Britain, Transactions of the:—

Acknowledgments, Letters of, 296, 477.
Annuitants, Election of, 499.
Associates, Election of, 11, 121, 296, 398, 477.
Bell Scholarships, Award of the, 287.
Benevolent Fund Committee, Reports of the, 12, 122, 297, 399, 478.
— Fund, Donations and Legacies to the, 84, 125, 399, 479.
— Fund, Grants from the, 12, 122, 297, 399, 478.
Berthelot, M., Appointment of, as a Member of the French Government, 399.
Bland, Mr., The Late, 122.
Burroughs, Mr. S. M., The Late, 399.
— Memorial, The, 447.
— Scholarship, The, 399.
Cape of Good Hope University Certificates, 398.
— Pharmacy Board and the First Examination, 297.
Carteighe, Mr., Vote of Thanks to, 11.
Companies Act, The, and the Pharmaceutical Society, 298.
Conference, British Pharmaceutical, Appointment of Delegates to the, 14.
— British Pharmaceutical, 123.
Correspondence, 12, 14, 296.
Council, Meetings of the, 11, 121, 296, 398, 477.
— Prizes Examination, 19, 125.
— Prizes Examination, Questions Set at the, 62.
— Prizes Examination, Reports of the Examiners, 287.
Diplomas, Granting of, 398.
Dispensers in Workhouses, Appointment of, 13.
Donations to the Library, Museum, and Herbarium, 37, 311, 422, 500.
Education in the Provinces, Discussion on, 478.

Pharmaceutical Society of Great Britain, Transactions of the (contd.)

Evening Meetings in Edinburgh, 480, 545.
— Meetings in London, 421, 500.
Examination, First, Attendance at the, 401.
— First, Certificates Received in Lieu of the, 61, 123, 124, 401.
— First, Questions Set at the, 37, 313.
— First, Results of the, 80, 388.
Examinations, Dates of, in 1896, 402.
— in Edinburgh, 62, 312.
— in London, 61, 312.
— Jacob Bell Scholarship, Questions Set at the, 38.
— Manchester Pharmaceutical Association, Questions Set at the, 38.
— Major, Questions Set at the, 16, 298.
— Major, Results of the, 61, 62, 312.
— Minor, Results of the, 61, 62, 312.
— Modified, Results of the, 312.
— Reports of the, 124, 401.
Examiners, Appointment of, 447.
— Vote of Thanks to the, 479.
Exeter Chemists' Association, Grant to the, 478.
— Technical and University Extension College, Proposed Grant to the, 400.
Finance Committee, Reports of the, 12, 122, 296, 399, 477.
First Examination, The, and the Cape Pharmacy Board, 297.
General Purposes Committee, Reports of the, 15, 124, 298, 401, 402, 479.
Greenish, Mr. Thos., Letter of Acknowledgment from, 296.
Hanbury Medal, Award of the, to Dr. August Vogl, 62, 64, 123.
— Medal, Presentation of the, 272, 286.
Herbarium Prize, Award of the, 287.
Law and Parliamentary Committee, Reports of the, 297.
Lecturers, Appointment of, 15.
Legal Business, 402.
— Proceedings in Scotland, 479.
— Report of the General Purposes Committee, 126.
Letters of Thanks, Receipt of, 14, 297, 401.
Library, Museum, School, and House Committee, Reports of the, 12, 122, 400, 478.
Linford, Mr. J. S., The Late, 398.
Luxmoore, Dr. C. M., Election of, to the Research Fellowship, 399.
Members, Election of, 121, 296, 398.
Membership, etc., Restorations to, 12, 122, 398.
Metric Weights and Measures, 11.
North British Branch, Election of the Executive of the, 13.
North British Branch, Meeting of the Executive of the, 15, 479.
Pasteur, The late Professor, 296.
Pharmacopœia Revision Committee, 12.
Pharmacy Bill, The Amended, 298.
Plymouth, Devonport, Stonehouse and District Pharmaceutical Association, 121.
— The Meeting at, 400.
Prize Examinations, Reports on the, 124.
Prizes, Award of, 124, 287.
Professors, Appointment of, 15.
Provincial Education, Discussion on, 478.
Register, Additions to the, 398, 447.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, TRANSACTIONS OF THE (contd).
Register, Restorations to the, 12, 122, 296, 398, 447.
Research Fellowship, The, 399.
— Laboratory, Alterations and Repairs in the, 125.
— Laboratory Committee, Special Report of the, 13.
— Laboratory, The, 296.
Scholarship, Manchester Pharmaceutical Association, 125, 298.
— Redwood, 123, 288.
— Jacob Bell Memorial, 125, 287.
School of Pharmacy Inaugural Address, 37.
— of Pharmacy Prize Examination Questions, 82.
— of Pharmacy, Report on the, 123.
— of Pharmacy Staff, Reports of the, 286.
— Opening of the, 272, 281, 286.
Scotland, Legal Proceedings in, 479.
Scottish Appeal Cases, The 401.
Secretaries, Local, Appointment of, 401.
— Local, Registration of, 401.
Students, Election of, 11, 121, 296, 398.
Vogl, Professor A., Receipt of Letter of Thanks from, 297.
Weights and Measures, Metric, 11.
Western Chemists' Association (of London), Receipt of a Resolution from the, 14.

Pharmacist or Factory Girl ("Pharmakos"), 441; ("Amused"), 461; ("Agnoskos"), 461; ("Pharmakos"), 481, ("Traveller"), 512; ("F.C.S., M.P.S."), 512; ("Amused"), 552; ("Agnoskos"), 552.
Pharmacist's Duty, A, 341.
Pharmacists and Doctors, Responsibility of, 133.
— and Sick Insurance in Germany, 360.
— and Physicians in New Jersey, Code of Ethics of the, 147.
— and the General Election (Editorial Note on), 37; (Park), 42; (Cocks), 42, 43.
Pharmacognosy, The Study of (Kirkby), 218.
— The Utility of, to the Student of Pharmacy (Disbrow), 202.
Pharmacopœia as a Guide, The, Editorial Remarks on, 379.
— British, Medical Men on the, 129.
— British, Medical Opinions on the, Editorial Remarks on, 543.
— British, Notes Relating to the (Dott), 495.
— British, Remarks on the (C. Symes), 141.
— British, Short Notes on the Preparations and Formulæ of the (Ointments), 417, 434, 456; (Liniments), 514.
— British, Report for 1894, Editorial Remarks on the, 35.
— British, The Revision of the (Sawyer), 44; (Clarke), 79; (Hyslop), 156; (Abraham), 369; (Cocks), 383.
— British, The Volumetric Solutions of the (Elborne), 164.
— British, The Weights and Measures of the, *versus* the Metric System (Elborne), 183, 203.
Pharmacy Act Convictions in Edinburgh, Meeting of Merchants to Consider, 451.
— Act Decisions in Edinburgh, The *British Medical Journal* on the, 445.
— Act in Scotland, Editorial Remarks on the, 403.
— Act, Manx, The Necessity of a, 320.
— Act, Proposed Amendment of the, Discussion at Nottingham on the, 484.
Pharmacy Act, the Observance of the, The *British Medical Journal* on, 423.
— Act, Ireland, Proceedings under the—(Dublin), 25; (Roscommon), 25; (Dublin), 132; (Dungannon), 132; (Dublin), 153; (Rathfriland), 237; (Lisburn), 237, 258; (Belfast), 301, 431.
— Acts, Proceedings under the (Plymouth), 71; (London), 84; (Lewisham), 90; (London), 112, 113; (Edinburgh), 212; (Greenock), 236; (Glasgow), 236; (Ayr), 236; (Edinburgh). 257; (Paisley), 257; (Edinburgh), 269; (Glasgow), 269; (Salford), 270; (Edinburgh), 292; (Bootle), 292; (Dundee), 361; (Montrose), 362; (Nottingham), 362; (Edinburgh), 371; (Dundee), 380, 386, 387; (Edinburgh), 396; (Dumbarton), 468; (Glasgow), 491; (Helensburgh), 510; (Glasgow), 530.
— Alchemy and: Their Mystery and Romance (Thompson), 3, 117, 241, 393.
— A New, in Sheffield, 130.
— Apprenticeship in, The *Western Druggist* on, 317.
— as a Profession, Editorial Remarks on, 229; (Hinde), 532; (Jeeves), 532; ("Honi Soit Qui Mal y Pense"), 523; (Laing), 552.
— Bachelors of Science in, in America, 70.
— Bill, Draft (Gowen), 364.
— Company, in Dublin, 360.
— Ethical Aspects of (Stephenson), 19.
— in America and its Needs, 208.
— in Exeter, A New, 385.
— in Germany, 111.
— in New Zealand, 336.
— in North America, The Teaching of (Hallberg), 60.
— in Tennessee, 299.
— in the Transvaal, 304.
— in Ultima Thule, 273.
— Law, a National, in America, Impossibility of, 381.
— Law in Illinois, 70.
— Law, New, for Illinois, Editorial Remarks on the, 147.
— Modern ("Pharmakos"), 349.
— New York College of, 229.
— of To-day, Discussion on the Ethical Aspects of the, at Edinburgh, 486.
— Over-Concentration in (Boa), 527.
— Practical, Chapters in—The Preparation of Compressed Tablets, 348, 367.
— Practical, Education in (Taylor), 217.
— Progress of, in America, 77.
— School in Edinburgh, A New, 87.
— Substitution in ("Lin. Camph."), 324; (Young), 344.
— The Evolution of, 436.
— The Future of (Trimble), 10.
— The Introduction of Phosphorus and its Compounds into, 433; ("Phosphorosus"), 462.
— the Present Position of, Editorial Remarks on, 83.
— The Utility of Pharmacognosy to the Student of (Disbrow), 202.
Phenacetine, Antifebrine, and Antipyrine, Distinctive Test for, 455.
Phenacetine, Sale of Strychnine for, 550.
Phenol in Tetanus (Osherovski), 238.
Phenol-Sulphonate of Lime (Parozzi), 363.
Phénol Sulphoriciné, 279.
Phenosuccinic Acid, Phenosuccine, and Iodophenosuccine in Tuberculosis, 551.
Phillips, H. J.—A New Form of Balance, 76.
Phipson, J. L.—Citric Acid from Cane Sugar, 211.
Phipson, T. L.—Origin of Atmospheric Oxygen, 533.
Phisalix, C., and Bertrand, G.—Calcium Hypochlorite in Snake-bite, 278.
— C., and Bertrand, G.—Novel Treatment of Snake-bites, 452.
— C., and Bertrand, G.—Snake Antitoxin, 535.
Phosphates and Hypophosphites used in Medicine, 513.
Phosph-Ergot, 279.
Phosphide of Zinc in Hay Fever (Bosworth), 215.
Phosphorescence, Nitrogen and (Séguy), 177.
Phosphorism in Match Factories, 85.
Phosphorus and its Compounds, The Introduction of, into Pharmacy, 433; ("Phosphorosus"), 462; (Phosphates and Hypophosphites used in Medicine), 513.
Photo-Engraving Method, A Simple, 304.
Photographers, the Sale of Poisons by, Editorial Remarks on, 295.
Photographic Chemicals, The Sale of, 451.
— Dry Plates, The Keeping Power of (Vogel), 542.
— Convention of the United Kingdom, (Annual Meeting at Shrewsbury), 67.
— Crystal Varnish, 72.
— Plates, Stripping of, 279.
— Printing by Machinery, 191.
— Society, The Royal (Annual Exhibition), 43, 300; (Annual Meeting), 319.
— Societies, The Affiliation of, 44.
— Varnishes, Cold, 304.
Photography for Chemists (Exposure and Development), 330; (Lantern Slide Making), 459.
— in Natural Colours, 32; (Vallot), 445.
— of the Heavens, 211.
— Thought (Rogers), 465; (Harris), 482; ("J. B. S."), 512.
Photo-Micrography, Hints on (Mummery), 5, 227.
Physicians and Pharmacists in New Jersey, Code of Ethics of the, 147.
Physiology, The Rise of, in England (Church), 358.
Phytolacca Decandra in Epithelioma (Goodman), 343.
Picrated Gelatin, Sensitiveness of, 533.
Picric Acid for Burns, 278.
Picrotoxin as an Anti-Sudorific (Semmola and Grofforedi), 343.
Pictet's Gas, 134.
Piffard, Dr. H. G.—Storax as a Mounting Medium, 458.
— Dr. H. G.—Oil of Cassia as a Medium, 458.
Pigment, A Fungoid (Ang-Khak), 211.
— A New Bacterial (Thorpe), 178.
Pil. Ferri (Blaud), Improved Formula for (Ravá), 470.
Pill Excipient, Animal Charcoal as a (Eviclé), 288.
Pills, Creosote in (Van Nerom), 216.
— Dispensing of Creosote, etc., in Pills (Coelst), 279.
Pilocarpine, Cytisine from (Moer), 208.
— in Grippal Pneumonia (Poulet), 470.
— Ointment in Nephritis (Mollière), 71.
Pinus Sylvestris, Oil of (J. C. Umney), 542.
— Sylvestris Oleum, and other Pine Oils (J. C. Umney), 161.
Piperazine, The Effects of (Nochmoff), 195.
— The Therapeutic Action of (Noehmkoff), 71.
Piperovatine, Note on (Dunstan and Carr), 445.

Pirogoss—Ointment for Treatment of Favus, 214.
Plant Food, Proper Methods of Applying, 154.
— How to Name a, 7, 226.
Plants, Action of Alkaloids on (Marcacci), 366.
— Action of Sulphuretted Hydrogen on (Barnouvin), 263.
— Effect of Electricity on (Aloi), 536.
— Elective Metabolism of (Pfeffer), 366.
— Medicinal and Useful, Exhibition of, at the Hague, 26.
— Mucilages in (Mangin), 110.
— Newfoundland and North Mexican, for the Kew Herbarium, 45.
— Silicon and Aluminium in (Camusat), 536.
— The Relation of Ants to (Weiss), 466.
— Toxic and Medicinal, Investigation of, Editorial Remarks on the, 83.
— Useful, of the Dutch East Indies (Greshoff), 536.
Plaster Casts, Hardening, 343.
— of Paris, A New Method of Making (Kerr), 548.
Platinum, Delicate Reagent for (Sonstadt), 269.
Platinotypes and Bromide Prints, 279.
Plimpton and Chorley—Barium Thiosulphate for Standardising Iodine Solution, 438.
Plugge, P. C.—New Test for Nitrites, 422.
Plymouth, Devonport, Stonehouse and District Chemists' Association, 19, 44; (Annual Excursion), 66, 273, 276; (Conference and Reception), 300, 317, 350; (Annual Dinner), 353; 382, 408, 428, 489, 509.
— Devonport, Stonehouse and District Chemists' Association (Junior Section), 23, 150, 192, 275.
— Pharmaceutical Classes at, 300.
— Programme, Editorial Remarks on the, 355.
— Scientific Training in, 256.
— the President at, Editorial Remarks on, 335.
Pneumococcus, Friedländer's, Action of, on Sugars (Grimbert), 533.
Pneumonia, Cajeput Oil in (Foy), 391.
— Grippal, Pilocarpine in (Poulet), 470.
Podophyllum Emodi, Research on (Dunstan), 505.
Poison, Borax as a (Féré), 317.
— Carbolic Acid as a Scheduled, 172.
— Cocaine a Scheduled ("Cocaine"), 116.
— Is Yellow Prussiate of Potash a? 236.
Poisoning by Acetic Acid (Ancoats), 303.
— by Acetic Acid and Mercuric Oxide, Alleged (Hereford), 482.
— by Ammonia (Bacup), 154; (Shaw), 322; Camborne, 390; (Leicester), 471.
— by Antimony and Arsenic (Doremus), 262.
— by Arsenic (Scofton), 26; (Pimlico), 115; (London), 362; (Hartland), 450, 471.
— by Arsenical Wasp Destroyer (Osberton), 20.
— by Atropine Sulphate (West Smethwick), 303.
— by Belladonna (Hackney), 90; (Streatham), 173; (Thurnham), 214; (Hereford), 471.
— by Benzine (Falkirk), 276, 322.
Poisoning by Berries (Ingleton), 274.
— by Carbolic Acid (Salford), 21; (Chalk Farm), 26; (Leeds), 50; (Mumbray, R. G.), 52; (Walthamstow), 71; (Macclesfield), 90; (Islington), 90; (Camberwell), 90; (Beswick), 90; (Warrington), 90; (Carnarvon), 90; (Salisbury), 90; (Liverpool), 90; (London), 90; (Grimsby), 115; (Kensington), 135; (London), 154; (Radford), 173; (Brighton), 173; (Leicester), 173; (Stoke Newington), 173; (Liverpool), 173; (Belgrave), 173; (Battersea), 303; (Willesden), 385; (Hulme), 390; (Higher Broughton), 471.
— by Caustic Potash (Cheltenham), 26; (Rishton), 115.
— by Caustic Soda (Islington), 322; (Poplar), 471.
— by Cayenne Lozenges, Alleged (Southampton), 19.
— by Chloral Hydrate (Liverpool), 390.
— by Chlorodyne (London), 135; (Chorlton-on-Medlock), 303; (Haley Hill), 471.
— by Chloroform, (W. Calder), 50; (Hammersmith), 50; (Ashton-under-Lyne), 50; (New Cross), 90; (London), 214; (Coombe), 301; (Newport), 302; (Shrewsbury), 303; (Mildmay Park), 303.
— by Cocaine (Bayswater), 22, 50; (Leeds), 171; (Garland), 465.
— by Corrosive Sublimate (Old Netley), 471.
— by Gases from Photographic Refuse (Bristol), 275.
— by Hartshorn and Oil (Birmingham), 26.
— by Hydrochloric Acid (Roehampton), 71; (Birmingham), 90; (London), 154.
— by Laburnum (Hawick), 113; (Whitby), 154.
— by Laudanum (Barnsbury), 26; (Handsworth), 26; (Arnold), 26; (Gorton), 90; (Walworth), 90; (Hunslett Carr), 135; (Manchester), 154; (Bournemouth), 173; (Stroud), 173: (Surbiton), 173; (Horfield), 196; (Mansfield), 214; (Glasgow), 214; (Mansfield), 236; (Seaton), 257; (Somers Town), 303; (Aston), 303; (Liverpool), 303; (Edgware Rd.), 303; (Hinckley), 303; (Pallion), 303; (Llandudno), 322; (Rotherham), 362; (Withington), 362; (Liverpool), 362; (Chorlton-on-Medlock), 390; (Lakenham), 406; (Wellington), 406; (Edinburgh), 430; (Lewisham), 471; (Salford), 471; (Hart), 471; (Spalding), 471; (Alva), 471.
— by Laudanum and Arnica (Birmingham), 303.
— by Liniment (Eastville), 303; (Tetbury), 390.
— by Lotion (Blaenavon), 278, 303.
— by Male Fern Extract (Milan), 172.
— by Methylated Spirit (Dundalk), 303.
— by Morphine (Manchester), 303, 471.
— by Morphine and Corrosive Lotion (Newcastle), 135.
— by Nitric Acid (Birmingham), 90.
— by Nitro-Glycerin Pastilles, Alleged (Poplar), 319.
— by Oil of Vitriol (Salford), 90; (Bradford), 196.
— by Opium (Birmingham), 71; (Stamford Hill), 154; (Ipswich), 173; (Cotmanhay), 173; (Birmingham), 196; (West Kensington), 390.
— by Oxalate of Potassium (Compton Giffard), 529.
Poisoning by Oxalic Acid (Stonehouse), 26; (Stockport), 71; (Belfast), 115; (Heywood), 154; (Birmingham), 154, 173.
— by Phosphorus (Bootle), 66; (Maryport), 135; (London), 154.
— by Potassium Bichromate (Camberwell), 135.
— by Potassium Cyanide (Hull), 26; (London), 135; (Birmingham), 154; (St. Giles), 200.
— by Prussic Acid, Alleged (Pelsall), 23, 50; (Swansea), 26; (Halifax), 26; (Croydon), 26; (Portsmouth), 71; (Westminster), 71; (London), 135; (Nottingham), 173; (Gravesend), 196.
— by Rat Poison (Merthyr), 71.
— by Salt of Lemon (Toxteth), 71; (Liverpool), 173.
— by Salt of Sorrel (Edinburgh), 276.
— by Spirit of Salt (Bethnal Green), 173.
— by Stramonium (Arras), 302.
— by Strychnine (Bodmin), 26; (Jarrow), 45, 50; (Birmingham), 65, 67, 86; (France), 69; (Birmingham), 524.
— by Strychnine, given in Mistake for Phenacetine (Birmingham), 19, 21, 150, 524, 550; (Selston), 303.
— by Sugar of Lead, Attempted (Edinburgh), 46.
— by Sulphuric Acid (Whitchurch), 214.
— by Turpentine (Birkenhead), 471.
— by Vermin Killer (Manchester), 26.
— by Vitriol (Bangor), 322.
— by Weed Killer (Downholland), 362.
— by White Precipitate (Huddersfield), 529.
— by Zinc Sulphate (Chelsea), 471; (Tipperary), 491.
Poisoning Cases, Curious, at Hereford, 482.
— Cases in Scotland, in 1893, 504.
— in India, Editorial Comments on, 64.
— of Cattle by Red Lead (Killarnie), 276.
— Prevention of, the *Sunday Times* on the, 424.
Poisons, Sale of, by Unqualified Men, 136.
— Sale of, The *Globe* on the, 111; The *British Medical Journal* on the, 150 The Daily Press on the, 295.
— the Illegal Sale of, The *Medical Press* on, 274.
— The *Manchester Guardian* on, 247.
— The Sale of, by Grocers, 274, 340; (*Dundee Advertiser*), 384.
— the Sale of, Grocers and, 319.
— the Sale of, by Photographers, Editorial Remarks on, 295.
— The Sale of, by Unqualified Persons, 340, 524.
Politics, Pharmaceutical (Harrison), 427.
Polygonum Cuspidatum, Some Constituents of the Root of (Perkin), 445.
Poivrette (Martelli), 455.
Polarised Light, Some of the Phenomena of (Allen), 410, 468.
Pollock, Professor Sir F.—Tyndall as Worker and Teacher, 358.
Pope, W. J.—Saccharin Purification, 366.
Popiel—Tincture of Iodine, 74.
Poppies, White, and Bee-Stings, 363.
Poulet—Pilocarpine in Grippal Pneumonia, 470.
Portugal, Post Office Regulations in, 381.
Potassium Chlorate and Safety Matches, 274, 276.
— Chromate as a Milk Preservative (Denigès), 262.
— Permanganate as an Antidote to Opium Poisoning (Raw), 152.
— Platinochloride, Reduction of (Sonstadt), 262.

Potash, The Use of, in Fruit Growing, 154.
Preparations and Formulæ of the British Pharmacopœia, Short Notes on the (Ointments), 417, 434, 456; (Liniments), 514.
Prescribers and Dispensers, Discussion on, at Edinburgh, 486.
Prescribing by Chemists, 169.
— by Unqualified Men (Bromley), 150.
Prescription Difficulties and Ways Out of them (Bradley) 225.
— Holder, An Improved, 440.
— Illegibly Signed, Conviction of a French Chemist for Dispensing an, 525.
Prescriptions, Repetition of (Rentoul), 83.
Preservative for Milk, Formalin as a (Bevan), 75.
Pressure, Osmotic (C. Brown), 446.
Price Cutting, Progress in, 464.
Prints, Bromide, and Platinotypes, 279.
Prior—Iodoform Gauze, 472.
Prisons' Service, Dispensers in ("A Prison Compounder"), 60; ("Poor Law Dispenser"), 110.
Prizes for Apprentices in Scotland, Editorial Remarks on, 443.
Process Blocks, Lantern Slides from, 323.
Proctor, B. S.—Benevolent Fund Election, 481.
— B. S.—Concentrated Infusions, 502.
— B. S.—Pharmaceutical Testing, 456.
— B. S.—The *Pharmaceutical Journal* and Trade, 186.
Protoplasm, Living, Energy of (Loew), 378.
Prussia, Pharmaceutical Examinations in, 470.
Pseudaconitine, The Constitution of (Dunstan and Carr), 54.
Publications Received, 52, 70, 134, 154, 214, 260, 324, 364, 392, 406, 470, 512.
Public Health, British Institute of (Annual Congress at Hull), 151.
Pucci—Guaiacol in Orchitis, 471.
Puff-Ball for Alveolar Hæmorrhage and Dental Surgical Cases (Brewster), 91.
Purgative Coffee, 174.
Pyoktannin in Suppositories, 174.
Pyrogallol Solution, Alkaline, The Evolution of Carbon Monoxide by, during Absorption of Oxygen (Clowes), 466.
Pyroligneous Acid as a Bactericide (Goriansky), 72.

Q.

"Quackery, Limited" (Jackson), 126.
Queries, 280, 472, 512, 532.
Quicklime, Rapid Assay of CaO in (Stone and Schenck), 250.
Quinan, W.—Argon as an Ideal Thermometric Substance, 8.
Quinine Hydrochlorate and Creosote in Whooping Cough (Francke), 27.
— Mixture, Effervescent, 174.
— Retailing of, in Italy, 172.
— The Sale of, in Italy, 525.

R.

Radais, Professor—Improved Borax Carmine Staining Solution, 347.
Raikow—Detection of Halogens, 472.
Ramsay, W.—Occlusion of Gases, 73.
— W.—The Properties of Helium, 73.
Ransom, Mr. F., Accident to, 256, 274.
Ranwez and Campion—False Ipecacuanha, 76.
Raoult, F. M.—Experiments on Osmosis, 169.
Ravá, Dr.—Improved Formula for Blaud's Pills, 470.
Raw, N., Dr.—Potassium Permanganate as an Antidote to Opium Poisoning, 152.
Recipe Book, An Ancient, 322.
Refractive Power and Refraction Equivalents of Acetyl-Acetone, and of Ortho- and Para-Toluidine, The Influence of Temperature on the (Perkin), 466.
Registers of Pharmaceutical Chemists and Chemists and Druggists, Rectification of the, 424.
Register, the Irish Pharmaceutical, Attempted Erasure from, 360, 410, 411.
Registration of Chemists and Druggists, Editorial Remarks on the, 443.
Reisnen—Gurjun Balsam in Leprosy, 27.
Reitsch and Herselin—Alcoholic Fermentation, 262.
Remedies, Old, 176.
Rentoul, Dr.—Repetition of Prescriptions, 83.
Reproductive Methods in the Vegetable Kingdom (Turner), 526.
Resacetin, 75.
Research, Lord Halsbury on, 150.
Resorcin, Action of, on Albumin (Carrez), 26.
— Compound Ointment of, in Dry Eczema, 91.
Respiration, The Influence of Volition on (Marcet), 266.
Retail Trade, Undue Cutting in the (Smith), 447.

REVIEWS AND NOTICES OF BOOKS:—

Botany, A Manual of (J. R. Green), 59.
— A Student's Text-Book of (Vines), 40.
— Systematic, A Hand-Book of (Warming), 333.
Bread-Making, A Text-Book of the Science and Art of (Jago), 210.
Chemical Laws, Practical Proof of (Cornish), 314.
Chemistry, Elementary, Hints on The Teaching of, in Schools and Science Classes (W. A. Tilden), 419.
Disinfection and Disinfectants, An Introduction to the Study of (Rideal), 210.
Dental Materia Medica and Therapeutics (Stocks), 314.
Earth Knowledge (W. J. Harrison, and H. R. Wakefield), 499.
Extract, Fluid, Solid Extracts, and Oleo-Resins, Monograph on (Harrop), 314.
Eye, in its Relation to Health, The (Prentice), 148.
Eyesight and School Life (Snell), 334.
Flora of Anglesey and Carnarvonshire, The (Griffiths), 19.
Food and Drugs, The Law and Chemistry of (Robinson and Cribb), 209.
— and Its Functions (J. Knight), 498.
Forensic Medicine and Toxicology, A Text-Book of (A. P. Luff), 442.
Formulaire des Spécialités Pharmaceutiques (Gautier and Renault), 40.
Galerie d'Éminents Thérapeutistes et Pharmacognostes, 484.
Health and Beauty, Helps to (A Pharmaceutical Chemist), 499.
Herbal Simples Approved for Modern Uses of Cure (Fernie), 209.
Icones Plantarum (Hooper), 273.
Jardin des Apothicaires de Paris (Planchon), 148.
John Dalton and the Rise of Modern Chemistry (Roscoe), 189.
Liebig, Justus von, His Life and Work (Shenstone), 395.
Médicaments, Nouveaux Revue des, et de Quelques Médications Nouvelles (Crinon), 210.
Microscopy, Modern (M. J. Cross, and M. J. Cole), 498.
Movement (Marey), 419.
Oils, Fats, and Waxes, and their Commercial Products, Chemical Analysis of (Bendickt and Lewkowitsch), 40.
Organic Compounds, Exercises in the Preparation of (Fischer), 333.
Pharmacy for Students and Pharmacists, A Treatise on (C. Caspari, Junr.), 418.
Photography, A Dictionary of (Wall), 40.
Physiology, Elementary (Davis), 419.
Plants, The Natural History of (Kerner von Marilaun), 314.
Science Progress, 505.
Surgery and Pathology for Dentists (E. W. Roughton), 60.
Urine, Chemistry of (A. H. Allen), 498.
Year-Book of Pharmacy for 1895, 442.

Revocation of Patents for Medicines, 389, 390.
— Proposed, of a Patent for Medicine, 411.
Reynolds, R.—Biography of Liebig, 422.
Rheumatism, Acute, Paste for (Fiengá), 91.
Rhubarb, The Chemistry of (Hesse), 325.
Richet, C., and Héricourt, J.—Serotherapy in Cancer, 453.
Rigler—Ammonia as a Germicide, 26.
Ringworm of the Beard, Ointment for, 239.
Rinzaud—Detection of Artificial Colouring Matter in Wine, 470.
Ritchie, F.—Rough Double Staining, 458.
River Water, Microbes in, 109,
Robbins, H. H.—Gelatin Pastilles, 382.
Roberts, L.—Physiology of Trichophyton, 535.
— Professor F. T.—Inaugural Address at the School of Pharmacy, 281.
— Sir William—Anarcotine: A Neglected Alkaloid of Opium, 129.
— W.—Antiseptic Gauzes, 382.
Robinson, Mr. C. E., Award of the Royal Humane Society's Testimonial to, 504.
Robin—The Administration of Glycerophosphates, 71.
Roeser—Effect of Light upon Iron Perchloride Solution, 313.
Rogers, W. I.—Thought Photography, 465.
Rolfe, R. A.—Vanillas of Commerce, 263.
Roper, R. F.—Pharmaceutical Organisation, 349, 462.
Rose, J. D., Junior—Remuneration of Witnesses, 52.
Rosenham, C. J.—The Passing of the Apothecary Shop, 246.
Rosenthal—Excretion of Morphine in the Saliva, 173.
Roses, Otto of, Bulgarian, 180.
Rouvier—Action of Potato Starch on Iodine, 58.
Royal Botanic Society of London, 66, 450.
— Institution of Great Britain, 22, 409, 491.
— Photographic Society (Annual Exhibition), 43.
— Society, Annual Meeting of the, 429, 465, 488.
— Society of Edinburgh, 548.
— Society, The, and the International Catalogue Committee, 129.
Rubber Tree Seeds, Oil from, 454.
Ruhemann—Sodium Iodate in Swelling of the Ganglia, Chronic Neuralgia, etc. 363.
Rubrol, 75.

Russell, J. A.—Pharmaceutical Organisation, 334, 441.
Rust from Steel, To Remove, 323.
— Preventive, 343.
— Stains on White Goods, 236.
Rusty Instruments, To Clean (Brodie), 155.
Ryan, F. G,—Agar-Agar in Glycerin Suppositories, 537.

S.

Sabbatini—Remedy for Neuralgia, 323.
Saccharin, Antiseptic Action of (Burkard and Seifert), 178.
— Granules, Medicated (Grannat), 116.
— Purification (Pope), 366.
— Test for (Papasogli), 386.
" Sacred Herb," Lantanine, an Alkaloid from (Lugo-Vina), 365.
Saffron Trade in Valencia, 264.
Safrol, The Physiological Action of (Hiffter), 342.
Sage, C. E., and Parry, E. J.—Cod-liver Oil Constants, 119.
Saint-Phillipe — Antipyrine in Infantile Diarrhœa, 175.
Saké, The Production of (Jörgenson), 357.
Salicin and Salicylates in the Treatment of Psoriasis and other Skin Affections (Croker), 51.
Salicylic Acid, Detection of Salol in, 92.
Saligenin in Acute Articular Rheumatism, 175.
Salipyrine in Menorrhagia (Orthman), 363.
Sallard—Treatment of Acute Alcoholic Intoxication, 155.
Salol-Antipyrine Mixture as Uterine Hæmostatic (Bralent), 71.
Salol Collodion, 173.
— for Stopping Hollow Teeth, 216.
— in Salicylic Acid, Detection of, 92.
Salophen for the Nerve-Symptoms of Influenza (Hennig), 343.
Sandal Wood Oil (Pearmain and Moor), 179.
Sand Baths, Hot, in Chronic Rheumatism (Grawitza), 71.
Santal Wood Oil (Parry), 118.
Sawanton, H. de—Proposed New Subdivisions of the Hour, 255.
Sawyer, J. C. N.—The Patchouli Plant, 80.
— Sir James—Tincture of Cusparia, 44.
Sayre, L. E., and Lang, W.—Cucurbita Fœtidissima, 179.
Scarpa—Ichthyol in Pulmonary Tuberculosis, 51.
Schilling, Dr. F.—Subcutaneous Injections of Camphor, 380.
Schimmel—Chemistry of the Terpenes, 346.
— Notes on Essential Oils, 307, 316, 328.
Schlagdenhauffen and Reeb—Coronillin, 178.
Scholarships at the Missouri Botanical Gardens, 525.
School of Pharmacy, Inaugural Address (Professor F. T. Roberts), 281.
— of Pharmacy Students' Association, (Annual Meeting), 39, 465; Editorial Remarks on the, 524; (Inaugural Address: Attfield), 526.
— of Pharmacy, Opening of the, 281.
Schreiber—Test for Sugar in Urine, 455.
Schröder, J.—Medicated Gelatin Bougies, 537.
Schützenberger, P.—Action of the Halogens upon Methyl Alcohol, 74.
Schweinitz, E. A. de, and Dorset, M.—Composition of Microbes, 179.
Schweitzer, Dr.—Substitution in America, 357.
Science, Education and Examination in Experimental (Gibson), 473.
Scientific Work in Germany, Promotion of, 318.
Scotland, Dispensing for the Poor in, Editorial Remarks on, 11.
— Pharmacy Act in, Editorial Remarks on, the, 403.
— Prizes for Apprentices in, Editorial Remarks on, 443.
Scottish Alps, The (Howie), 360.
Scutellaria in Whooping Cough, 195.
Searle, A. B., and Tankard, A. R.—Citric Acid from Cane Sugar, 74.
Secretaries, Local, Appointment of ("Middlesex"), 344.
Secretions, Internal, Editorial Remarks on, 187.
Section-Cutting ("Wrist-Joint"), 28.
Séguy, G.—Nitrogen and Phosphorescence, 177.
Semmola and Grofforedi—Picrotoxin as an Anti-Sudorific, 343.
Senecio, Active Principles of (Lutz), 535.
Serenoa Serrulata, 4.
Serpent Venoms, The Relative Toxicocity of (Calmette), 198.
Serotherapy in Cancer (Héricourt and Richet), 453.
Serpents' Venom, Immunity against (Fraser), 59.
Serum, Anti-Diphtheritic, 49.
— Anti-Venomous (Calmette), 111.
— Artificial, Formulæ for, 92.
— Treatment of Tuberculosis, The (Maragliano), 168.
Seynes, J. de—Penicillium Cupricum, 535.
Shampoo, Egg, 279.
Sheep Dips, Recipes for, 28.
Sheffield Microscopical Society, 468, 548.
— Pharmaceutical and Chemical Society (Annual Meeting), 319; (Inaugural Meeting and Annual Dinner), 338.
— Pharmacy, A New, 130.
Shields—Occlusion of Gases, 73.
Shop *versus* College Training, Editorial Remarks on, 36.
Short, Mr. F. W., Presentation to, 20.
Siekel—Dental Cement Filling, 91.
Silica, Fusion of, with Aluminium (Vigouroux), 69.
Silicides, Metallic (Moissan), 453; (Vigouroux), 453.
Silicon and Aluminium in Plants (Camusat), 536.
Silk, Gilding, 185.
Silver Nitrate Stains, To Remove, 392.
Simmonds, P. L.— Castoreum and Civet, 215.
Simon—Creosote Injection in Intestinal Tuberculosis, 175.
Simpson, W.—The Value of a Good General Education, 225.
Skin, Liquor Anthracis in Diseases of the (Fischel), 238, 239.
"Sleeping Disease" of Tomatoes, 19.
Slide, Lantern, Making, 459.
Slides, Lantern, Dense, 239.
— Lantern, Preparation of, 412.
Smith, E. J.—Undue Cutting in the Retail Trade, 447.
— H. G., and Maiden, J. H.—Eudesmin and Aromadendrin, 261.
— J.—Federation of Local Associations, 383.
— R. G.—The Detection of Sulphates, Sulphites, and Thiosulphates in the Presence of Each Other, 165.
— W. G.—An Incompatibility, 98.
Smithells, Professor—The Temperature of Flames and the Acetylene Theory of Luminosity, 426.
Snake Antitoxin (Phisalix and Bertrand), 535.
— -bite, Calcium Hypochlorite in (Phisalix and Bertrand), 278.
— -bites, Novel Treatment of (Physalix and Bertrand), 452.
— Poison Antitoxin, The Discovery of, 525.
Snell, J. F. C.—The Commercial Application of Electrical Energy, 408.
Snow-Flower, The (Guerrero), 322.
Snow, H. W.—Digestive Power of Pepsins, 178.
— H. W.—The Efficiency of Pepsin, 316.
Soap-Berry Tree, The, 300.
Soap, Influence of, upon Cholera Germs (Jolles), 155.
Society of Chemical Industry, 485; (Liverpool Section), 505; (Manchester Section), 506.
Sodium Acetylide (De Forcrand), 31.
— Boro-Salicylate, Preparation of, 92.
— Chloride, Use of, in the Preparation of Fluid Extract of Ergot, 58.
— in Aluminium (Moissan), 534.
— Iodate in Swelling of the Ganglia, Chronic Neuralgia, etc. (Ruhemann), 363.
— Iodate, Pharmaceutical Combinations of, 175.
— Salicylate in Exophthalmic Goitre (Chibret), 175.
Solanaceæ, Localisation of Alkaloids in the (Molle), 502.
Solanum Carolinense in Epilepsy (Bondurant), 51.
Solder for Glass, 323.
Solutions, Volumetric, of the British Pharmacopœia, The (Elborne), 164.
Sonstadt, E.—Mercury as a Delicate Reagent for Platinum, 269.
— E.—Reduction of Potassium Platinochloride, 262.
Sorby, Dr. H. C.—Recent Natural History Studies in the S.E. of England, 548.
Soulard—Iodised Cotton, 264.
Sound, Communication of, by Light Rays (A. G. Bell), 65.
Southall, A.—Tincture of Cusparia, 80.
Soziodol of Mercury, Solution of, 239.
Spanish Revenue Duty on Medicine Stamps, 469.
Sparteine Sulphate, Distinctive Reaction for, 482.
Spectacles and their Relation to the Human Eye (Ivatt), 409.
Spengler, C.—Detection of Tubercle Bacilli, 146.
— Para-chlorophenol in Laryngeal Tuberculosis, 471.
Spiegel and Dobrin—Cardol, 455.
Spirits Act, Proceedings Under the Sale of (London), 22; (Kirkburton), 23.
Squire, P. W.—Borax Carmine as a Staining Fluid, 482.
Staining of Cellulose, Notes on the (Klar), 290.
— of Cellulose, The (Love), 458.
— Rapid, of Fresh Tissues (Cullen), 146.
— Rough Double (Ritchie), 458.
— Solution, Improved Borax-Carmine, (Radais), 347.
— the Ringworm Fungus, 146.
Stamps, Amount of the Duty on Medicine, the, 211.
— Medicine, Forgery of, 188.

Stamps, Medicine, Alleged Mutilation of (Northampton), 385.
Stand for Colour Reactions, 440.
Stanwood, G. W.—A Plea for the Tablet, 201.
Stapf, Dr.—Ipoh Poison, 177.
Starch Grains, Composition and Growth of (Meyer), 367.
— Potato, Action of, on Iodine (Rouvier), 58.
St. Bartholomew's Hospital Masonic Lodge, Consecration of the, 21.
Stein—Lactophenin as an Antipyretic and Analgesic, 91.
Stephenson, Professor—Ethical Aspects of Pharmacy, 19.
Sterilised Milk, Objections to the Use of (Duclaux), 445.
— Surgical Dressings: A Record of Experience (White), 138.
Stern—Arachis Meal in Diabetes, 391.
Stevens, T. M.—Company Law, 429.
Stewart, Dr. C. H.—The Amount of Carbonic Acid in the Atmospheric Air and Ground Air of Edinburgh, 548.
— Dr. C. H.—The Relation of the Soil to the Incidence of Summer Diarrhœa Among Children in Scotland, 548.
Still Alarm, The (N. C. and P. W. Jones), 140.
Stokes, Sir G. G.—The Perception of Light, 130.
— W.—A Celtic Leech-Book, 420.
Stone and Schenck—Rapid Assay of CaO in Quicklime, 252.
Stomates, Distribution of (Petit), 536.
Storax as a Mounting Medium (Piffard), 458.
Strychnine, Sale of, for Phenacetine (Birmingham), 524, 550.
Stypticine (Cotarnine Hydrochlorate), 75; (Gottschalk), 471.
Substitution in Pharmacy ("Lin. Camph."), 324; (Young), 344.
— The Cry of, 198.
Sugar, Cane, Citric Acid from (Searle and Tankard), 74.
— in Urine (Klar), 290; (Allen), 307.
— in Urine, A Ready Method of Determining the (Crégny), 89.
— in Urine, Determination of, 436.
— in Urine, Test for (Schreiber), 455.
Sulphates, Sulphites, and Thio Sulphates in the Presence of Each Other, The Detection of (Smith), 165.
Sulphonal and Trional, Comparison of (Webber), 27.
Sulphur Fumigation, Dangers of, 23.
— Mining in Japan, 149.
Sulphuretted Hydrogen, Action of, on Plants (Barnouvin), 263.
— Waters, Substitute for, 174.
Sundays in Liverpool, 364.
Sunderland Chemists' Association (Annual Excursion), 66; (Annual Dinner), 529.
Suppositories, Glycerin, Agar-Agar in (Ryan), 537.
— Glycerin Ovules and (Lomuller), 182.
— Pyroktanin in, 174.
Suprarenal Capsule Extract in Addison's Disease (Langlois), 195.
— Capsules, Extract of, for Injection (Langlois), 239.
— Capsules, Extract of, Physiological Action of (Gluzinski), 91.
— Capsules, Extract of the (Gourgein), 179.
— Glands, The Therapeutic Employment of the (Oliver), 311.
Surchet—Creosote Emulsion for Rectal Injection 215.
Swansea and District Chemists' Association, 431.
Swiss Apotheker Verein, Annual Meeting at Bern, 134.
Symes, C.—Remarks on the British Pharmacopœia, 141.
— C.—The Production of Acetylene, 383.
— C.—Work and Policy of the Federation of Local Associations, 467.
— L.—Animal Oils and the New Pharmacopœia: The Properties of "Oleum Anserinis" or Goose-Grease, 98.
Syphilis, Thyroid Feeding in (Güladzë), 471.
Syrup. Ferri. Phosph. Co., Preparation of, 412.
Syrup. Hypophosph. Co., B.P.C. (Naylor) 143.

T.

Tablet, A Plea for the (Stanwood), 201.
— Machines, Compressed (Foster), 452.
Tablets, Compressed, The Preparation of, 279, 348, 367.
Tankard, A. R., and Searle, A. B.—Citric Acid from Cane Sugar, 74.
Tanning, Arsenical Hydrogen in, 465.
— Material, A New (Extract of Palmetto), 4.
Tanret—Caffeine as a Base, 261.
Tansy, Oil of, Note on (Holmes), 501.
Taplin, J. W.—Liquor Calcis Saccharatus, 412.
Tar for Hæmorrhoids (Lacruz), 195.
Taylor, Dr. J. G., Death of, 301.
— G. S.—Education in Practical Pharmacy, 217.
— Gove S.—Preparation of, and Stock Bottles for, Aromatic Waters, 537.
Tea-Seed Cake, Note on (Holmes), 501.
Technical Education, The *Daily Telegraph* on, 336.
Teeth Extraction by Chemists ("Rus"), 176.
— Hollow, Salol for Stopping, 216.
Teetotalism, Ultra-Rabid, 19.
Temperature, Low, Production of (Villard and Jarry), 75.
— The Influence of, on the Refractive Power and on the Refraction Equivalents of Acetyl-Acetone and of Ortho- and Para-Toluidine (Perkin), 466.
Tenicide, Chloroform as a, 195.
Tennessee, Pharmacy in, 299.
Terpenes, Chemistry of the (Schimmel), 346.
Testing, Pharmaceutical (Proctor), 456.
Theobromine as a Diuretic and Tonic (Huchard), 391.
Therapeutic Employment of the Suprarenal Glands, The (Oliver), 311.
Thermometers, Ancient (Maze), 179.
Thermometric Substance, Argon as an Ideal (Quinan), 8.
Thiberge—Thyroid in Psoriasis, 391.
Thiosulphates, Sulphates, and Sulphites, The Detection of, in the Presence of Each Other (Smith), 165.
Thomas, J. A.—The Pharmaceutical Society and the Trade, 61.
— V.—Action of Nitric Oxide upon Metallic Chlorides, 74.
Thompson, C. J. S.—Alchemy and Pharmacy: Their Mystery and Romance, 3, 117, 241, 393.
Thomson, R.—A Fire-Proof Tree, 316.
Thorpe, A.—A New Bacterial Pigment, 178.
— Photography (Rogers), 465.
Thresh, Dr.—A New Disinfecting Apparatus, 357.
Thymol Solution, 343.
Thyreo-Antitoxin (Fränkel), 525.
Thyroid Extract in Universal Alopecia (Beevor), 215.
— Feeding in Syphilis (Güladzë), 471.
— Gland, The Active Principle of the (Fränkel), 525.
— in Psoriasis (Thibierge), 391.
Thyroprotein (Notkine), 365.
Tillie, J., and Fraser, T. B.—Acokanthera Schimperi, 76, 111.
Tin and Antimony in an Alloy, Separation and Determination of (Menglin), 417.
Tinct. Chloroformi et Morphinæ (H. Wyatt, Junr.), 408.
— Iodi, Preparation of (Dyer), 412; ("Pharmacist"), 432.
Tincture of Iodine (Popiel), 74.
— of Opium (Kebler and La Wall), 454.
Tinctures of the British Pharmacopœia, The (Farr and Wright), 180.
Tissue, Absorbable, for Wounds, 425.
Tissues, Fresh, Rapid Staining of (Cullen), 146.
— Vegetable, New Embedding Material for, (Brunotel), 146.
Toe-nails, To Prevent In-growing of the, 116.
Tollner, K. F.—Fellitin, 455.
Tolu Balsam, Note on a Spurious Sample of (Braithwaite), 145.
Tomatoes, "Sleeping Disease" of, 19.
Tomes, Sir Joseph, Death of, 130.
Toothache, To Relieve, 194.
Tooth-Stopping Cement (Siekel), 91.
Toxicity of Acetylene (Gréhaut), 453.
Trabut, M. L.—Fungus Growing in a Solution of Copper, 59.
Trade Marks Act, Proceedings under the (London), 135.
— Marks, The Use of, 358.
— The, and the Journal (Marsden), 502.
Transparencies, Blue, Preparation of, 216.
Transvaal, Pharmacy in the, 304.
Travers—Properties of Helium, 73.
Trendenberg—Cantharidin in Cystisis, 215.
Trichophyton, Physiology of (Roberts), 535.
Trimble, H.—The Future of Pharmacy, 10.
Trimethylene Glycol in Glycerin, The Presence of (Noyes and Watkins), 534.
Trional and Sulphonal, Comparison of (Webber), 27.
— As a Soporific (Guttmann), 27.
— Characters and Tests of, 92.
— The Use of, as a Hypnotic for Children, 238.
Troost and Bouchard—The Prevalence of Argon, 550.
— L.—Argon and Helium, 261.
Tubercle Bacilli, Detection of (Spengler), 146.
Tuberculosis, The Serum Treatment of (Maragliano), 168.
Turner, C.—Reproductive Methods in the Vegetable Kingdom, 526.
Turver, C. H.—The Metric System, 18, 109, 240.
Tyndall as Worker and Teacher (Sir F. Pollock), 358.

U.

Ulster Pharmaceutical Association, 360, 425, 431.
Ultima Thule, Pharmacy in, 273.
Umbelliferæ, Calcium Oxalate in the Pericarp of (Wettstein), 514.
— Vittæ of the (Wisselingh), 367.
Umney, J. C.—Oil of Pinus Sylvestris, 542.
— J. C.—Oil of Scotch Fir (Pinus Sylvestris) and other Pine Oils, 161.
Unguentum Eucalypti (Boa), 539.

United States, the Conditions of Pharmaceutical Qualifications in the, Editorial Remarks on, 63.
University Degrees for Women, 65.
Unna—Casein Emulsion as an Ointment Base, 51.
Unqualified Men, Sale of Poisons by, 136.
Uranium Acetate in Coryza (Sten), 195.
Urine, Albumin in, Resorcin as a Reagent for (Carrez), 220.
— Artificial Colouring Matter in, Detection of (Rinzaud), 470.
— Determination of Globulin in (Daiber), 73.
— Determination of Sugar in, 436.
— Sugar in (Klar), 290; (Allen), 307.
— Sugar in, A Ready Method of Determining the, 89; (Crégny), 89.
— Sugar in, Test for (Schreiber), 455.
Urotropine, 363.

V.

Vaccination in England and Wales, 256.
— The Blessings of, 275.
Valencia Saffron Trade, 264.
Valerian, Essence of (Oliviéro), 542.
Vallot, E.—Photography in Natural Colours, 445.
Vanilla, Sophistication of, 386.
Vanillas of Commerce (Rolfe), 263.
Van Nerom—Iodoform Gauze, 392.
Vargas—Treatment of Myosis of the Nasal Fossæ with Ocinum Basilicum, 51.
Varnish for Finishing Slides, 458.
— Photographic Crystal, 72.
— Water-proof, 174.
Vaselin Ointments Containing Aqueous Solutions, 133.
Vegetable Kingdom, Reproductive Methods in the (Turner), 526.
Vegetation, Effect of Electric Light on (Bonnier), 536.
Venom, Snake, The Discovery of Antitoxin for, 525.
Venoms, Serpent, The Relative Toxicocity of (Calmette), 198.
Veratrums, Alkaloids of the (Allen), 242.
Vesicant, Artificial, 182.
Veterinary Association, National, Annual Meeting at Birmingham, 112.
— Surgeons Act, Proceedings under the (Roslin), 131.
Vignolo—Essential Oil of Cannabis Indica, 454.
Vigoroux—Fusion of Silica with Aluminium, 69.
—Metallic Silicides, 453.
Villard, P., and Garry, R.—Production of Low Temperatures, 75.
Villon—Ageing of Alcohol by Artificial Means, 49.
— Purification of Oils by Algosin, 453.
Vincent—Disinfection of Cesspools, 155.
Vinegar, Determination of Acetic Acid in (Leeds), 262.
Vinum Ferrugineux Amère, 323; (Harris), 344.
Vitriol Throwing in France, 26.
Vittæ of the Umbelliferæ (Wisselingh), 367.
Vogel, H. W.—The Keeping Power of Photographic Dry Plates, 545.
Vogl, Professor August—Award of the Hanbury Medal to, 62, 64, 286, 289.
Vogt, G.—Pharmaceutical Education in a County Town, 219, 280.
Volatilisation of Salts during Evaporation, The (Bailey), 505.
Volemite (Bourquelot), 453.
Volemose (Fischer), 453.
Volition, The Influence of, on Respiration (Marcet), 266.
Volumetric Solutions, The, of the British Pharmacopœia (Elborne), 164.

W.

Wager, H.—The Structure of Bacteria Cells, 263.
Walker, C. F.—The Relation of Chemistry to Civilisation, 265.
— F.—Irish Moss as an Emulsifying Agent, 408.
Wall, W. A.—Compound Tablet Machines, 432.
Ward, J. S.—A False Chiretta, 197.
Wardleworth, T. H.—A Botanist's Rambles in Northern Spain, 428.
— Oil of Lindera Sericea, 384.
Warren, H. N.—An Oxyhydrogen Accumulator, 75.
— H. N.—A New Form of Accumulator, 445.
Warts, Multiple, Application for, 194.
— Treatment of, 155.
Water-bath, Iris, 440.
— Drinking, Algæ and Fungi of (Istvanffi), 59.
— Steriliser, Permanganate of Lime as a, 69.
— The Influence of, on Chemical Reactions (Hughes), 309.
Waterproof Varnish, 174.
Waters, Aromatic, Preparation of (Lascar), 537; (Gove S. Taylor), 537.
— Aromatic, Stock Bottles for (Gove S. Taylor), 537.
Watkins, W. H., and Noyes, A. A.—The Presence of Trimethylene Glycol in Glycerin, 534.
Watt, Dr. Geo.—Indian Opium, 207.
Webber—Comparison of Sulphonal and Trional, 27.
Weed-Killer and Ant-Destroyer, Poisonous, The Sale of, 510.
Weights and Measures of the British Pharmacopœia, The, *versus* the Metric System (Elborne), 183, 203.
— and Measures, Reports of the Select Committee on, 20, 34.
— and Measures, Select Committee on, Meeting of the, 20.
— and Measures, Society of Inspectors of (Annual Meeting), 66.
— and Measures, the Select Committee on, Editorial Remarks on, 167.
Weiss, Professor—The Relation of Ants to Plants, 466.
Wessex, The Conference in, 55, 84.
Wesson, D.—Examination of Land, 262.
Western Chemists' Association of London (Inaugural Meeting), 337; (Election of Officers), 384; (Annual Dinner), 444; (Inaugural Address: Hyslop), 549.
Westley, G. E.—The Preparation of Monsell's Salt, 457.
Westminster College of Chemistry and Pharmacy (Annual Dinner), 490.
Wettstein, Dr. R. von—Calcium Oxalate in the Pericarp of Umbelliferæ, 514.
Wevre, A. De—African India-rubber, 179.
What is a "Chemist"? 522.
White, E.—Sterilised Surgical Dressings; A Record of Experience, 138.
Whitlow, Local Anæsthetic in Cases of, 155.
Whooping Cough, Ozone in (Labbé and Oudin), 175.
— Cough, Scutellaria in, 195.
— Cough, Spray Solution for (Codwell), 91.
Wild, Dr. R. B.—The Pharmacology of the Ipecacuanha Alkaloids, 405, 435.
Willcox, W. H.—Barium Butyrate, and the Determination of Butyric Acid, 466.
Williams, Dr.—Cats and Diphtheria, 144.
Wintermitz—Bilberry Juice as a Remedy for Eczema, 27.
Wishart, J.—Bees, Ants, and their Ways, 489.
Wisselingh, M. C. van.—Vittæ of the Umbelliferæ, 367.
Witnesses, Remuneration of (Rose), 52.
Woitoff, Professor—Death of, 451.
Wolff, Dr.—Lotion for Acne, 363.
Woman Pharmacist, Autobiography of an American, 89.
Women as Apothecaries, 211.
— Pharmacists in Hungary, 111.
— University Degrees for, 65.
Worms, Dr.—Treatment of Diabetes, 133.
Wounds, Absorbable Tissue for, 425.
Wright, A. E., and Semple, D.—Diphtheria Antitoxin as a Culture Medium, 337.
Wroblewski—Iodine Tincture in Maladies of the Nose and Pharynx, 51.
Wyatt, H., Jun.—A Reaction of Ammoniacum Ichthyol Sulphonate, 508.
— H., Jun.—Tinct. Chloroformi et Morphinæ, 408,

Y.

Yeast, Brewers', in Diabetes (Cassaët), 391.
Yeasts and Moulds (Jörgenson), 178.
Yorkshire Relish, Sale of a Substitute for (Birmingham), 390.
Young, E. F.—Substitution in Pharmacy, 344.

Z.

Zincol Lint (Ashton), 492.
Zinc, Phosphide of, in Hay Fever (Bosworth), 215.
— Stearate in Gonorrhœa (Miller), 175.

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CONTRACTIONS OF TITLES.

The following is a list of the contractions and the corresponding full titles of Journals most frequently used in "The Month," and elsewhere in the "Pharmaceutical Journal." The titles prefixed by an asterisk (*) are those of official Journals.

* *Amer. Journ. Pharm.* = American Journal of Pharmacy. Philadelphia. Monthly.

Annalen = Justus Liebig's Annalen der Chemie. Liepzig. Monthly.

* *Apot.-Zeit.* = Apotheker-Zeitung. Organ of the Deutsche Apotheker-Verein. Berlin. Twice a week.

* *Apot. Zeit. Rep.* = Repertorium der Pharmacie. Supplement to the Apotheker-Zeitung.

* *Archiv* = Archiv der Pharmacie. Berlin: J. Greiss. Monthly.

* *Berichte* = Berichte der deutschen chemischen Gesellschaft. Berlin. Once or twice a month.

* *Brit. Med. Journ.* = British Medical Journal, London. Weekly.

Bull. com. = Bulletin commercial. Supplement to L'union pharmaceutique. Paris: Pharmacie centrale de France. Monthly.

* *Can. Pharm. Journ.* = Canadian Pharmaceutical Journal. Toronto. Monthly.

Chem. News = Chemical News. London. Weekly.

Chem. Zeit. = Chemiker Zeitung. Cöthen. Twice a week.

Chem. Zeit., Rep. = Chemisches Repertorium. Supplement to the Chemiker Zeitung.

* *Comp. rend.* = Comptes rendus des séances de l'Académie des Sciences. Paris: Gauthier-Villars. Weekly.

* *Journ. Chem. Ind.* = Journal of the Society of Chemical Industry. Monthly.

* *Journ. de pharm.* = Journal de pharmacie et de chimie Paris: G. Masson. Twice a month.

Med. Press = Medical Press and Circular. London: A. A. Tindall. Weekly.

Mon. scient. = Moniteur scientifique. Paris. Monthly.

Münch. med. Woch. = Münchener medicinische Wochenschrift. Munich. Weekly.

Nouv. rem. = Les nouveaux rémèdes. Paris. Twice a month.

Pharm. Centrah. = Pharmaceutishe Centralhalle Dresden. Weekly.

Pharm. Post = Pharmaceutische Post. Vienna. Weekly.

Pharm. Zeit. = Pharmaceutische Zeitung. Berlin: J. Springer. Twice a week.

* *Proc. Chem. Soc.* = Proceedings of the Chemical Society. London. About twice a month.

Répertoire = Répertoire de pharmacie, archives de pharmacie, et journal de chimie médicale réunis. Paris. Monthly.

Scient. Amer. = Scientific American. New York. Weekly.

Union pharm. = L'union pharmaceutique. Paris: Pharmacie centrale de France. Monthly.

THE

PHARMACEUTICAL JOURNAL.

VOLUME LV. (FOURTH SERIES, VOLUME I.)

LONDON: SATURDAY, JULY 6, 1895.

LOOKING back to the time when the publication of this Journal was commenced, it cannot be denied that, in the interval, there has been great improvement in the conditions under which the practice of pharmacy is carried on in Great Britain. Pharmacy laws did not then exist, and the need of special qualification was but little appreciated. Though—in regard to general culture, scientific knowledge, and commercial ability—individual representatives of the craft were, even at that time, able to bear comparison with the foremost pharmacists of other countries, the professional aspect of pharmacy was generally ignored, and there was a total absence of recognised organisation for ensuring competent knowledge and skill on the part of those engaged in the occupation.

At the present time, though legislative action has not given the protection enjoyed by pharmacists in other countries, and though it has apparently had a tendency to reduce pharmaceutical qualification to one dead level of uniform mediocrity, it has at least furnished a definite basis for protective self-government, while the effect produced by the complementary work of the Pharmaceutical Society in promoting education has still further helped to make the pharmacist regarded as something more than an ordinary tradesman.

It cannot be disputed that this Journal has been largely conducive to the attainment of these results and that its establishment, as one means of promoting pharmaceutical organisation and progress, was far from being the least important among the great services rendered by Jacob Bell. As originally published experimentally, the Journal only professed to record the transactions of scientific meetings held by Bell and other founders of the Society, at the time when the work of pharmaceutical organisation was being initiated. It was then issued as a monthly publication for the purpose of circulating information respecting the nature and objects of the newly formed Association. Subsequently, with the addition of correspondence and papers on pharmaceutical subjects, it appeared as the "Pharmaceutical Transactions." Eventually, in January, 1842, when the advantages of a medium for periodical interchange of ideas had become obvious, and when no doubt remained as to the practicability of maintaining a journal of pharmacy, it was issued with the title of "Pharmaceutical Journal and Transactions," which has been retained up to the present time.

The first series of the Journal, extending over eighteen years, was edited by Jacob Bell, with the assistance of his able coadjutor, Redwood, who, after the death of Bell in 1859, continued, in conjunction with Bentley and Barnard, to edit the second series, extending over eleven years. Then, shortly after the passing of the Pharmacy Act in 1868, the issue of a weekly publication, as a third series of the Journal, was decided upon to meet the increased demand for information, more or less directly interesting in connection with pharmacy. That this third series of the Journal has not been closed without some expression of appreciative recognition is a circumstance which affords the Editor satisfaction and encouragement.

These progressive modifications of the Journal have reflected, in some degree, the changes taking place, meanwhile, in the general condition of the trade. Thus, in the preface to the second volume it was said to have been found impossible to adapt the contents of the Journal to the capacity and condition of all its readers, since many of them had not the advantages of professional education which would have enabled them to understand and appreciate the instructive papers furnished by distinguished authorities on chemistry, materia medica, and botany, who were regular contributors to the Journal. As then anticipated, that difficulty has gradually diminished and some progress has since been made towards a realisation of the hope then expressed, that such difficulty would ultimately cease to exist, as the diffusion of knowledge, under the auspices of the Pharmaceutical Society, dispelled the cloud which had hitherto hung over the chemists and druggists of Great Britain. That such has been the case is evident from the character of the papers contained in subsequent volumes of the Journal and contributed, in many instances, by members of the craft.

Once more a change has been made, in accordance with a very generally expressed desire, that, in addition to papers on strictly scientific subjects, the Journal should also comprise matter of more general interest and commanding a wider range of appreciation than had hitherto been considered consistent with the maintenance of its position as a scientific publication. Attention had probably been directed, too exclusively, to the disregard of scientific culture prevailing among chemists and druggists and to the endeavour to remedy that deficiency. But indispensable as scientific knowledge is for properly and successfully conducting the professional part of a chemist's business, that part of it is invariably associated with details of trade which cannot be neglected. To give greater consideration to the varied trade aspects of the business will, in future, be a function of the *Pharmaceutical Journal*. There will not be any departure from the principles by which its conduct has hitherto been guided. The change will be only in the scope of its subject matter. While endeavouring in that way to satisfy all reasonable expectations, the Editor hopes to receive general countenance and support, not only from Members and Associates of the Society, who may be expected to take a special interest in their own Journal, but also from all connected with the business to which it relates. In that case the *Pharmaceutical Journal*, while continuing to maintain the high position already gained, may fulfil the intention with which it was originally established by Jacob Bell, and become an indispensable desideratum for all British chemists.

THE ACTION OF HEAT UPON THE ALKALOIDS OF IPECACUANHA.

BY DR. B. H. PAUL AND A. J. COWNLEY.

Experiments carried out by Braithwaite and Umney,* as well as some previous observations by Cripps,† showed that by heating the acetic acid extract of ipecacuanha some considerable loss of alkaloid resulted. Hence it was inferred that the official B.P. process for preparing ipecacuanha wine is open to objection, since the extract obtained in that way requires to be heated for several hours on a water bath before it can be reduced to powder as directed.

At the time these experiments were made the existence of two distinct alkaloids in ipecacuanha root had not been ascertained, and the question arose whether the observed loss of alkaloid applied to both emetine and cephaeline, or only to one of these alkaloids.

From our own observations we were of opinion that the salts of these alkaloids do not suffer alteration when heated to a temperature of 100° C., but it seemed desirable to obtain some further information on this point, and also to ascertain whether the loss of alkaloid observed in making ipecacuanha wine is due to the alteration of emetine or of cephaeline. With that object the following experiments were made with the pure alkaloids.

A solution of ·0968 gramme emetine in 53 minims strong hydrochloric acid diluted with 2 fluid ounces of water was evaporated, and the dry residue heated for sixteen hours upon a water bath. At the end of that time the residue was but very slightly coloured, and was found to contain ·09512 gramme of alkaloid, a difference from the quantity taken not greater than may be ascribed to experimental error.

In a similar experiment with ·09504 gramme cephaeline a like result was obtained, the quantity of alkaloid found in the residue after evaporation being ·09328 gramme.

The effect of long-continued boiling (sixteen hours) of solutions of emetine and cephaeline containing excess of acetic acid was then tried. In both instances there was but little alteration in the colour of the solutions, and the quantity of alkaloid afterwards extracted was almost the same as that originally taken for the treatment.

Under both of these conditions there appears to be very little alteration of either emetine or cephaeline. The result is, however, very different when solutions of either of these alkaloids in acetic acid are evaporated, and the dry residue is heated for some length of time. In that case the solution becomes coloured as the evaporation advances, and the dry residue has a dark brown colour, which is more marked with cephaeline. The residues left on evaporating acetic solutions of the alkaloids have an alkaline reaction, from which it would appear that the acetates are decomposed by heating, and that the alteration of the alkaloids is due to the action of heat upon them in the free state. An experiment made to ascertain this point, by heating cephaeline moistened with water in an open basin, and keeping the dry residue hot on a water bath for sixteen hours, showed that, under these conditions, there was a loss of alkaloid amounting to 17·6 per cent., with considerable darkening. On dissolving the residue in hydrochloric acid, adding ammonia, and shaking out with ether, only a few crystals were obtained, and the ammoniacal liquor presented a marked fluorescent appearance.

* *Pharm. Journ.* [3], xx., 253.
† *Pharm. Journ.* [3], xix., 723.

To ascertain more exactly the extent to which each of the two different alkaloids of ipecacuanha is altered when the dry residue of an acetic solution is exposed to heat, the following experiments were made.

A solution, containing 0·09698 gramme emetine in 85 minims of acetic acid diluted with 2 fluid ounces of water, was evaporated to dryness in an open basin on a water bath, and the dry residue kept at the same temperature for sixteen hours. The quantity of alkaloid was then determined by dissolving the residue with hydrochloric acid, adding ammonia, and shaking out with chloroform, then titrating the residue from the chloroform solution; it amounted to ·07087 gramme, showing a loss of ·02611, or nearly 27 per cent. of the alkaloid operated upon.

In a similar experiment with ·09504 gramme cephaeline, the quantity of alkaloid found in the residue was ·07392, showing a loss of ·02112, or upwards of 22 per cent.

In both cases there was evident alteration of the alkaloids. The residues left by the acetic solutions after evaporation were very dark coloured. That obtained from cephaeline no longer gave the characteristic crystallisation when shaken with ether and ammonia, and the alkaline liquor was highly coloured as well as fluorescent.

In order to further test the influence of heat in altering the alkaloid contained in ipecacuanha, the emetic action of the residue obtained by heating cephaeline with excess of acetic acid was tried, and it was found that a dose of ·01 gramme produced no emesis in thirty minutes.

The alteration above mentioned does not appear to be merely the result of heating, for when cephaeline was heated to its melting point for thirteen hours in a partially closed vessel, there was practically no alteration of alkaloid beyond a very slight loss of weight, which might be ascribed to the presence of some adherent ether or moisture. This result seemed to point to the fact that presence of air is necessary for effecting the alteration observed when the alkaloid is heated in an open basin.

Chemical Laboratory, 13, *Fenchurch Avenue, E.C.*

Structure and Arrangement of the Laticiferous Tubes in Plants yielding Gutta-Percha and Caoutchouc.—Dr. O. Chimani gives the following list of plants belonging to the Sapotaceæ, which yield gutta-percha:—*Palaquium gutta*, *P. oblongifolium*, *P. borneense*, *P. treubii*, *P. argentatum*, *P. rostratum*, *Bassia firma*, *Payena leerii*, *P. suringiana*, *P. rubro-pedicellata*, *Achras sapota*, *Sideroxylon urbani*; there is also a latex resembling gutta-percha in *Mimusops balata*. In these and in plants belonging to the Moreæ, Ficeæ, Euphorbiaceæ, and Apocynaceæ, which yield caoutchouc, he has investigated the structure and arrangement of the laticiferous tubes. The best staining reagent for the resin of the latex was found to be a solution of alkanna in acetic acid. The laticiferous tubes of the Sapotaceæ are distinguished by their remarkably short segments; but the septa are resorbed in the middle, until only a very thin membrane remains. The solid bodies contained in them have a bone-shaped form. The tubes of those plants which yield caoutchouc are usually branched, but never anastomose, like those of the Sapotaceæ; they are often segmented. They frequently have an elongated lens-shaped transverse section, due to partial obliteration; this occurs especially in *Landolphia*, belonging to the Apocynaceæ. The medullary sheath exhibits peculiar large interruptions. The presence of latex was determined in the hairs of *Castiloa elastica*. (*Botanisches Centralblatt*, vol. lxi., 1895.)

ALCHEMY AND PHARMACY.

THEIR MYSTERY AND ROMANCE.

PART I.

Chapter I.

The Dawn of the Art of Healing.

THE birth of the art of healing goes back to a period of great antiquity. The thought that first led man to utilise the fruits of the earth for his bodily sustenance may perchance have suggested the herbs which grew around him as a means of alleviating the ills of his flesh.

It is a matter of doubt whether medicine as an art was first practised in Egypt or China; from recent research probably the former, as at the time of the writing of the 'Ebers Papyrus,' 1550 B.C., the Egyptians had a considerable knowledge of the use of herbs and other bodies for medicinal purposes.

The art of medicine had two foundations, empiricism and superstition, which have influenced it from its birth, down to the present time. The 'Ebers Papyrus,' which throws a light on ancient Egyptian pharmacy, was written in the reign of King Amenhotep I., of the eighteenth dynasty. It commences as follows: "Beginning of the chapter of applying medicaments to every part of the patient.

"I have come forth from Heliopolis with the mighty ones of the Temple of the Sun, the wielders of protection, the princes of eternity.

"Rescuing (?) I have come forth from Sais with the Mothers of the Gods, who have given me their protection.

"I have magic formulæ made by the Universal Lord to drive out the stroke of god and goddess, the Male Death and Female Death, *et cetera*,* that is in this my head, in this my neck, in this my shoulder, in this my flesh, in these my limbs, to punish the above-named enchanters (?) who introduce disturbance into this my flesh."

Such formulæ, evidently for recitation during the treatment, continue for a page and a half. The book has thus no general title, but plunges at once into the mysteries of the profession.

"Beginning of the mystery of the physician who knows the motion of the heart. There are vessels in it to every limb. When any physician, doctor, or amulet-maker puts his fingers upon the top of the head, upon the occiput, upon the hands, upon the chest, upon the arms, upon the legs, he communicates (?) with the heart, for its vessels extend to every limb, wherefore it is called the starting-point of every limb."

The following may be taken as an example of the recipes given in the manuscript:—

"A remedy for the belly that is painful: Cummin $\frac{1}{64}$ hin, goose-grease, $\frac{1}{8}$ hin, milk, $\frac{1}{16}$ hekt; cool, strain, and drink." The hin is about 29 cubic inches, and the $\frac{1}{16}$ hekt 18 cubic inches, the prescription is thus roundly $\frac{1}{2}$ cubic inch of cummin, and 4 of goose-fat, in half a pint of milk.

In a further papyrus said to have been written about the time of King Chata of the first dynasty, who reigned 4000 B.C., the following prescription for promoting the growth of the hair is given:—

Pad of a dog's foot	1.
Fruit of date palm	1.
Ass's hoof	1.

Boil together in oil.

In China the use of drugs goes back to a very remote age, and alchemy was practised by the Chinese long previous to its being known in Europe. For two centuries prior to the Christian era, and for four or more subsequent, the transmutation of the base metals into gold, and the composition of the elixir of immortality, were questions ardently studied by the Chinese. It is, moreover, a matter of history that intercourse between China and Persia was frequent, both before and after the Mahomedan conquest of the latter country; that embassies from Persia, as well as from the Arabs, and even from the Greeks in Constantinople, visited the court of the Chinese Emperor in Shansi; that Arab traders settled in China, and that there was frequent intercourse by sea between China and the Persian gulf; and lastly that China had an extensive alchemical literature anterior to the period when alchemy was studied in the West. All these facts go to prove that the ancient science known as alchemy was originated by the Chinese, and not the disciples of Mahomed, who only acquired the knowledge at second-hand.*

It is somewhat curious, that while the alchemists of the West were always in doubt as to what constituted the true Philosopher's Stone, the Chinese seemingly had no doubt as to its identity. Cinnabar was regarded by the early alchemists and philosophers of that nation as the wonderful body which was supposed to have the mysterious power of converting other metals into gold, and when used as a medicine would prolong life for an indefinite period. Ko-hung, author of the 'Pau-p'uh-tsi p'ian,' a work of the fourth century, and undoubtedly genuine, gives various mineral and vegetable productions possessing in different degrees the properties of an elixir vitæ. In one paragraph of this work he states: "When vegetable matter is burnt it is destroyed, but when the Ian-sha (Cinnabar) is subjected to heat it produces mercury. After passing through other changes it returns to its original form. It differs widely, therefore, from vegetable substances, and hence it has the power of making men live for ever, and raising them to the rank of the genii. He who knows the doctrine, is he not far above common men, etc.?"

In materia medica the knowledge of the Chinese was much in advance of the nations of the West, and their great herbal, entitled 'Pun-Isaun-Kang-Mŭh,' written by Le-she-chin in the middle of the sixteenth century, shows the discernment possessed by these curious people. This work consists of forty thin octavo volumes, the first three of which contain woodcuts of many of the minerals, plants, and animals

* Etc. is probably a direction *ad lib.* for the doctor speaking the formulæ.

* Hanbury's 'Notes on Chinese Materia Medica.'

referred to in the text. The woodcuts alone number 1100, and the work itself is divided into fifty-two divisions. The antiquity of the practice of medicine among the Chinese may be gathered from the fact that there exists a work entitled 'A Treatise from the Heart on the Small-pox.' which was written during the dynasty of Icheon, B.C. 1122. In this work the eruption is described, and some kind of inoculation is also referred to.

But it is to Greece that we have to look for the birth of medical art in the West, its practice by the priests being of great antiquity. The earliest record of a temple of medicine is of one erected in the Peloponnesus in the year 1130 B.C., or above fifty years after the fall of Troy. Other temples or centres of the healing art gradually sprung up, and round each of those clustered a little school of students. There was the temple of Health at Pergamus, the temple of Hygeia at Cytea, and the temples of Æsculapius at Cos and Epidamus, where the famous statue of Æsculapius stood. The father of ancient medicine, Hippocrates, graduated as a student of Cos, and Galen is said to have been at Epidamus.

It was in the temple of Æsculapius at Greece that any record of medicine was first kept; the names of diseases and their cures being registered on tablets of marble: the priests and priestesses, who were the guardians of the temple, prepared the remedies, and directed their application, and thus commenced the practice of physic as a regular profession.

These official persons were ambitious to pass as the legitimate descendants of Æsculapius, and therefore assumed the title of the Asclepiades. The writings of Pausanias, Plutarch, and others abound with accounts of the artifices of these early practitioners. Aristophanes mentions the dexterity and promptitude with which they collected and put into their bags the offerings on the altar.

The patients were wont to repose on the skins of sacrificed rams in order to procure celestial visions. As soon as they were supposed to be asleep, a priest, clothed in the dress of Æsculapius, imitating his manner, and accompanied by the daughters of the god (that is, by young actresses well up in their parts), entered and solemnly delivered a medical opinion. The student sat at the feet of the philosopher of his choice, and after a certain period and course of probation, was granted the rights of priest and physician to practise as a teacher and healer.

They had their code and ethics of a standard almost equal to those of to-day, and their knowledge of surgery, and the use of the herbs and plants which grew around them, was not a little.

Entering on their noviciate at their chosen temple or school, they were required to make a protestation or oath, of which the following is the one made by Hippocrates.

"I, Hippocrates, do now promise and protest to the great god Apollo and his two daughters Hygæia and Panadie, and also to all the gods and goddesses, to observe the contents of this oath or tables wherein the oath is carved, written, or engraved so far as I can possible, and so far as my wit or understanding shall be able to direct me, viz., I yield myself tributary and debtor to the Master and doctor, who hath instructed me and showed me this science and doctrine, even as much or rather more than to my father who hath begotten me, and that I shall live and communicate with him, and follow him in all necessities which I shall know him to have so far as my power shall permit and my goods extend. Also that I shall love and cherish his children as my brother's, and his progenic as my own. Further, that I shall teach, shew, and demonstrate the said science without reward or covenant, and that I shall give all the canons, rules, and precepts freely, truly, and faithfully to my master, his children as to mine own without hiding or unacting anything, and to all other scholars who shall make the same oath or protestation, and to no others. Also that in practising and using my science towards the sick, I shall use only things necessary, so far as I am able, and as my spirit and good understanding shall give unto me, and that I shall cure the sick as speedily as I may without dilating or prolonging the malady, and that I shall not do anything against equitie for hatred, anger, envy, or malice to any person whatsoever. Moreover, that I shall minister no poison, neither counsel nor teach poison, nor the composing thereof to any. Also that I shall not give nor cause to be given nor contend that anything be applied to a woman breeding, to destroy and make her void her fruit. But I shall protest to keep my life and science purely, sincerely, and inviolably, without deceit, fraud, or guile. And that I shall not cut or incise any person having the stone, but shall leave the same to those who are expert in it. And, furthermore, that I shall not enter into the patient's house lest with purpose to heal him, and that I shall patiently sustain the injuries, reproaches, and loathsomeness of sick men, and other base railings, and that I shall eschew, as far as I may, all venereous lasciviousness. Moreover, I protest, be it man, woman, or servant who is my patient, to cure them of all things, that I may see or hear either in mind or manner, and I shall not betray that which should be concealed or hidden, but keep inviolable with silence; neither reveal any creature under pain of death. And therefore I beseech our gods that observing this protestation, promise, and vow entirely and inviolably, that all things in my life, in my art, and science, may succeed securely, healthfully, and prosperously to me, and in the end eternall glory.

"And to him that shall violate, transgress, or become perjured, and that the contrary may happen unto him, viz., misery, calamities, and continuall maladies."

We have here principles laid down that would do honour to any medical practitioner, and such as show the highly civilised condition and the excellent morals and teaching of the early Greek philosophers and priests.

(*To be continued.*)

EXTRACT OF PALMETTO; A NEW TANNING MATERIAL.

The palmetto palm *Serenoa serrulata*, grows in North America, and is an evergreen tree having ribbed fan-like leaves of three to four feet in diameter. Round each bud four to six leaves grow every year, and these keep green for two years, when they become yellowish brown and die off. The stalks of these leaves grow to 1½ to 3 feet in length, the leaves are collected and cut up finely, the stalks being removed. The whole is then put into large tubs and lixiviated with hot or boiling water. The liquor is then concentrated to an extract when intended for shipment. To obtain the fibres, which are useful for rope-making, etc., the parts remaining in the tubs are treated after the liquor has been drained off with chemical agents. These have the effect of separating the silicic acid and decomposing the other portions, which become converted into a gummy mass that can easily be removed, leaving the pure fibres. The tanning process with palmetto extract is the same as with quebracho (*Apoth. Zeit.*, No. 30, 1895, p. 309).

CROTON OIL.*

"AN ENQUIRY INTO THE NATURE OF ITS VESICATING CONSTITUENT."

BY W. R. DUNSTAN, M.A., F.R.S., AND MISS L. E. BOOLE, F.I.C.

The vesicating constituent, or more strictly, the pustule-producing constituent of croton oil, has been the subject of investigation by numerous chemists and pharmacologists during the past forty years. According to the researches of Buchheim, and more recently of Kobert and Hirscheydt, the vesicating action is due to an acid closely allied to oleic acid, which has been given the name of croton-oleic acid. This substance is now prepared on a large scale in Germany for medical use, being extracted from croton oil by the method devised by Kobert and Hirschcydt. This consists in saponifying with barium hydroxide that part of croton oil which readily dissolves in strong alcohol. The resulting barium salts are washed with water, then dried, and repeatedly extracted with ether, which dissolves the barium salts of oleic and croton-oleic acids. These salts are separated by means of ether, which dissolves only the barium croton-oleate, and this, when decomposed with dilute sulphuric acid and extracted with ether, furnishes the croton-oleic acid as a viscid oil.

Since very little is known about this acid, even its composition being undetermined, the authors prepared it with the object of studying its properties and, if possible, of determining the constitution, since no fatty acid of known constitution exhibits this property of vesicating. Starting with the croton-oleic acid prepared as described above, the lead salt was obtained and submitted to a process of fractional precipitation by adding successive quantities of water to its solution in alcohol. By this means croton-oleic acid was proved to be a mixture composed for the most part of inactive oily acids, the lead salts of which are precipitated first, whilst the true vesicating constituent (or its lead salt) is principally contained in the last fractions, and represents but a small proportion of the original material. It was observed that the conversion of the croton-oleic acid into a lead salt did appreciably affect its vesicating power.

The supposed active constituent of croton oil, croton-oleic acid, having thus been shown to be a mixture, the authors proceeded to attempt to isolate the vesicating constituent from croton oil direct.

By saponifying that part of croton oil which is soluble in strong alcohol with a mixture of lead oxide and water, and repeatedly fractionating an alcoholic solution of the lead salts with water, the later fractions, which possessed the greatest vesicating power, ultimately furnished, when submitted to a series of fractionations, a resinous substance having extraordinary power as a vesicant. This substance could not be further resolved by repeating the process of fractional precipitation of the alcoholic solution with water. The same substance was isolated from the so-called "croton-oleic acid," and the authors propose to name it "croton resin." To its presence the vesicating property of croton oil is due. The composition of croton resin is expressed by the empirical formula $C_{13}H_{18}O_4$. So far all attempts to crystallise it, or to obtain crystalline derivatives from it, have been unsuccessful It is a hard, pale yellow, brittle resin, nearly insoluble in water, light petroleum, and benzene, but readily dissolved by alcohol, ether, and chloroform. When heated it gradually softens, and is quite fluid at 90° C. Croton resin has neither basic nor acidic properties; it may be boiled with a mixture of lead oxide and water without being appreciably affected. Ebullition with aqueous potash or soda gradually decomposes it, destroying its vesicating power. The products of this action are several acids, some of which are members of the acetic series. By oxidation of the resin with nitric acid a mixture of acids is obtained. The constitution of croton resin is therefore complicated, and its molecular formula would appear to be at least $(C_{13}H_{18}O_4)_2$ or $C_{26}H_{36}O_8$. Since it is not saponified by a mixture of lead oxide and water, and as no glycerol could be detected among the products of its decomposition by alkalics, it is not a glyceride, and as it does not react with hydroxylamine or phenylhydrazine or sodium bisulphite, it is probably neither a ketone nor an aldehyde. The evidence so far obtained points to the conclusion that the constitution of the vesicating constituent of croton oil may be that of a lactone or anhydride of complicated structure.

* Abstract of paper read before the Royal Society on June 20, 1895. Communicated from the Research Laboratory of the Pharmaceutical Society.

HINTS ON PHOTO-MICROGRAPHY.*

BY J. HOWARD MUMMERY, M.R.C.S., L.D.S.

Photo-micrography, as it is not too euphoniously called, is a science (for such we may now term it) of quite recent development, but it has already been of immense value in many departments of scientific study. There can be no doubt of the educational value of the photo-micrograph, and no course of lectures is now considered complete that is not illustrated by lantern slides.

Photographs are of great value as a check upon observation; they keep drawings within bounds, and do not admit of quite such a play of the imagination as was frequently seen before the days when the camera was called in to assist the microscope.

While, however, fully recognising the value of the photograph in demonstrating minute structures, I do not think it is able to entirely replace the coloured drawing, but as a check it is invaluable, and it is highly desirable that all papers on histological research should be illustrated by both photographs and drawings. This has been excellently done in a recent publication by Dr. Carl Röse and Dr. Gysi, of Zurich, illustrating the histology of the dental tissues, they having published the photograph and an illustrative lithograph side by side.

While the drawing represents the appearance of the tissue under examination as seen through the microscope in slightly different planes, the photograph only accurately represents one plane.

There is one point in this connection on which I would lay great stress, and that is that the photograph should not be touched up in any way, either upon the negative or the print. As soon as this is done a suspicion is thrown upon its accuracy, and its value as a check upon observation is completely done away with.

Many collateral branches of knowledge bear upon the subject we are now discussing.

The great and rapid advances in the science of bacteriology made during the last ten years have greatly stimulated photo-micrography, as the minute organisms with which this new science is concerned are represented by photography with an accuracy and clearness not otherwise obtainable.

Another important discovery, that of isochromatic or ortho-chromatic plates, has been an excellent aid to the photo-micrographer.

* Read before the Odontological Society of Great Britain.

These plates give the correct colour relations of the object in light and shade, and a moment's reflection will enable any one to see the great value of this in photographing stained preparations. For instance, while formerly a yellow, from its weak effect upon the photographic film, came out black or nearly so, a properly prepared orthochromatic plate (with the addition of a coloured light screen) renders it light in the resulting print, *i.e.*, in its proper shade relations to the other colours of the spectrum. Blue, again, which to the eye appears to be a dark colour, is rendered as white upon the ordinary photographic plate (blue containing a very large proportion of the chemical rays of the spectrum); a colour-corrected plate reproduces the blue parts of the objects as dark in the resulting print. I cannot, however, do more than touch upon this question of orthochromatic plates.

Another very important factor concerned in the recent advances in the art is the introduction of the new lenses; first, the water and oil immersion lenses of Zeiss; both these improvements greatly increase the light admitted to the object. As I have described elsewhere, and perhaps may be permitted to repeat here, in the immersion lenses, instead of the object being viewed through a layer of air, a drop of fluid is placed upon the cover glass, and the lens is brought into contact with this drop, so that the rays passing through the object from the source of illumination, traverse the fluid before entering the lens. The optical effect of this arrangement is that rays which, following the laws of refraction, would have been diverted to such an extent in air as to pass outside the front lens of the objective, are made to pass into the lens and assist in the formation of the image.

While the rays which pass from the object into air form an angle of 120°, those traversing water form an angle of 82°, and those passing through cedar oil an angle of 69°. It will thus be plainly seen what an advantage is gained by the employment of these substances; we have a much increased illumination, more rays being collected into the lens, and an increased working distance; that is, for the same magnifying power, the front lens of the objective is at a great distance from the cover glass.

But the greatest stride in microscopic optics dates from 1886, when the firm of Zeiss, of Jena, introduced the so-called apochromatic lenses. Before the introduction of these lenses, a sharp image in any optical system could only be obtained with one portion of the spectrum, the other portions giving images not absolutely clear, but all more or less blurred. The apochromatic lenses give an image almost equally sharp, with all the colours of the spectrum. In the old achromatic objectives the colour correction was only made for one portion of the area of the lens, so that towards the margins, and also at the centre, it was imperfect, but in the apochromatic lenses the colour correction is made equal for all portions of the area of the lens. Again, whereas in the older objectives only two colours of the spectrum were brought to one point, in the apochromatic system three colours are brought to one point. A special kind of glass in combination with fluorspar is employed in these lenses.

The effect of these corrections is practically to abolish colour in the microscopic image; we obtain an increased concentration of light and a greater range of magnifying power with the same objective, as very high eye-pieces can be used with them without detriment to the image.

Special eye-pieces called compensating oculars are used with these lenses, and their use is rendered necessary by the fact that all lenses of high aperture, owing to their hemispherical fronts, magnify the blue more than the red; an eye-piece is accordingly used in which the opposite error is introduced, the red being magnified more than the blue, and consequently with these eye-pieces the image is free from colour up to the margin of the field.

It will be obvious that for photographic purposes these lenses are invaluable, because, combining as they do the chemical and visual rays of the spectrum in one point, the focus of absolutely clear vision is also that of chemical sharpness, and the image, as focussed to the eye, will be exactly reproduced on the sensitive plate.

There are many excellent workers in this art, both in our own country and abroad; among the most prominent of the pioneers in this field are Dr. R. L. Maddox, to whom we are indebted for the invaluable suggestion of gelatin as a base for the photographic film; Dr. Woodward, in America, who produced beautiful results before the introduction of the new lenses; Dr. Neuhauss, in Germany, whose photographs of flagellated organisms are well known; and in our own country Mr. Andrew Pringle, whose beautiful work with high powers is familiar to us all; his photographs of dental caries we have all admired upon this screen. The work in this department of our friend and former President, Mr. Charters White, is also well known to us, and his excellent photographs of dental and other tissues.

(*To be continued.*)

THE BATTLE AGAINST DISEASE.

DIPHTHERIA AND ITS ASSOCIATES. By LENNOX BROWNE, F.R.C.S. (Edin.). Pp. 264. London: Baillière, Tindall and Cox.

Our knowledge of diphtheria has grown so rapidly in the past few years that to write a complete monograph on this subject at the present time is a task demanding not only wide practical experience and a vast amount of energy, but also a familiarity with the most recent advances of bacteriology and methods of treatment which are the outcome of abstruse bacteriological knowledge This arduous task has been accomplished in the most complete and masterly manner in the volume now under consideration. This is said not after a cursory examination of a handsome volume but deliberately after a careful perusal of the book. To the practical pharmacist here is a guide to the needs of the medical practitioner, to the practical medical man a reliable guide to the treatment of a terrible disease, to the scientific practitioner a clear exposition of the philosophy on which the modern diagnosis and treatment of the disease are based, as well as a graphic sketch of the history of the evolution of an important section of medical science. The term "classical" may, without hesitation, be applied to Mr. Lennox Browne's monograph.

The meaning of the term diphtheria is defined as "an acute infectious disease due to a specific micro-organism—the Klebs-Lœffleur bacillus." The author does good service in removing an ambiguity by restricting the term "pseudo-diphtheria" to "an affection of the throat resembling diphtheria but distinguished from either the simple or complex varieties by the conspicuous absence of the specific bacillus," whilst the benignant form of diphtheria in which the Klebs-Lœffleur bacillus is present, but in a condition known to bacteriologists as "attenuated" is rightly distinguished as "non-virulent" diphtheria. With regard to the etiology of the disease the existence of insanitary surroundings is given the foremost place, whilst contagion is said to be of only exceptional occurrence. "Of this one may assure himself by witnessing the course of events regarding the many patients who, having been admitted on outside notification to the diphtheria wards of our infectious fever hospitals, have been found not to be suffering from the disease for which they were received. Superintendents of these hospitals of long experience all agree that the liability of such patients to develop diphtheria is practically *nil*."

The chapters on the bacteriology and bacteriological diagnosis constitute a special feature of the work, and those interested in the subject can only be referred to the original pages, and to the many and excellent delineations of the microscopic appearances of the diphtheria bacilli and allied organisms. Space prevents doing more here than quote the admirably clear classification of the bacteriological diagnosis of diphtheria. The steps are thus enumerated :—

"(1) By a rough and ready method the presence or absence of the diphtheria bacillus may be decided within a few minutes of first seeing the patient, or at least immediately on the return of the physician to his consulting-room. Roux and Yersin consider this method conclusive whenever the results are positive.

"(2) A provisionally negative diagnosis may be made by the absence of the characteristic colonies of the bacillus in a culture tube after an incubation of twenty-four hours at a temperature of 37°C.

"(3) A provisionally positive diagnosis may be given by the naked eye appearances of a colony of the diphtheria bacillus similarly obtained.

"(4) A provisional diagnosis, positive or negative, of those micro-organisms which are the more or less frequent associates of diphtheria may be determined by the presence or absence of their colonies after incubation of a culture on blood-serum for more than twenty-four hours.

"(5) These provisional diagnoses can be rendered certain by the microscope.

"(6) By the process of sub-culture the bacilli may be obtained pure, and the degree of their virulence may be estimated by injections into the lower animals.".

These methods are then described clearly and completely. Whilst the bacteriological side of the question is thus fully dealt with, clinical diagnosis is made the theme of several chapters, which, taken by themselves, would constitute a contribution to medical literature of the greatest service to medical practitioners. The description of appearances of the throat in true diphtheria are compared with appearances which simulate this disease, and a liberal series of illustrative cases is given. In each case the clinical aspect of the throat is reproduced in faultless coloured drawings by the author's talented brush, and by the side of this drawing the microscopic preparations obtained from cultures are reproduced. The chapters on prognosis and treatment are equally well done. It may be noted that the author has found solutions of the biniodide of mercury (1 in 2000) more efficacious than the bichloride as a local application ; and, further, that the metallic taste of these solutions is masked by their exhibition in elder flower water. In the account of operative measures, intubation of the larynx is fully described, and the author states that many former objections he formerly entertained have been almost entirely dissipated. For particulars of the experience which determined this change of opinion the author refers to an article published elsewhere, and expression must be given to a feeling that an analysis of cases treated by intubation would have made a valuable addition to the work. At the same time it may be pointed out that this is the only fault a careful perusal reveals in a work which doubtless holds the very first position among treatises dealing with diphtheria. The last section deals with the serum treatment of diphtheria, and is put as an appendix, for the reason that the method is still on its trial. The critical and judicial tone in which this aspect of the therapeutics is discussed is commendable in the highest degree.

One of the most striking features of the application of the treatment is the great difference in the dose of the various antitoxic serums. Thus, that prepared at the British Institute of Preventive Medicine is given in hypodermic doses of 10 to 20 C.c. (2½ to 5 fl. drachms), whilst the dose of that prepared by Dr. Klein is 6 to 10 C.c. (1½ to 2½ drachms). The results of treatment of two series of 100 cases in two successive years at one of the Asylums Board hospitals are given. The first hundred were treated without serum and the second were treated with serum of the British Institute. The mortality in the two cases was the same—27 per cent. In the series treated with serum, the cases of children under five years of age present a greater mortality (53·48 per cent.) than similar cases (43·1 per cent.) in the series treated without serum. The statistics are considered from every point of view, and claim close attention from the medical profession. The author concludes that : "Whether the efficacy of the new treatment be finally accepted or disproved, we shall feel that we have accomplished a plain duty in reporting the foregoing facts as they have presented themselves during some months of close observation, in an institution which has attained the premier position in regard to low mortality for some years past, by those methods of treatment known to us prior to the introduction of antitoxin."

Mr. Lennox Browne may be congratulated as the author of an invaluable book, which should be carefully studied by all who may at any moment have in their hands the care of patients suffering from diphtheria or its allies.

HOW TO NAME A PLANT.

The beginner in botany is apt to believe that the easiest and shortest way to name a plant is to compare it with published illustrations of plants. This is, however, the longest and most uncertain method, since the process has to be repeated with each plant, and there is always a degree of uncertainty about the identification so obtained. The most satisfactory way, and the easiest in the long run, is to decide by the characters of the leaf, stem, and flower, the group, class, sub-class, natural order, genus, and species to which the plant belongs. After a little practice the first three divisions are seen at a glance, and even the fourth in many cases, leaving the genus and species as the only difficulties to be overcome.

In the present article only the leaf-bearing groups will be dealt with, viz., Bryophyta, Pteridophyta, and Phanerogamia or flowering plants. Let us suppose that the beginner gathers a piece of a plant bearing leaves on a stem. He has first to find out whether the plant ever bears a visible flower or not. This is easily ascertained by examining the veins of the leaf and the structure of the stem.

(1) If the leaf has the veins running parallel or forming a network the plant certainly bears flowers, having stamens and an ovary, and belongs to the Phanerogamia. If the leaves have forked veins and the young leaf is inrolled at the tip, it as certainly belongs to the Pteridophyta (Ferns, etc.). If the leaves are very minute and there is only one vein, or a single forked vein, or no veins at all in the leaf, and the stem on section shows neither a pith surrounded by a ring of woody tissue nor scattered bundles of woody tissue, it belongs to the Bryophyta.

The plants of the two last groups are, as a rule, so distinct in habit that they are easily recognised, the former having forked veins in the leaves and curled or circinate vernation, and the latter very small leaves with never more than a single (rarely once forked) vein. They never bear visible flowers, but spores contained in stalked or sessile receptacles or capsules. If there are no obvious leaves, but the herbaceous stem and branches are more or less cylindrical and sheathing at the joints, which easily separate, it belongs to the *Equisetaceæ*.

(2) If the leaf has the veinlets parallel the plant should belong to the monocotyledons, and if they form a network it should come under the dicotyledons, but to make sure, a thin transverse section of the stem should be cut with a very sharp knife, and laid on a black surface such as the sleeve of a coat, then looked at with a good magnifying glass (an aplanatic lens of low power is preferable). If there is an evident soft centre or pith, with a denser (woody) ring outside it, the plant is certainly a dicotyledon. If, on the other hand, the section shows no definite ring but scattered white points of woody tissue, it is a monocotyledon. This test is necessary, as in a few monocotyledonous plants, such as *Tamus communis* and *Paris quadrifolia*, the veins of the leaves are reticulated, and in some dicotyledons the parts of the flower are in threes. As a rule, dicotyledons have four or five parts to the flower, and monocotyledons three or six, but the stem structure can be depended upon to settle doubtful cases. For dicotyledonous plants with three or six parts to the flower, *Berberis*, *Reseda*, *Polygala*, *Impatiens*, *Peplis*, *Rumex*, *Empetrum*, *Amaranthus*, *Aristolochia*, *Asarum*, may be examined.

(3) If the leaves are needle-like, and the plant is an evergreen tree or shrub, it may be presumed to belong to the gymnosperms, but it is best, if cones are not present, to confirm the supposition by cutting a thin longitudinal section of the stem, or to take a fine shaving off with a razor, and examine it in a drop of water under the microscope, when, if it belong to the gymnosperms, the curious punctated wood cells characteristic of this group will be seen.

SUB-CLASSES.

(4) If the leaf has the parallel veinlets and stem structure of the monocotyledons, the next thing is to examine the blossom. If this organ has a row of six flat or leafy segments outside each ovary and stamen, the plant belongs to the *Petaloideæ*, even if the segments be small and green or membranous.

(5) If the ovary and stamens have not six flat segments outside them, but either none at all—a spike of the flowers being enclosed in a large bract—as in the arum, or if there is only one bract (as in the sedges) or two (as in the grasses) or none below or around each flower, it belongs to the *Nudiflorœ*.

(6) If the leaves have the reticulated venation, and the stem has the woody ring characteristic of dicotyledons, and the petals and stamens are attached to the thalamus, the petals being not united together, the plant belongs to the *Thalamiflorœ*.

(7) If the (dicotyledonous) plant has the stamens and petals attached to the calyx or the top of the inferior ovary, and the petals are not united together, it belongs to the *Calyciflorœ*.

But the natural orders belonging to the *Thalamiflorœ* which have a well-defined disk between the ovary and stamens, are sometimes placed in a sub-class, *Disciflorœ*.

(8) If the petals of the (dicotyledonous) plant are united into one, so that the corolla forms a (sometimes very) short tube at the base, the plant belongs to the *Gamopetalœ*.

(9) If there is only one row of flat or leafy segments around the ovary and stamens, or if the stamens are numerous, but the flower is unisexual, it belongs to the *Incompletœ*.

There are plants in the other three sub-classes of dicotyledons which have only one row of floral leaves, and the student will do well to procure specimens of these and examine them, as the *Incompletœ* is practically an unnatural sub-class, which will doubtless some day be distributed amongst the other sub-classes. The following is a list of the apetalous genera that should be examined:—

THALAMIFLORÆ.—*Anemone*, *Caltha*, *Thalictrum*, *Sagina* (*apetala*), *Cherleria*.

CALYCIFLORÆ. — *Alchemilla*, *Poterium*, *Sibbaldia*, *Chrysosplenium*, *Hippuris*, *Rhamnus*.

COROLLIFLORÆ.—*Fraxinus* (*excelsior*), *Glaux* (*maritima*) *Peplis* (*portula*).

There are also a few flowers belonging to the *Thalamiflorœ* which are exceptions to the rules above given, and these also it would be advisable to procure and examine. Thus in the garden nasturtium (*Tropœolum* sp.) two of the petals are attached to the calyx. In the common mallow, camellia, and orange blossom the stamens form a tube to which the petals are attached. In *Polygala* the petals are united.

Having thus referred the plant to its sub-class, the next step is to find out the natural order.

(*To be continued.*)

THE CULTIVATION OF THE COLOCYNTH.

The colocynth, or bitter apple, which provides in its dry pulp a well-known purgative medicine, grows abundantly on the maritime plain that lies between Palestine and the eastern shore of the Mediterranean. It is found from below the city of Gaza on the south, to the base of Mount Carmel on the north. Consul Wallace, of Jerusalem, says that the dwellers along this plain pay little attention to the plant, and spend neither time nor labour in its cultivation. It grows without cultivation, the soil and climatic conditions producing it without the help of the husbandman. With some attention the plant would undoubtedly bear a larger and richer fruit—richer in that pulp which makes the colocynth valuable. But there is no object in thus improving the plant and its yield, as Nature alone now supplies far more than the natives can find a market for. The soil of this maritime plain is a light brown loam, very rich, and almost without a stone. In places where the loam has been mixed with sand the colocynth plant seem to thrive best. Very little rain falls on parts of this plain, but the plant does not suffer from this lack of moisture. The climate is warm all the year round, and during the summer months the heat is intense, so that the conditions necessary for the successful raising of the colocynth seem to be—a good soil somewhat sandy, a warm climate, and little moisture. The plant itself resembles a common cucumber, but its fruit is globular, about the size of an orange, and of a light brown colour. Its rind is smooth, thin, and parchment-like. It is known as the Turkish colocynth, and is superior to the Spanish and Morocco varieties in the amount of pulp its fruit contains. The pulp constitutes 25 per cent. of the fruit, and the rind and seeds are valueless. The fellaheen, or peasants, gather the fruit in July and August, before it is ripe. It is sold to Jaffa dealers, who peel it and dry the pulp in the sun: it is then moulded into irregular small balls, packed in boxes, and shipped chiefly to England. The average annual shipping from Jaffa is 20,000 pounds, though the shipment in 1894 amounted to only 6,000 pounds. This quantity could be increased indefinitely if there were more demand for it and a price were paid that would make it an inducement for the peasants to gather and prepare it. The price now paid for the colocynth pulp, prepared, packed for shipment, and delivered on board the steamer in the port of Jaffa, is about fifteen pence a pound.—*Journal of the Society of Arts.*

ARGON is regarded by W. Quinan (*Journ. Am. Chem. Soc.*, xvii., 477) as the ideal thermometric substance for high temperatures. It has no internal energy, and the decomposing influence of heat is absent, for being monatomic it cannot suffer dissociation, and its behaviour as a thermometric substance throughout the range of temperature will be strictly normal. No other substance has such simple heat relations over such a great range of temperature.

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LONDON: SATURDAY, JULY 6, 1895.

THE COUNCIL MEETING.

BEFORE the ordinary business of the Council was entered upon last Wednesday, Mr. HILLS called attention to the evidence given by the PRESIDENT of the Society before the Special Committee on Weights and Measures, and to the circumstance that this Committee has now suggested the legalising of metric weights and measures. On the motion of Mr. HILLS, seconded by Mr. MARTINDALE, the Council, in the name of the Society, passed a vote of thanks to the PRESIDENT for the active part he has taken in promoting this desirable result.

The reports of the several Committees did not present any exceptional feature or give rise to discussion. On the recommendation of the Benevolent Fund Committee one grant of twenty pounds and two grants of ten pounds each were ordered to be paid.

The PRESIDENT then read a letter from Sir RICHARD QUAIN in reference to the points on which the assistance of the Pharmaceutical Society is invited by the Pharmacopœia Committee of the General Medical Council. A desire was expressed that, as far as practicable, a report on the subject should be made before the special meeting of the Pharmacopœia Committee on the 25th inst. Anticipating that experimental work would be necessary for dealing with some of the subjects referred to the Pharmaceutical Society's Committee, Sir RICHARD QUAIN still hopes that a definitive report on them may be presented before the meeting of the Medical Council in November next. On the suggestion of the PRESIDENT, the old Committee was re-appointed with the addition of Mr. INCE, whose services will be of special value with regard to Latin, and Mr. CROSS, who had been an *ex officio* member of the late Committee.

In reference to the memorandum recently issued by the Local Government Board, defining the qualifications of union dispensers (see page 1178 of previous volume), the PRESIDENT remarked that the appointment of unqualified persons as dispensers seemed to be a retrograde step, inconsistent with the principle that the sick poor should be treated with every possible consideration, and have the benefit of the highest skill and knowledge. He also thought that, for economic reasons, it would be a short-sighted policy to allow men unconnected with pharmacy to be appointed as dispensers, and suggested that he should be authorised to obtain further information on the subject from the President or Secretary of the Local Government Board.

Several members of Council expressed approval of that course, as the subject is one of distinct public importance and clearly comes within the province of the Society. Mr. SOUTHALL mentioned that the proceedings referred to could not have been the work of Sir WALTER FOSTER, who had some time ago expressed a strong opinion that the dispensing in workhouses and other public institutions should be done by properly qualified persons. On the motion of the Vice-President it was resolved that the PRESIDENT should be requested to communicate with the Local Government Board and point out the anomalous character of the memorandum in question.

The Secretary read a letter from Mr. HILL, stating that Mr. LAIDLAW EWING has been re-elected Chairman of the North British Branch Executive, and that Mr. CURRIE, of Glasgow, has been elected Vice-Chairman.

The report of the Special Research Laboratory Committee (page 13) was considered in Committee, and subsequently adopted by the Council.

The several members of the School staff were re-appointed, and, in accordance with the recommendation of the General Purposes Committee, the Registrar was authorised to prosecute in several cases of infringement of the Pharmacy Act.

Among various communications a resolution as to future legislation forwarded from the Western Chemists' Association was referred to the Law and Parliamentary Committee, a letter from the Sunderland Chemists' Association expressed satisfaction at the election of Mr. HARRISON, as Vice-President, and another, from the Agent-General of Cape Colony, introduced Mr. POCOCK, who as President of the Cape Pharmacy Board, is making enquiries as to the registration of chemists and druggists.

CLOSE OF A GREAT CAREER.

BY the death of Professor HUXLEY on Saturday last, science experiences an irreparable loss. According to his own account the great scientist was born at Ealing, on May 4, 1825, about 8 p.m. His father was one of the masters in a large semi-public school, where the future professor received his early education. His regular school training was, however, of the briefest. As he grew older his great desire was to be a mechanical engineer, but he observes, "the fates were against this," and, while very young, he commenced the study of medicine under a brother-in-law. Nevertheless, medicine, as the "art of healing," never attracted him, the only part of his professional course which really and deeply interested him being physiology—"the mechanical engineering of living machines." He never collected anything, and "species work" was always a burden to him, what he cared for being "the architectural and engineering part of the business, the working out the wonderful unity of plan in the thousands and thousands of diverse living constructions, and the modifications of similar apparatuses to serve diverse ends." His first scientific paper was published in the *Medical Gazette* of 1845. The following spring he completed his obligatory medical studies, and passed the first M.B. examination of London University. Then, being still too young to qualify at the Royal College of Surgeons, he entered the Navy, obtaining a post at Haslar Hospital, where he remained seven months. Subsequently, he proceeded with H. M. S. "Rattlesnake" on a long cruise in the Pacific.

During his four years' absence from England he became acquainted with a variety of interesting savage and semi-civilised people, enjoyed excellent opportunities for scientific work, and in other ways reaped considerable benefit. His scientific work, however, does not appear to have been immediately appreciated, for he says, in his far too brief 'Autobiography,' "I sent home communication after communication to the Linnean Society, with the same result as that obtained by NOAH when he sent the raven out of his ark. Tired at last of hearing nothing about them, I determined to do or die, and in 1849 I drew up a more elaborate paper and forwarded it to the Royal Society." This paper was accepted and printed; a year after his return the young surgeon was elected a Fellow of the Royal Society, and the year following that he received one of the Society's medals. Lack of appreciation of his work by the Admiralty led him to leave the Navy, and in 1854 he accepted the post of Lecturer on Natural History, formerly occupied by his friend EDWARD FORBES, at the Royal School of Mines. This office he held for thirty-one years, during which time, however, he held several other appointments, including the Fullerian Professorship of Physiology at the Royal Institution. He was also the recipient of numerous honours, and at the time of his death was a Privy Councillor. Ill-health obliged him to retire from most of his offices in 1885, and he has since been living quietly at Eastbourne, where he died on Saturday afternoon, having displayed wonderful physical power almost up to the day of his death, whilst his magnificent mental faculties remained unimpaired to the end.

With regard to HUXLEY'S life-work, it must suffice here to state that he was a master of natural science, the prince of zoologists, and possessed a magnificent power of organisation. The friend of DARWIN, TYNDALL, and SPENCER, he was one of the most powerful and untiring combatants during the fierce polemical warfare that raged some years ago around the hypotheses of "Natural Selection" and the evolution of organised beings. But his chief aims in life were to promote the increase of natural knowledge and to forward the application of scientific methods of investigation to all the problems of life. He believed that there is no alleviation for the sufferings of mankind except veracity of thought and action, and the resolute facing of the world as it is when the garment of make-believe is stripped off. Accordingly, he laboured to popularise science and to free it from the domination of the ecclesiastical spirit, but perhaps in the years to come he may be best remembered for his untiring efforts to develop and organise scientific and general education. As a brief estimate of HUXLEY'S character nothing better can be penned than his own description of a man who has had a truly liberal education, as one "who has been so trained in youth that his body is the ready servant of his will, and does with ease and pleasure all the work that, as a mechanism, it is capable of; whose intellect is a clear, cold, logic engine, with all its parts of equal strength, and in smooth working order; ready, like a steam engine, to be turned to any kind of work, and spin the gossamers as well as forge the anchors of the mind; whose mind is stored with a knowledge of the great and fundamental truths of Nature, and of the laws of her operations; one who, no stunted ascetic, is full of life and fire, but whose passions are trained to come to heel by a vigorous will, the servant of a tender conscience, who has learned to love all beauty, whether of Nature or of art, to hate all vileness, and to respect others as himself."

CULTIVATION OF LEMONS IN SICILY.

ACCORDING to Vice-Consul ELFORD (*vide* Foreign Office Report, No. 1544), the lemon tree is the most productive as well as the most remunerative of its class in Sicily. The fruit is produced all the year round, but the first gathering takes place in October, all lemons under three inches in circumference being left for the November gathering. This first crop, which is shipped off for spring or summer use, is the most valuable, and realises 30 per cent. more than any subsequent gathering. The fruit collected in November is paler in colour, though in no degree inferior to that of October, and is chiefly exported to the United States and Russia. Since no small or damaged fruit must be left on the trees at this time it is collected and used for the preparation of essence and juice. The inferior fruit gathered in November is considered the best of its kind for the preparation of essence and juice, because it is said to yield 50 per cent. more than that of other months, one thousand lemons giving about sixteen ounces of essence and thirty-five litres of raw lemon juice. The latter, after concentration to the normal standard of sixty-four ounces of citric acid per imperial gallon, is reduced to 3·5 litres. It costs about 1*s.* 4*d.* to extract the essence of a thousand lemons, and £4 to make a cask of lemon juice, including fruit, cost of cask, and labour. Of the total amount of November fruit produced, only one-eighth is utilised for the production of essence and juice, the rest being good for shipment. Of the December fruit, three-eighths is reserved for essence and juice, the yield of essence being less, and of juice more, than in the case of the November crop. The January fruit is more inferior still, and that of February, which is the last of the season, consists of the remains of previous gatherings, only one-fourth of it being fit for export. The March and April crops are the yield of August and September blossoming, and will neither stand a long voyage nor yield essence nor juice, but valuable crops may be obtained in May, also from September blossoming, by the adoption of special irrigation methods. The whole of this May fruit possesses excellent keeping properties, and easily stands the voyage to the United States. June and July produce the so-called "bastardi," which are sent to London, Liverpool, etc., and in August and September the crop is both smaller than those of the previous months, and inferior. On a plantation of average size, producing some 110,000 lemons annually, the proportional number gathered during the different periods is about as follows:—October, 15,000; November, 30,000; December, 25,000; January, 20,000; February, 10,000; March, 1000; April to September, 9000. For the last period, however, the figures given are only approximate, since the result varies according as the trees have been forced or not.

THE FUTURE OF PHARMACY.

IN his valedictory address to the latest graduating class of the Philadelphia College of Pharmacy, Professor HENRY TRIMBLE gave utterance to some pertinent remarks which are well worthy of repetition. Pharmacy, he pointed out, is a profession as having many opportunities for the exercise of those qualities which are found in the successful man as any

other on the face of the globe, and there are just as great possibilities for a man to lead a truly successful life in the prescription department as elsewhere. Pharmacy is progressive, however, and those who practise the art must be progressive also. They cannot expect the world to continue in the same old groove, so that they may conduct exactly the same kind of pharmacy as their forefathers did. If they sit down and grumble at the existing evils in the profession they will never remedy them. Many of the difficulties which beset the pharmacist of to-day are brought about by men who are trying to earn an honest livelihood, and they are succeeding, as the result of their perseverance. The complaint that manufacturers deprive retail pharmacists of their profits would cease if pharmacists would but get to work and try their hands at manufacturing for themselves. This, too, without imitating the manufacturers' methods, for by keeping what the physician needs and letting him see that the requirements of his profession can be met in a strictly professional manner, his confidence will soon be gained in a much more satisfactory way than the manufacturer and his agents can effect.

THE "CHALLENGER" EXPEDITION.

IT is twenty-three years since the "Challenger" started on her famous voyage of discovery, and the publication of the Report of the expedition has been completed quite recently. The opportunity has been taken advantage of by the editor of *Natural Science* to publish a special "Challenger" number, in which leading specialists state their views with respect to the manner in which the expedition advanced science. Each was asked to answer the question propounded from the point of view of his special field of knowledge, and the different aspects of the subject have been discussed as fully as the limited space would allow. Professor E. RAY LANKESTER furnishes a brief but interesting introduction to the various articles, and the list of contributors includes such distinguished names as JUDD, MURRAY, CLARKE, HAECKEL, MITCHELL, CARPENTER, WOODWARD, and TURNER. Additional interest is given to the various communications by the inclusion of seventeen full-page wood-cuts, the blocks of which have been lent from the "Challenger" office in Edinburgh.

DISPENSING FOR THE POOR IN SCOTLAND.

REFERENCE to the brief report of the Parish Council meeting at Glasgow on July 2 (see p. 24), will show that an important point was raised by Mr. ANDERSON RUSSELL on that occasion. Fortunately, too, he was able to pass a satisfactory resolution on the subject. At the same time, such resolutions, though useful, are not invariably of practical value. To acknowledge that a principle is right is one thing, to agree to record the acknowledgment and act upon it, another. The motion is understood to be the outcome of steps taken in connection with the local Pharmaceutical Association, and it bears upon the practice by which medicines for the poor are dispensed in doctors' shops. It is clear, however, that the matter is one requiring judicious treatment. The pharmacist's claim to an exclusive right to dispense in an open shop must be based on his special qualification for the duty, not because it will be to his advantage. This view will doubtless commend itself to all pharmacists anxious for the good of their profession, and in that case they should endeavour to interest members of the general public in the matter, and especially such as occupy positions on governing bodies.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

MEETING OF COUNCIL,

WEDNESDAY, JULY 3.

Present—

MR. MICHAEL CARTEIGHE, President,

MR. JOHN HARRISON, Vice-President,

Messrs. Allen, Atkins, Bottle, Corder, Gostling, Grose, Hills, Johnston, Martin, Martindale, Newsholme, Savory, Schacht, Southall, Warren, and Young.

The minutes of the last meeting were read and confirmed.

METRIC WEIGHTS AND MEASURES.

Mr. HILLS, calling attention to the publication of the report of the Special Committee on Weights and Measures, over which Sir Henry Roscoe presided, said they would remember that their President had given evidence before that Committee. Quoting several sentences from that evidence, he added that it was satisfactory to find that, owing to the information given by the President and other gentlemen, the report suggested the legalisation of the use of metrical weights and measures. Their President did so many things which did not come to the knowledge of the outside pharmaceutical world that he thought apportunity might well be taken of the present occasion to thank him in the name of the Council and of the Society for the active part he had taken in the promotion of this desirable end, and he moved thanks to the President accordingly.

Mr. MARTINDALE seconded the motion. Although he was prepared to give evidence before the Committee, and sent in a *précis* of what he was prepared to say, he was not called upon, the evidence given by the President and Mr. Umney being considered sufficient. This was a subject in which he had taken great interest for the last twenty years, and he was very glad to see that there was a prospect of the metric system being legalised.

The motion having been passed,

The PRESIDENT said the chief credit he could claim in the matter was that in the course of his examination by the Chairman of the Committee he pointed out that Pharmacy could not afford to wait for ten years, which was the time supposed to be necessary before a law making the use of the metric compulsory could be passed. The Committee seemed to respond very readily to the notion that those engaged in pharmacy, and possibly others, should be allowed to use metric weights and measures, and that by this means the way might be paved for a further enactment later on.

ELECTION OF ASSOCIATES IN BUSINESS.

The following having passed their respective examinations, being in business on their own account, and having tendered their subscriptions for the current year, were elected "Associates in Business" of the Society:—

Minor.

De la Rue, Frank Herbert.....Guernsey.
Thompson, William Shout.....Halifax.
Whitby, Ernest Clucas .....Accrington.

Modified.

Galbraith, Walter Sloan.....Glasgow.

ELECTION OF STUDENTS.

The following, having passed the First examination and tendered their subscriptions for the current year, were elected "Students" of the Society:—

Bayley, Leonard .....Lydd.
Cannon, Frederick William .....Aylesbury.

Duckworth, Herbert Kingsley .....Ulverston.
Duncan, James .....Leeds.
Fox, Frederick Harry .....Lincoln.
Hole, William Westcott.....Cheltenham.
Latham, Frank.....London.
Marshall, Phillipson .....Louth.
Minifie, Cyril Conrad ..... Sherborne.
Robb, David Wallace .....Glasgow.

Several persons were restored to their former status in the Society upon payment of the current year's subscription and a nominal restoration fee of one shilling.

RESTORATIONS TO THE REGISTER.

The names of the following persons were restored to the Register of Chemists and Druggists:—

Edward Bates, 11, Edward Street, St. Peter's Road, Mile End, E.
Frederick Lempriere Laurens, 118, Kingsland Road, N.E.
Arthur William Lodge, 6, Spring Bank West, Hull.

REPORT OF FINANCE COMMITTEE.

The report of this Committee was of the usual character, and recommended various accounts for payment.

The PRESIDENT in moving the adoption of the report and recommendations said there was nothing calling for special mention, either with regard to the General Fund or the Benevolent Fund. The annual payment from the Orphan Fund for the support of an orphan in the London Orphan Asylum had been paid during the month.

BENEVOLENT FUND.

The report of the Committee included a recommendation of the following grants:—

£20 to the widow (60) of a chemist and druggist member and subscriber. Applicant's husband was formerly in business, but for twenty years before his death was dispenser to a Poor Law Union. Applicant desires to go to Sydney. (Romford.)

£10 to a registered chemist and druggist (85) who has had four previous grants of like amount. (Rhynie, N.B.)

£10 to the widow (64) of a registered chemist and druggist, who has had four previous grants. She has an invalid daughter. (St. Leonards.)

The VICE-PRESIDENT, in moving the adoption of this report, said the only thing calling for attention in it was that they had received only three applications, and all these they had been able to deal with in the circumstances set forth in the report.

The report was adopted.

The PRESIDENT said he had received a letter from Mr. Lloyd, of King's Road, Chelsea, thanking the Council, President, and Secretary for their efforts on behalf of Mary Margaret Lewis, the daughter of a registered chemist and druggist who was elected to the Welsh School on June 11. He also referred to the assistance rendered by Mr. Alderman Morgan, Mr. Octavius Morgan, and by many chemists and druggists throughout the country who had taken up the case on the recommendation of the Council.

LIBRARY, MUSEUM, SCHOOL AND HOUSE COMMITTEE.

Library.

The report of the Librarian had been received, including the following particulars:—

		Attendance.	Total.	Highest.	Lowest.	Average.
May.....	Day		399	28	5	15
	Evening.....		193	14	4	8

Circulation of Books.	Total.	Town.	Country.	Carriage paid.
May.....	185	109	76	17*s.*

Donations to the Library had been announced (*Pharm. Journ.*, June 15, p. 1154), and the Committee had directed that the usual letters of thanks be sent to the respective donors.

The Committee had recommended the purchase of the undermentioned works:—

For the Library (Edinburgh)—

Bastin, Laboratory Exercises in Botany.
Helbing, Modern Materia Medica, 4th ed.
Perkin and Kipping, Organic Chemistry, 1895.
Edmond, Elementary Botany.

The Committee had also recommended the erection of additional book-cases in the middle and western library rooms.

Museum.

The Curator's report had been received, and included the following particulars:—

		Attendance.	Total.	Highest.	Lowest.	Average.
May.....	Morning.....		411	23	5	12
	Evening.....		41	6	1	1

Donations to the Museum had been received (*Pharm. Journ.*, June 15, p. 1154), and the Committee had recommended that the usual letters of thanks be sent to the respective donors.

This Committee reported on various formal matters.

The PRESIDENT, in proposing the reception and adoption of this report, said the School prospectus was laid on the table, and any suggestions that might be made could be embodied therein. The question of altering the old house premises in Scotland had been deferred for further information; and there was a recommendation with regard to certificates and medals which had been made in order to remove some ambiguity in the regulations.

Mr. MARTIN asked if the adoption of this report would carry with it the election of the staff of the Society's School, an item which appeared lower down on the agenda.

The PRESIDENT said he did not intend that it should, certainly.

The report and recommendations of the Committee were then adopted.

PHARMACOPŒIA REVISION COMMITTEE.

The PRESIDENT read a letter from Sir Richard Quain, President of the General Medical Council, and Chairman of its Pharmacopœia Committee, forwarding, in accordance with the directions of that Committee, a statement of the points concerning which the assistance of the Committee of Pharmacists appointed by the Council of the Pharmaceutical Society was invited. The Pharmaceutical Committee (Sir Richard added) would hold a special meeting on July 25, and as a considerable interval had now elapsed since his first communication to the Pharmaceutical Society, he earnestly hoped that its Committee would, as far as practicable, report to him before that date on some of the suggestions mentioned in the summons for the meeting, a copy of which he forwarded. He fully recognised that in order to deal adequately with several of the subjects referred to by the Pharmaceutical Society's Committee, it would be necessary to engage in experimental research involving so much time that a definite report on such subjects could not be expected before July 25. In such case he hoped it might be possible to receive reports prior to the meeting of the Medical Council in November. As regarded the suggestions arising in connection with the Indian and Colonial reports he might mention that whilst some might find a place in the text of the Pharmacopœia, or as foot notes, a large portion would be placed for the present in an appendix. Of course the Medical Council would be prepared to refund such expenses as might be incurred by the Council of the Pharmaceutical Society. The President added that, as the Committee appointed on this subject had ceased to exist, he took upon himself to summon the members pre-

viously appointed to a meeting which was held last week. He hardly thought a Special Committee was needed for this purpose, and as he thought the Committee should not be too large he suggested the reappointment of the old Committee, with the addition of Mr. Cross, who was formerly a member *ex officio*, and of Mr. Ince, whose services with regard to Latin and other things would be of special value. The Committee would then be thus constituted :—The President, the Vice-President, Messrs. Clark, Cross, Ekin, Hills, J. Ince, Martin, Martindale, C. Umney, and Professor Greenish as Secretary to the Committee. The report of their deliberations he should like to be sent to Sir R. Quain before the next meeting. The report was adopted, and the Committee appointed accordingly.

APPOINTMENT OF DISPENSERS IN WORKHOUSES.

The PRESIDENT said the attention of members had no doubt been called to a memorandum recently issued by the Local Government Board with regard to the qualification to be possessed by public dispensers, in which the qualification seemed to be reduced in certain cases to a minimum. The list of persons eligible began with Licentiates of the Apothecaries Company, went on through chemists and druggists, and concluded with this—"Or a compounder of medicines duly qualified in accordance with the regulations of the Army Medical Staff Corps," which he believed referred to persons who were usually old soldiers. He had always understood that in this country the desire of the legislature and of Government departments was to treat the sick poor with the greatest possible consideration and to afford them the benefit of the highest form of skill and knowledge, but this seemed to be a distinctly retrogade step. Apart from the actual duties of dispensing these dispensers had to attend to the preparation and purchase of drugs, and it seemed to him a most short-sighted policy to allow public bodies not connected with the Army at all to appoint such men as dispensers. It was very difficult to understand why certain unions and parishes should be chosen to which this memorandum should apply, and it would not be well to give too definite an opinion on the matter until further information had been obtained. Owing to the change of Government he had been unable to approach the Secretary to the Local Government Board, but he would suggest that he be authorised to wait on the President or Secretary of the Local Government Board to call his attention to this order, and he might thus be able to speak more fully on the subject next month.

Mr. ATKINS said he had always taken great interest in this matter, and had succeeded locally in having such appointments confined to qualified men. He hoped the President would point out that the qualification of the Pharmaceutical Society was superior to that of a dispenser under the Apothecaries Act.

Mr. HAMPSON pointed out that a higher standard had recently been insisted on with regard to the nursing of the sick poor, and it would be absurd for the standard of dispensing to be lowered. It was quite necessary that some step should be taken.

Mr. NEWSHOLME was very glad to hear that this matter was to be taken notice of. Some years ago he remembered the Local Government Board objecting to the appointment by the Sheffield Board of Guardians of a man who had had some experience in a chemist's shop, but was not legally qualified, so that there seemed to be quite a change of view at present. These dispensers had to attend to the buying and examination of drugs, and it was very important therefore that they should be properly qualified.

The VICE-PRESIDENT moved that the President be requested to attend the Local Government Board and point out the anomalous character of the memorandum referred to. He might point out that many workhouses contained a larger population than some of the smaller towns, in none of which towns could any man dispense or deal in poisons unless he were qualified, but in this larger population unqualified men were to be allowed not only to dispense poisons of all kinds but to purchase drugs, and were responsible for the character of the medicines and preparations used. He was quite sure the Board would see the folly of this new step.

Mr. HILLS seconded the resolution, and suggested that the President in his interview might point out the desirability of adequate remuneration being offered to public dispensers.

Mr. YOUNG said it was absolutely impossible for an Army dispenser to know anything satisfactory about his duties. He had been unfortunate enough to come in contact with several of these unqualified men, and their ignorance was something astonishing; it was really marvellous that more accidents did not happen, and in point of fact he was not sure that the high death-rate in the Army was not partly due to the efforts of these gentlemen.

Mr. MARTINDALE thought that in a matter of so much importance, a deputation should wait upon the Local Government Board. It was evident that public money might be wasted to a considerable extent if unqualified men were placed in positions of such responsibility.

Mr. ALLEN said that this was a case in which a quiet conversation by the President with the authorities would do more good than a formal deputation. It was certainly a matter which the Council was entitled to take up, in the interest of the public safety. There was no reason why the lives of paupers should be imperilled any more than those of people who paid their rates and taxes. He hoped to hear next month that this matter had been satisfactorily cleared up.

Mr. SOUTHALL hoped the President would make a personal call on the Secretary or President of the Board. Some time ago he had a conversation with Sir Walter Foster, who expressed a very strong opinion that dispensing ought only to be done by properly qualified chemists, and asked particularly if the Minor qualification of the Society was sufficient. This new departure he thought could hardly be his doing.

The PRESIDENT said it looked as if it had been pressed on the Board by some other department.

Mr. HILLS said it could hardly have been the doing of the new Government.

The motion was then put, and carried unanimously.

THE NORTH BRITISH EXECUTIVE.

The SECRETARY said a letter had been received from Mr. Rutherford Hill giving a list of the Executive of the North British Branch, which was published in last week's Journal. He had also sent a letter two days later in which he reported that the Executive had held a meeting and unanimously re-elected Mr. Laidlaw Ewing as Chairman of the Executive, and Mr. Currie, Glasgow, as Vice-Chairman for the ensuing year

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SPECIAL RESEARCH LABORATORY COMMITTEE.

The following report was presented by this Committee :

"Report of a Committee, consisting of the President and Vice-President, Messrs. Allen, Atkins, Bottle, Gostling, Hampson, Hills, and Martindale, to 'enquire into and report to the July Council to what extent the objects aimed at in the equipment of the Research Laboratory have been attained,' and to 'report any suggestions that may occur to them for the conduct of the Laboratory for the future.'"

The Council at its meeting on January 4, 1888, passed the following resolution :—

1. That the sum of £300 a year be granted for the next three years to a Committee to be appointed annually by the Council, and to consist of the President, the Vice-President, and two other members of the Council, with instructions to make such arrangements with the Professor of Chemistry as will enable advanced students and others to undertake Pharmaceutical Research under his direction and that of the Committee. The Committee, which shall be called the Research Committee, shall meet monthly, except during the vacation, or oftener if required, and shall report from time to time to the Council. The Committee shall have power to add to their number three other persons, not necessarily members of the Society, as additional members of the Committee.

2. That the Research Committee be authorised to fit up the two laboratories on the top floor of the new building; the other two rooms on the same floor to be fitted, one as a balance and store room, and the other as an ordinary writing room for the use of the Professor and members of the Committee at a cost not exceeding £300.

Three years afterwards, namely, on March 7, 1891, the Council, on the advice of the Research Committee, adopted a report which recommended—

That the direction of the Laboratory be in future one of the regular duties of the Professor of Chemistry, the general control being vested as heretofore in a Committee to be appointed annually by the Council. That the Laboratory be provided with gas, water, coals, and stationery, and that £150 per annum be paid to the Committee for the purpose of providing apparatus, materials, and assistance. That the deficit of £17 on the three years' working be paid by the treasurer. That the Research Committee consist of the President, Vice-President, Mr. Greenish, and Mr. Schacht, with the addition of Mr. C. Ekin, Professor Michael Foster, Professor Frankland, and Dr. Lauder Brunton as external members. That the sum of £200 be paid annually to the Professor of Chemistry so long as he is engaged in original research and undertakes the personal direction of the work of advanced students and others in the Research Laboratory. That the Library, etc., Committee be authorised to make the additions to the Research Laboratory recommended in the last report of the Research Committee. That an account of the researches already made be collected and published during the present year. The above recommendations to take effect as from January 1, 1891.

The Committee has held four meetings, and has most carefully considered the subject referred to it by the Council. The Director was present at a long meeting of the Committee, and explained the nature and extent of the duties he had to perform at St. Thomas's Hospital, and as an Examiner to certain Institutions. The Director assured the Committee that he had not in the past, and would not in the future, allow these additional duties to interfere with his primary duty as Director of the Research Laboratory, in the conduct of original research, and the personal direction of the work of advanced students and others in the Research Laboratory.

The Committee is of opinion that the completed work which has emanated from the Laboratories is, on the whole, satisfactory, and reflects credit on the Society.

The basis upon which the Research work has proceeded has been to follow the system of the various pharmaceutical institutes abroad, where students after a certain number of years' training have to do original work in the chemical investigation of drugs.

The workers in the Research Laboratory consist largely of students from the Society's School of Pharmacy, and the majority of these students, though they have passed the Major examination, have not the advanced knowledge and extended experience of the students in Continental institutes. As a consequence, it follows that each year many of the workers require special training to perform chemical and physical operations before they are available for research work. Students enter the Laboratory with a view to obtain more advanced chemical and physical knowledge, and it is important that they should have that opportunity as a reward for devoting themselves to research work.

With regard to the future conduct of the Laboratory, the Committee is of opinion that, concurrently with such work as has already been undertaken, it is desirable that attention be devoted to the chemical and physical examination of substances used in medicine, whether official or non-official.

The Committee feels that some disadvantage has arisen, owing to the fact that the Council, as a whole, has not been kept continuously informed of the work going on. For this reason the Committee recommends that the Director of the Laboratory attend the meetings of the Library, Museum, School, and House Committee as a part of his duties; that the Research Committee be instructed to report to the Council twice a year; and that all the papers resulting from work done in the Research Laboratory appear in the Society's Journal, either in abstract or in full, as may be determined from time to time by the Research Committee, whether published in the transactions of other scientific societies or not.

The Committee thinks it important that the Research Committee should include members who are in touch with bodies associated with physiological and therapeutic work, and realises that one of the main objects sought in the establishment of the Research Laboratory was the systematic chemical investigation of drugs, the results of which might be submitted to physiological and therapeutic experiments. The Committee recommends that the Research Committee for the ensuing year consist of the following:—

The President. The Vice-President. Walter Hills. William Martindale. George F. Schacht.	*Members of Council.*
Charles Ekin.	*Pharmaceutical Chemist*
T. Lauder Brunton, F.R.S. Michael Foster, F.R.S. Edward Frankland, F.R.S.	*Honorary Members.*

July 2, 1895.

The Council went into Committee to consider the above report and on resuming, the report and recommendations of the special committee were unanimously adopted.

British Pharmaceutical Conference.

The following gentlemen were, on the proposition of the President, appointed delegates to the British Pharmaceutical Conference at Bournemouth:—The President, Vice-President, Treasurer, Messrs. Atkins, Bottle, Grose, Hills, Martin, Martindale, Schacht, and Warren. The Editor, Sub-Editor, and Secretary were also instructed to attend.

Correspondence.

The Sunderland Chemists' Association forwarded to the Council their thanks for the honour accorded to their President, Mr. John Harrison, by his election to the position of Vice-President of the Society.

The Nottingham and Notts Chemists' Association thanked the Society for the gift of the Calendar and Journal of the Society during the year.

Similar thanks were read from the Hull Chemists' Association.

The Western Chemists' Association of London forwarded a copy of a resolution they had passed, that while supporting the policy of the Council of the Pharmaceutical Society in its administration of the Pharmacy Act, it was of opinion that future legislation should be directed towards: (1) the conjoint registration of every pharmacy, with the name of its qualified manager and of its owner or owners; the manager to be held responsible for its proper conduct, together with the owner, for any pecuniary liability that might be incurred; (2) the restriction of dispensing medical prescriptions to registered pharmacies; and (3) the raising of the standard of the First or Preliminary examination.

On the proposal of the President this communication was referred to the Law and Parliamentary Committee.

A letter from the Agent-General of the Cape of Good Hope was read introducing Mr. W. Pocock, president of the Pharmacy Board of the Cape of Good Hope, by request of the Colonial Secretary at Cape Town. He is on a visit to this country, to enquire into the arrangements authorised in England and other European countries with regard to the admission and registration of persons as chemists and druggists, with a view to considering whether such a change might not with advantage be made in the rules and regulations of the Pharmacy Board as would secure reciprocal privileges in favour of qualified persons going from Cape Colony to other colonies. The President said that since the receipt of this letter Mr. Pocock had called, and he had offered him all the courtesies and assistance the Society could give in reference to his mission.

APPOINTMENT OF PROFESSORS AND LECTURERS.

It was moved, seconded, and carried unanimously that the staff of the Society's School of Pharmacy for the ensuing Session consist of the following:—

Chair of Practical Chemistry.....	Professor J. Attfield
,, ,, Chemistry	Professor W. R. Dunstan
,, ,, Botany	Professor J. R. Green
,, ,, Materia Medica	Professor H. G. Greenish
Pharmacy and Practical Pharmacy	Mr. Joseph Ince
Assistant Lecturer in Chemistry ..	Mr. H. A. D. Jowett

The PRESIDENT said Mr. Martin had given notice of the following motion:—

> "To call the attention of the Council to a paper on 'The Chemical History of Aconitine,' by Professor Dunstan and Mr. Carr, which is reprinted from the Journal of the Chemical Society in the *Pharmaceutical Journal* of June 8, 1895; and to move that the letter of certain honorary members of the Society suggesting the re-publication of the said paper be entered and published as a part of the Minutes of this Council."

Mr. HAMPSON moved that the discussion on this motion should take place in Committee. This motion was carried, and the Council went into Committee accordingly.

On resuming, it appeared that the motion had not been seconde d.

GENERAL PURPOSES COMMITTEE.

The report of this Committee, which included the usual letter from the solicitors and dealt with certain legal matters, was read and considered in Committee.

On resuming, the report and recommendations were adopted, and special resolutions passed authorising the Registrar to take proceedings against the persons named.

MEETING OF THE EXECUTIVE OF THE NORTH BRITISH BRANCH.

A meeting of the Executive of the North British Branch was held in the Society's House, 36, York Place, Edinburgh, on Friday, June 28, at 12 noon, Mr. J. Laidlaw Ewing in the chair. Present:—Messrs. Bowman, Coull, Currie, Davidson, Ewing, Fisher, Gibson, Hardie, Henry, Johnston, Kermath, Kerr, Lunan, McAdam, Moir, Nesbit, and Strachan.

Apologies for absence were received from Messrs. Hardie, Harrison, Paterson, and Storrar.

The minutes of last meeting were read and approved.

The CHAIRMAN intimated that the first business was the election of a Chairman.

Mr. KERR moved that Mr. Ewing be re-elected for another year. There was some special work still in hand, of which Mr. Ewing had an intimate knowledge, and although he had expressed a wish to retire, he hoped he would accede to their request to act as Chairman for another year. His position on the recent poll showed that he still fully enjoyed the confidence of the members and associates in Scotland.

Mr. CURRIE seconded, and the motion was unanimously agreed to.

Mr. EWING, in accepting, expressed his thanks for this renewal of their confidence. His own feeling was that he ought to retire, and he had a number of other engagements which pointed in the same direction. He yielded, however, to the desires of his colleagues and would do his utmost to fulfil the duties to their satisfaction, and also to that of the Members and Associates in Scotland.

Mr. LUNAN moved that Mr. W. L. Currie, Glasgow, who had already done good service in the re-organisation of pharmacy in the West of Scotland, should be elected Vice-Chairman.

Mr. KERR seconded the motion, which was unanimously agreed to.

Mr. CURRIE, in accepting office, said this had come upon him as a surprise. With regard to anything he had been able to do in Glasgow, he would like to say the movement there had not been due to him, but to his fellow-craftsmen, and the work they and he had been able to do together.

The CHAIRMAN said he thought this was the appropriate time to make reference to those who this year retired from the Executive. He would first of all refer to their esteemed friend, Mr. Kinninmont, and he would suggest that the following resolution should be sent to him:—

> "The Executive has already recorded its high appreciation of the long and faithful services of Mr. Kinninmont in connection with his retiral from the Board of Examiners two years ago, but we cannot allow the occasion of his retirement from the Executive to pass without a renewed expression of our appreciation, accompanied by our wish that he may enjoy a measure of good health and happiness for some years to come.'

This was unanimously agreed to, and the Chairman said they had also lost the services for the present of Mr. Noble, but he might be got to come back at some future time; Mr. Sutherland retired as he was now an Examiner. He had much pleasure in extending a cordial welcome to the new members. Mr. Bowman was well known for the prominent part he had taken in local trade matters. Mr. Coull was also well known, and they had much sympathy with him in the death of his mother since the date of his election; Mr. Moir had already done good service to pharmacy in the west, and would be a good representative of South Glasgow.

Mr. NESBIT said, in connection with the proposal to appoint the General Purposes Committee, that he thought they should appoint, say, two members of the Board of Examiners as members of the Committee. It would be very useful to have them on the Committee in considering many of the matters the Committee had to deal with.

Mr. FISHER said, while sympathising with Mr. Nesbit's object, he did not see how examiners could be on this Committee unless they had been elected by the voters.

The CHAIRMAN said he thought this proposal was beyond their constitution. The plan had been for the Board of Examiners to appoint one or two members to confer with the General Purposes Committee when necessary, and hitherto that plan had been quite satisfactory.

Mr. JOHNSTON said he did not see any necessity for a change, as the plan hitherto followed had worked well.

After further discussion Mr. Nesbit withdrew his suggestion, and the Chairman, Vice-Chairman, and resident members were appointed a General Purposes Committee to take charge of any business arising between meetings.

The CHAIRMAN reported that the alterations desired by the Examiners in the Dispensing and Chemical Laboratories were at present being carried out, and would be completed for the ensuing examinations. The Committee appointed at last meeting to consider the re-arrangement of the older premises had met with Mr. Blanc, the architect, and had prepared a plan and estimate, which he had taken to London. These had been referred to a Committee of the Council, and as some of the details were not quite approved of by the Committee, they were referred back to the Executive for further consideration. He would suggest that the Committee should be re-appointed to go carefully into the whole matter and report to the next meeting of the Executive. This was agreed to, and Messrs. Ewing, Henry, Lunan, and Nesbit were appointed a Committee for this purpose.

The CHAIRMAN said under the new constitution of the Board of Examiners two members retired every year, and he thought it would be well to have the question carefully considered by a Committee and reported upon, as was done last year to the November meeting of Executive. This was agreed to, and the Chairman and Vice-Chairman, with Messrs. Kerr, Nesbit, Storrar, and Strachan were accordingly appointed.

The arrangements for evening scientific meetings in Edinburgh during the winter months were remitted to the General Purposes Committee. It was also remitted to the Committee to consider the most suitable hour at which to hold the Annual Meeting for the election of Executive.

Mr. Currie said he would like to refer to the method of electing the Executive. At present all the members retire each year, and in that way it might happen that those acquainted with the business would not return. To preserve continuity, he thought it would be better if one-third or two-thirds retired each year.

The CHAIRMAN said that would be a material alteration of their constitution as determined by the Council. Besides, it was a method rather against the modern tendency in such bodies, and, as a matter of fact, members standing again were re-elected, so that the Executive was practically continuous.

Mr. COULL gave notice that at next meeting he would move a resolution in favour of making the First examination a better test of a student's academic capabilities by extending the scope and raising the standard of the examination.

Mr. MOIR said the question had been raised as to the legality of the First or Preliminary examination. He would like to ask if there was anything in that.

The CHAIRMAN asked the Assistant-Secretary to read Section 8 of the Pharmacy Act, 1852, which was held to cover all that was included in the examination.

Mr. COULL said he thought Mr. Carteighe had indicated a doubt as to its legality, but the concluding words read from Section 8, namely, "such other subjects," met the case completely.

The Chairman and Vice-Chairman, and Mr. Nesbit, Portobello, were appointed delegates to the ensuing meeting of the British Pharmaceutical Conference, at Bournemouth.

The meeting then closed.

AMYLASE is shown by Effront (*Comp. rend.*, cxx., 1281) to have its saccharifying power considerably augmented by the aid of infusions of raw grains, asparagine, salts of aluminium and vanadium, and picric acid and its salts, the action being manifested without the liquefying power of the diastase being affected, and the increase in the saccharifying power attaining its maximum when 25 per cent. of the starch has been converted into maltose.

MAJOR EXAMINATION QUESTIONS.

July 3, 1895.

CHEMISTRY.

Time allowed Three Hours—from 10 *a.m. to* 1 *p.m.*

[*Six questions only are to be attempted.*]

1. What is the theory of electrolytic dissociation, and what are the principal experimental facts upon which it is based?

2. Give an account of the reasons why 200 is taken as the atomic, weight of mercury.

3. What is the principal alkaloid contained in *Conium maculatum* and how has it been artificially prepared by Ladenburg?

4. The disubstitution compounds of benzene are known in three isomeric forms (ortho, meta, and para), how have the relative positions of the substituting groups in these isomers been determined?

5. Indicate by constitutional formulæ the relationship between tartaric, racemic, malic, and succinic acids. Show how any one of these substances can be synthetically prepared.

6. What is dialysis? Show how the process might be applied in preparing a solution of silicic acid from felspar.

7. How many butyl alcohols are there? Give their constitutional formulæ, and point out the more important physical and chemical differences between them.

8. How can urea be obtained from its elements, and what is its source and fate in the ordinary course of nature?

PHYSICS.

Time allowed, Three Hours—from 2 *to* 5 *p.m.*

[*Six Questions only are to be attempted.*]

1. A chemical balance behaves in one of the three following ways:—1. When the beam is released it does not oscillate, but falls over on one side or the other against the stops. 2. When the beam is released it oscillates rapidly, and when a small weight is placed in one pan, the balance is found to be not very sensitive. 3. When a weight of 10 Grms. is placed on the right hand pan it requires 10·01 Grms. to counterpoise it. Describe the causes of these irregularities and state what adjustments are necessary to put the balance in working order.

2. If you look through a thick piece of plate glass at a small flame so that the light passes normally through the plate, one image of the flame is seen. If now the plate is turned so that the light passes through obliquely, a series of images is seen. Explain how these images are formed and show why they have not all the same brightness.

3. Describe the use of the condenser in connection with an induction coil.

4. Describe the optical arrangements of the compound microscope.

5. What is meant by diathermancy? Give illustrations in explanation of your answer.

6. What methods have been used for measuring very high and very low temperatures?

7. What is the evidence of the existence of certain elements in the sun?

8. What would be the best arrangements for a voltaic battery for the following purposes:—1, to excite a large electro magnet; 2, to produce an arc light; 3, to send signals through a long telegraph line?

A Paper.*

BOTANY AND MATERIA MEDICA.

[*Time allowed, Three Hours—from 10 a.m. to 1 p.m.*]

1. Contrast and compare the following natural orders :—
   Compositæ and Dipsaceæ.
   Ranunculaceæ and Rosaceæ.
   Salicaceæ and Betulaceæ.

2. What is meant by *irritability* in plants? Briefly describe two instances of its occurrence.

3. What are *medullary rays?* Distinguish between *primary* and *secondary* ones. What is their function?

4. Give an account of the botanical nature of *ergot.* By what characteristic features would you recognise it?

5. Describe the Socotrine Aloe. What part of the plant is used in medicine? What active principle or principles does it yield? How would you most conveniently identify it or them?

B Paper.*

BOTANY AND MATERIA MEDICA.

[*Time allowed, Three Hours—from 2 to 5 p.m.*]

1. Contrast and compare the following natural orders :—
   Cucurbitaceæ and Umbelliferæ.
   Scrophulaciaceæ and Labiatæ.
   Cupuliferæ and Coniferæ.

2. Give an account of the distribution of *Meristematic* tissues in the root of a Dicotyledonous plant. Distinguish between primary and secondary formations.

3. Give some account of the action of gravity in plants. Mention any experiments which have been performed illustrating this.

4. What is the botanical nature of the substance commonly known as Lycopodium? What are the most commonly occurring adulterations met with? How would you detect them?

5. Describe the general appearance and macroscopic characters of the chief Cinchona barks, emphasising such points as are most useful in distinguishing between them. Give an account of the histological points which characterise these barks as a group.

B Paper*.

PRACTICAL BOTANY AND MATERIA MEDICA.

[*Time allowed, Three Hours—from 10 a.m. to 1 p.m.*]

1. Determine the natural order of each of the specimens G, H, I, K. Give the reasons for your opinion.

2. Determine the nature of the reserve materials in the seed L. Write an account of the experiments you make, and the conclusions you draw from each.

3. Identify the powder M. Perform such tests as will enable you—
   1. To recognise the substance.
   2. To determine what impurities (if any) are present.

A Paper.*

PRACTICAL BOTANY AND MATERIA MEDICA.

[*Time allowed, Three Hours—from 2 to 5 p.m.*]

1. Determine the natural order of each of the specimens A, B, C, D. Give the reasons for your opinion.

2. Determine the nature of the reserve materials in the seed E. Write an account of the experiments you make, and the conclusions you draw from each.

3. Identify the powder F. Perform such tests as will enable you—
   1. To recognise the substance.
   2. To determine what impurities (if any) are present.

* Part of the candidates received the papers A, A, and the remainder had the papers B, B.

CORRESPONDENCE.

[*Letters to the Editor should be written as concisely as possible, on one side of the paper only, and preferably with name and address for publication.*]

SOME FRIENDLY WORDS.

Sir,—The commencement of a new series of the *Pharmaceutical Journal* is such an important event that I would not like the occasion to pass without saying a few friendly words in connection with it. I wish to offer the Editor of the Journal a word of congratulation, of gratitude, and of encouragement; to give the first issue of the new series a hearty word of welcome; also to add a word of advice to the many thousands of my fellow-craftsmen who are still outside the Pharmaceutical Society.

With regard to the first, there are surely none who will not join with me in congratulating the Editor on his having reached his editorial semi-jubilee in the service of the Society. For all the good work he has done for us in the past we are most grateful, and we look forward to even better work in the future. It is no easy matter to occupy the same position for a quarter of a century and, at the end of the time, to be as fresh and vigorous as at the beginning. There are few men of whom this could be said. But the recent great change in the Journal is a proof, if any were wanted, that the Editor's hand has not lost its cunning, nor his mind its natural force of character. He has not become stereotyped or fossilised; but is adapting himself to the changing times with singular felicity and elasticity. May he long be spared to put his great powers to such splendid use, and in conjunction with his cultured subordinate, to give us a Journal which we may regard with pride and satisfaction.

I welcome the first issue of the new and enlarged series for its own sake, for I am quite sure it will be supremely worthy of the Society and the Editors. We have already a guarantee for this in the immense improvement that has taken place in the Journal during the past year. Some of us have long looked forward to a Journal such as we now have and, having got it, we are not disappointed. The new matter that has lent diversity and brightness to its pages, the trade notes, the personal paragraphs, the market report, the photographic section, are each and all of the utmost interest and value to the working pharmacist. I venture to think many, among the large number who will receive the first number of the new issue, will find in it much that is of use to them in their daily calling, much that will help to keep their mental hinges from rusting, and much also that will brighten their week-end by giving them information regarding the great social organism of which they are units, and in the working of which every craftsman with social instincts takes a more or less active and intelligent interest. The Journal in its new and enlarged form starts on a career of usefulness, the possibilities of which are limited only by the limits of the Register, and not even by them, though we may be fairly well satisfied when every individual on the Register has also become a subscriber to the Journal.

My last word is one of advice to those pharmacists who are not yet connected with the Society. I know all your reasons for not joining the Society, and I have never met one of you who could successfully vindicate himself for standing aloof. There used to be a disposition with many of you to sneer at the *Pharmaceutical Journal* because of its scientific character and its alleged small value for trade purposes; but—as recent numbers have shown—that excuse will serve no longer. Some of the more thoughtless of you think, or say, that the Society has done nothing for you; but that only

betrays your hopeless ignorance. Whatever advance pharmacy has made in this country during the last fifty years has been entirely due to the Society and, whether you know it or not, you have shared in the advantages that have accrued therefrom. Did it ever occur to you to ask where you would have been, and what condition you would have occupied to-day if the Pharmaceutical Society had never existed? If not, you might for once exercise your imagination and try if you can conceive what the situation would have been It may be quite true that, owing to the unforeseen circumstance of company trading, pharmacy is not in such a flourishing condition to-day as we would all like it to be; but the Society is in no sense responsible for that and it did its best, though in vain, to arrest the movement. I know many of you who are continually grumbling either because the Society does not prosecute some unqualified competitor, or for not doing this, that, or the other. It never occurs to you to think how much it costs the Society every year to prosecute offenders! Oh, no! While you are determined you will do nothing to help that work, you are quite prepared to blackguard the Society because, as you think, it won't spend money on prosecuting your competitor, and as it happens, you are, as usual, wrong here too. You expect the Society to rid you of unqualified competition; but you take good care that none of your money ever goes to recoup the great loss involved every year in prosecutions. Of course you never think of this, it would be too much trouble: besides, that would convict you of gross unfairness, and you would much rather pose thoughtlessly as an injured person, than stir the question even to the extent of seriously thinking it out.

There is, however, one great reason why you should join the Society, namely—the very material one of self-interest. It is a very selfish reason; but, just because it is so, it appeals to all of us. It is to your interest and mine to have a strong Pharmaceutical Society, for the stronger it is the more able it will be to do useful work for the craft. If we had a Society representing even three-fourths of the available strength, how vastly more powerful it would be in every respect; but chiefly in this, that we would be able to go to Parliament and speak to our legislators in tones that we cannot now think of using. I do not say we will ever get all we want from Parliament—if we did I question whether it would be for the public good—but I do say that we have little chance of getting anything so long as the Society can only speak as representing a fourth part or thereby of the whole body. With a large and thoroughly representative Society, our Council would have more heart to undertake some pressing reforms; as we now are it is ridiculous to go to Parliament with a Bill and be asked who the Society represents.

There is another aspect of the case that not one in a thousand of you has ever thought about. You are on the Register of Chemists and Druggists. Have you ever contributed to the keeping up of that Register? Every few years the Pharmaceutical Society is at great expense to find out whether you are dead or alive, and every year, —also at great expense—it prints a Register. Do you, who reap all the advantages and enjoy all the privileges that registration gives, contribute to that expense? Not one solitary cent. It is left for the members of the Society to be at all the expense of keeping the non-members on the Register, a state of things that I am bound to say does not exist in any other profession in the kingdom and one which ought not to exist in ours. It is my opinion that every person on the Register ought to pay an annual registration fee, and get a copy of the publication to show for his money. Some reform such as this has been hinted at, by a slightly different method, and I trust our perennial President (using that term in the most respectful and complimentary sense) will flourish till he is able in some way to consolidate the craft and make it one great, powerful body. One word to close; if you are still unconvinced, or if you cannot afford a guinea, there is another thing you can do, namely, split the difference and subscribe for the Journal. Any recent number is a fair specimen what ou will receive every week, with the difference that with each succeeding week it will probably be better than the last. Hitherto it has been the usual custom for membership of the Society and subscription for the Journal to go together: now, if you wish it, you can subscribe for the Journal alone. My advice is, do so, and your only regret will be that you have been so long without doing it.

Hawick, N.B. THOMAS MABEN.

*** If protracted experience permitted an Editor to remain a modest person, some parts of the foregoing letter would probably have been excised. As it is, no better excuse for their publication can be offered than a keen appreciation of the generous and kindly feeling manifested by the writer. As to the advice tendered for the benefit of those who are still unconnected with the Society, it represents, so well, thoughts which have often passed through the Editor's mind, without being expressed, that he is deeply indebted to Mr. Maben for saying, in his capacity as a member of the Society, to those of his brother craftsmen who are not in that position, what could not have been so appropriately said by an officer of the Society. [*Ed. Pharm. Journ.*]

THE METRIC SYSTEM.

Sir,—Your correspondent "Gilgen" entirely misses the points at issue—the question has nothing to do with French or English genius, and racial prejudices ought not to be dragged in. There is no such thing as French or German science—science is truth, and is not merely of cosmopolitan but universal application. There is no fundamental error in the idea of decimal calculation. Of course a correction of the quadrant has been made, but as Dr Attfield points out, this makes no difference in the utility of a method which ought not to be called a French system, but a universal one. The question is clearly one of utility, as to whether our present system can be improved, and if so, how? I suppose even "Gilgen" does not claim perfection for a system which contains such an unmanageable factor as 437½, and if our present system is not perfect, then what can be done either to mend or end it? Any person conversant with the Metric System recognises in it a method of calculation which has the advantages of being universal (the most important, in my opinion), of being in accordance with our method of calculation, which is already in tens, and being readily understood by any person of ordinary capacity in ten minutes. To show the immense waste of time involved in this country by the absurd and obsolete system we use, it has been calculated (I believe by Mr. Balfour) that from two to five years of a child's school life is wasted on attempting to learn the absurd scheme of compound arithmetic he will so readily and joyously forget directly he leaves school. The fact is, any method of calculation is of the nature of a tool by which certain work may be performed, and only a poor workman uses blunt and inefficient ones when he might save time and temper by using better. Can Mr. "Gilgen" enlighten us as to what he means by "the old man of the woods with the features of the country parson predominant on his back," or what on earth the Metric System has to do with "disestablishment thundering at his gates, which will also overwhelm us if we weakly navigate," etc.? If the parson is on the old man of the woods' back, how can any amount of thundering at the parsonage gates affect him? Are not the floods, too, somewhat out of place in the woods, and the navigation, and sprats, and pharmaceutical vessels, and French whales! Mr. "Gilgen" is great on metaphor, but had he not better follow Carlyle's advice, and "deal in the verities"?

CHAS. H. TURVER,
Member of the New Decimal Association.

NOTES AND NEWS.

Pharmaceutical Council Examination Prizes.—The competition for these prizes will take place at 17, Bloomsbury Square, London, W.C., and at 36, York Place, Edinburgh, on Monday, July 15, at 10 a.m. Those who have passed the Major examination during the present session, and were Associates of the Pharmaceutical Society at the time of passing the examination, are eligible to compete for the prizes. Notice to that effect must be given to the Secretary, Mr. Richard Bremridge, on or before Friday, July 12, after which date no further entries can be received. The first prize consists of the Pereira Medal in silver, and a present of books value £5, or thereabouts, given by the late Thomas Hyde Hills; the second prize is the Pharmaceutical Society's Medal in silver' accompanied by a present of books value £3, or thereabouts, given by the late Thomas Hyde Hills; and the third prize is the Pharmaceutical Society's Medal in bronze, and a present of books value £2, or thereabouts, given by the late Thomas Hyde Hills.

Ethical Aspects of Pharmacy.—It is stated that the paper of Professor Stephenson on the ethical aspects of the pharmacy of to-day, which was reprinted in last week's Journal, has been much commented on by chemists in Scotland. In Edinburgh particularly the practice of prescribing well-known drugs with some maker's name attached has rapidly increased in recent years, and is frequently a source of great trouble and annoyance to dispensers.

Wanted—A Chemistry Master at Hull.—Wednesday next July 10, is the latest day on which application can be received by the Technical Instruction Committee of the Hull Corporation, for the post of Chemistry Master. The salary offered is £200 per annum, candidates must be between twenty-five and forty years of age, and applications must be directed to Mr. J. T. Riley, D.Sc. 7, Albion Street, Hull.

"Oleum Anserinis" or Goose-Grease.—In these days of synthetic remedies and ultra-scientific therapeutics, it is refreshing to read a contribution such as that penned by Dr. Langton Symes, and published in the *Dublin Journal of Medical Science* for June, laudatory in the highest degree of the familiar "goose-grease plaster." The learned doctor suggests the inclusion of goose-grease in the next edition of the Pharmacopœia! The paper will be reprinted in the Journal later.

Ultra-Rabid Teetotalism (?).—The Paris correspondent of the *Daily News* has discovered the alarming fact that the brandy now sold in France is made with "ethylic alcohol," and is therefore (*sic*) rank poison. The sale of this alcohol should be restricted, observes the writer of the paragraph, since its effect is to break down the will rapidly. He also states that the City of Paris has recently built an asylum to contain 800 patients, presumably suffering from this cause, but surely Paris itself will become one vast asylum if the use of ethylic alcohol in France is attended by such remarkable results as reported.

Plymouth, Devonport, Stonehouse, and District Chemists' Association.—This Association with the unwieldy name holds its annual outing at Lidford on Wednesday next, July 10. Special saloon carriages will be provided, leaving Friary Station at 2.25 p.m. and 4.57 p.m., and Devonport fifteen minutes later. High tea will be provided at the Manor Hotel, Lidford, at 6.30 p.m. Tickets (4*s.* 6*d.* each) may be obtained from the honorary secretary, Mr. James Cocks, Edgcumbe Street, Stonehouse, Plymouth.

Edinburgh District Chemists' Trade Association.—The photograph of the Edinburgh District Chemists' Trade Association excursion party taken at Kinross has proved very successful, and a good picture has been obtained by Mr. R. J. McDougall, 1, Gladstone Place, Leith, who will be glad to supply mounted copies at 2*s.* each.

Cayenne Lozenges the Cause of Death.—A young domestic servant recently died at Southampton, apparently from the effects of gastric irritation induced by the excessive use of cayenne lozenges. She had eaten a large number of the lozenges, and death was undoubtedly due to some irritant substance, the actual cause of death being acute general enteritis. However, it was not proved what the irritant substance actually was, and an open verdict was returned at the inquest.

"Sleeping Disease" of Tomatoes.—The fungus causing this disease was some time ago shown by Mr. A. Collenette, of Guernsey, to kill the plants by destruction of the cells of the stems. This result has now been confirmed by Mr. G. Massee, of Kew, who identifies the fungus as *Fusarium lycopersici*, Sacc. The resting-spores present in the soil in which the young tomato roots are growing germinate, and give off mycelia, which penetrate the roots. The hyphæ gradually grow up the stem, following the course of the vascular system, and ultimately pass into the leaves and fruit Fruiting branches of the fungus then appear on the outside of the stem, this constituting the Diplocladium stage of the fungus, and, later, glutinous patches appear, in the third or Fusarium stage. Finally, resting spores are produced, and the cycle of development is complete, the tomato plants having been destroyed meanwhile.

'The Flora of Anglesey and Carnarvonshire.'—Students of the Welsh flora will welcome this new hand-book by Mr. J. E. Griffiths, the more especially since so many years have elapsed without a recent guide to the native plants found in the Isle of Anglesey and Carnarvonshire. Mr. Griffith is a retired chemist and druggist, and a former member of the Pharmaceutical Society.

Accidental Inoculation with Diphtheria.—The report in the daily press that Professor Rücker had accidentally inoculated himself with diphtheria, while experimenting on the antitoxin treatment of that disease, proves to have been incorrect, the unfortunate patient being Dr. Ruffer, of the Institute of Preventive Medicine, Great Russell Street. For some time after the accident Dr. Ruffer was very ill, but as soon as the disease was diagnosed he was treated with the antitoxin serum, and is now recovering.

Antifebrine or Strychnine?—An inquiry was held by the Birmingham Coroner on June 28, into the circumstances attending the death of Mr. Charles Harrop, Beaufort Road, Edgbaston, Vice-President of the Crane Chemical Company, who died on Monday under singular circumstances. It appears that on the previous Monday afternoon Mr. Harrop complained of violent headache, and said he had called at a chemist's shop in Great Hampton Street, and got ten grains of phenacetine. After taking it he found the taste was bitter, and he told the chemist it was not phenacetine he had given him. The chemist is alleged to have admitted that it was not phenacetine but antifebrine. Shortly afterwards, deceased had an attack of spasms, and the doctor who was summoned found him in convulsions. His limbs became rigid, and he died on the way to the hospital. The medical men in attendance were of opinion that deceased died from symptoms of strychnine poisoning, and the inquest was adjourned for the powder to be analysed. A full report of the proceedings will be found at page 21 of the Journal.

British Medical Association.—It is anticipated that the sixty-third annual meeting of the British Medical Association will exceed all previous meetings in point of numbers. This is extremely probable considering that the place of assembly is the metropolis, which always possesses many special attractions for even grave and learned visitors, in addition to the business upon which they are more particularly supposed to be intent. The *Practitioner* understands that numbers of medical men are joining the Association expressly that they may have the right to take part in the proceedings, "and share in the junketings with which the intellectual tension of the scientific tournament is relieved."

Canada and the Metric System.—Canadian druggists are satisfied with the Imperial system of weights and measures, says the *Canadian Druggist*, but they want the metric system recognised in the Pharmacopœia as well. They frequently use it, Canadian assistants in American pharmacies require a perfect knowledge of it, its recognition in British text-books would enable them to replace American educational works, and it is undoubtedly the scientific system of the age.

Carriage of Gas Cylinders. — The Great Western Railway Company declines to accept cylinders of compressed gases for conveyance as passenger's luggage. They must be booked through the parcels or goods offices, and will not be conveyed by the Company's steamers. The cylinders must be of iron or mild steel containing not more than 0·2 per cent. of carbon, and have been properly annealed and tested. They must also be encased in closely plaited hemp, or fixed in wooden boxes without lids but with rope handles ; or they may be placed loose in wooden boxes with lids secured by straps, or efficiently protected by closely woven wickerwork which must enclose the valve in each case.

The "Conference" at Bournemouth.—According to the latest arrangements in connection with the Bournemouth meeting of the British Pharmaceutical Conference, the reception and conversazione will be held on Monday, July 29, at 8.30 p.m., at the Winter Gardens, Hôtel Mont Doré. The Sessions of Conference will be held on Tuesday and Wednesday, in the Shaftesbury Hall, and at the conclusion of the first day's business there will be an excursion to Swanage in the s.s. "Lord Elgin," whilst on Wednesday afternoon there will be a Garden Party in the Hotel Gardens, followed by a Smoking Concert and a Drawing Room Concert. The whole-day excursion on the last day will be to Lyndhurst and the New Forest. Applications for tickets should be sent to Mr. Stewart Hardwick, Hon. Local Sec., 21, Commercial Road, Bournemouth, not later than July 22. No. 1 Book (price 10*s.* 6*d.*) admits to the Reception, Luncheons, Excursion to Swanage, Garden Party, and Smoking Concert. No. 2 Book (price 10*s.* 6*d.*) covers the Coach Fare, Luncheon, and Tea, on Thursday. Mr. Hardwick will also be glad to engage rooms for visitors, if early notice be sent to him.

Weights and Measures Committee.—The Select Committee on Weights and Measures, presided over by Sir Henry Roscoe, M.P., concluded its labours and presented its report on July 1. The report recommends that the metric system of weights and measures be at once legalised, and that after a lapse of two years the system should be made compulsory. It is proposed that meanwhile the metric system should be taught in all public elementary schools, and that decimals should be taught earlier in the school curriculum than at present.

ENGLISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Presentation of the Short Testimonial.—A meeting of past and present students of the School of Pharmacy of the Pharmaceutical Society was held in the Lecture theatre at 17, Bloomsbury Square, at 8 o'clock, on Thursday evening, June 27, for the purpose of presenting a testimonial to Mr. F. W. Short.

Mr. F. Ransom, of Hitchin, occupied the chair, and in the course of his remarks briefly sketched Mr. Short's career in the School, and especially dwelt on his kindness and attention to the students under his charge, and the goodwill which was felt towards him by all those with whom he had been brought into contact. Mr. Ransom described how a committee of past and present students had been formed, and said that all students of the last fourteen years, as far as could be ascertained, had been communicated with. Although the time for collecting subscriptions had necessarily been short, there had been 191 subscribers. The presentation took the form of a silver tea and coffee service, which it was now his privilege to hand over to Mr. Short, and an illuminated address bound in Russia leather, containing the names of all the subscribers. This address he would now read.

The text of the address was as follows :—

To Frederick William Short, Senior Demonstrator of Practical Chemistry, in the School of Pharmacy of the Pharmaceutical Society of Great Britain.

We, the undersigned, present and past Students of the School of Pharmacy, who are and have been associated with you during your term of office as Demonstrator, desire, on the occasion of your retirement from the position you have so long and honourably held, to offer you our hearty good wishes, and to express the hope that your future career may be a prosperous and distinguished one.

We, furthermore, as a slight mark of our esteem for your ability, and of affectionate regard for your personality, ask your acceptance of the accompanying tea and coffee service in silver.

Mr. Short, who was received with loud cheers, said that he was quite unable to express his feelings on that occasion. It was a heart-felt pleasure to him to know that those who had been associated with him had such kindly feelings towards him. He felt greatly honoured by their kind and affectionate words and the very handsome present they had given him.

As Mr. Short sat down, the meeting gave him musical honours in a very vigorous manner, and the proceedings concluded with ringing cheers for Mr. and Mrs. Short.

Arsenical Wasp-Destroyer.—Samuel Woods, head gardener to Mr. Foljambe, at Osberton Hall, saw that his grapes were going wrong about a week ago, and this so troubled him that he could not sleep. On the morning of June 26, he took a dose of "Davis' improved wasp-destroyer," and died in great agony. Dr. Montagu, who attended him, said the liquid contained a large quantity of arsenic. At the inquest it was found that Woods was not in his right mind when he took the "wasp destroyer."

Chemists on the Bench.—Amongst the gentlemen whose names were last week added to the Commission of the Peace for the County Palatine of Lancaster was Mr. William Parkinson, chemist, of Cleveland, Burnley.

Weights and Measures Committee.—On Thursday afternoon, June 27, the second meeting of the Weights and Measures Committee appointed last April at the Birmingham Conference of Weighing Plant Manufacturers and Inspectors of Weights and Measures, was held in one of the Conference Rooms of the House of Commons, under the presidency of Mr. Jesse Collings, M.P. The object of the Committee is to frame proposals for the better working of the Acts relating to Weights and Measures. At a meeting held the previous week, it was recommended that these Acts should be so amended as to give the Board of Trade increased functions and extended authority. The desirability of all local authorities adopting a uniform set of regulations for the guidance of their Inspectors was urged. At present each local authority is a law unto itself as regards the technical administration of the Acts. Hence many anomalies, remarks the *Daily News*.

A New Masonic Lodge, at St. Bartholomew's Hospital.—On Friday afternoon, June 28, the Prince of Wales attended the ceremony of consecration, by the Earl of Lathom, of the Rahere Lodge of Freemasons, established for the benefit of members of St. Bartholomew's Hospital. The function took place in the Great Hall of Bart's. There was a large gathering of persons present, and a detachment of the Medical Staff (Volunteer) Corps, with drum and fife band, attended. His Royal Highness and other officials entered the Grand Hall in procession, and the Prince, after taking the chair, was saluted in due form. Then followed the consecration service at the hands of the Grand Chaplain, the Dean of Gloucester, in which he strewed corn (emblem of plenty), poured wine (emblem of joy and happiness), and oil (emblem of unity), and sprinkled salt (emblem of friendship) during a circuit of four times round the lodge, halting in the east at each perambulation. Music accompanied this peregrination, and during the intervals hymns were sung. Finally, the consecrating officer dedicated the lodge, the Chaplain carrying the censer three times round the lodge. After the ceremony the lodge business was proceeded with, consisting of the installation of the Worshipful Master, Clement Godson, M.D., Senior Warden Alfred Cooper, F.R.C.S., Junior Warden William Johnson Walsham, F.R.C.S., and the various other officers.

Exhaustion, not Poison.—Mr. J. C. Malcolm, the Leeds' City coroner, has had a somewhat peculiar case brought under his notice. About three weeks ago an elderly man named John Wright, living at 69, Canal Street, took a dose of what was alleged to be a non-poisonous specific, to induce vomiting. Immediately afterwards he became very ill and fell to the ground dead. An inquest was held, and it being considered that probably some mistake had been made in dispensing the specific, a post-mortem was ordered. It was found, however, that death had been due to exhaustion, consequent on severe vomiting. A verdict was returned accordingly.

Carbolic Poisoning in Salford.—A woman named Ann Stoves, 52 years of age, wife of a carter, living at 38, Waterloo Street, Salford, last week went into a public-house in the neighbourhood, and calling for a noggin of whiskey, emptied into it the contents of a phial of carbolic acid. This she drank, and going out of the house, fell dead.

Adulteration Cases at Ripley.—At the last Ripley Petty Sessions, Kendel Daykin was charged with selling spirit of nitrous ether at Ripley, on May 2, which upon analysis was found to be not of the quality, nature, and substance demanded. According to the evidence, the spirit sold to the purchaser contained 50 per cent. too little nitrous ether.—Defendant was fined £1 5*s.*, including costs.—James Waterall, of Loscoe, was charged with selling 4 ozs. of tincture of rhubarb which was not of the nature, quality, and substance demanded, on March 14.—Defendant said he had kept the article fifty years, and never had any complaint, but he was fined £1 6*s.*, including costs.

Commercial Education.—In continuation of the action of the London Chamber of Commerce, under their scheme of commercial education, the sixth examination for junior commercial certificates has been held this week. The proceedings commenced at King's College on Monday afternoon with the examination in practical chemistry, all the subsequent papers being taken between Tuesday and Saturday in the hall of the Institute of Chartered Accountants. This is the second examination that has been directly organised by the Chamber, who have appointed their own examining officers and moderators.

Demolition of an Ancient Pharmacy.—For 150 years the business of a chemist and druggist has been carried on at 74, Market Street, Sheffield. Now, to widen the street, the building, with its quaint bow window and old-world surroundings, has to come down, and Mr. G. T. W. Newsholme, who nearly twenty years ago succeeded Mr. Radley in the business, has to turn out. He has been fortunate in securing the premises 27, High Street, in which for many years Mr. Hadfield carried on the business of a fancy jeweller. They are centrally situate, commodious, with two large windows, and the warehouses which Mr. Newsholme has had for six years are in the rear. Messrs. Maw, Son, and Thompson, of Aldersgate Street, London, are fitting up the premises in the most modern style and with every convenience for carrying on the business of a high-class pharmacist, including the electric light.

Charge of Procuring Abortion.—At the Lancaster Borough Police Court, on June 24, Mary Tymon, certified midwife, was charged with using certain means with intent to procure the abortion of Cecilia Slater, seventeen years of age, between February 6 and March 17 last. According to the *Lancaster Guardian*, Mrs. Margaret Slater stated in evidence that she paid Mrs. Tymon 4*s.* 6*d.* for an instrument she purchased from Mr. McDonald, chemist, and also paid for some other medicines. Later, Donald E. McDonald, chemist, said that Mrs. Tymon had been in the habit of buying certain drugs at his shop. In February she purchased some liquid extract of ergot. She also bought an enema. After further evidence had been given, the case was adjourned.

A Mysterious Poisoning Case.—On the 28th ult., Mr. Pemberton, F.R.C.S. (Coroner for Birmingham), opened an inquest relative to the death of Mr. Charles Harrop, 54 years of age, who was a member of the Crane Chemical Company trading at Newhall Hill, Birmingham. Deceased died from poisoning on the 24th ult. under singular circumstances. It appeared that deceased was subject to attacks of headache, and to allay the pain he was in the habit of taking phenacetine powders. On the day of his death he was being driven to several of his customers, and complained to his coachman of having a violent headache. In the course of his round he called at the shop of Mr. Brown, pharmaceutical chemist, 168, Hockley Hill, and asked for ten grains of phenacetine powder. Mr. Brown served him, and immediately deceased had taken the powder he remarked that it was not phenacetine. He was assured that it was, but upon Mr. Brown tasting the powder he agreed that it was not phenacetine. Immediately afterwards deceased was driven to his office, and became very ill. His cashier attempted to administer an emetic in the form of hot water, but failed owing to the severe attack of spasms that seized deceased. He became rigid in his limbs, and medical assistance was procured. In the meantime Mr. Brown had requested Dr. Pogson to proceed to Mr. Harrop's works. Dr. Pogson stated that he found deceased in a rigid condition, and unable to take the emetic he prescribed owing to spasms in the throat. Deceased remarked, "I have taken the powder; I have not been accustomed to take them, and I told Mr. Brown so." Deceased showed all the symptoms of strychnine poisoning, and was placed in a car for removal to the hospital, but expired on the way thither. Witness subsequently went to Mr. Brown's and sealed the bottle from which the powder was taken. It was labelled, "Phenacetine. Dose from fourto fifteen grains." The bottle was afterwards handed to the police.

By the Coroner: Immediately witness saw deceased he concluded he was suffering from strychnine poisoning.

Dr. Nelson, who was also called in, stated that he was an intimate friend of deceased. He agreed with Dr. Pogson that deceased was poisoned by strychnine, and Dr. Stead, General Hospital, who made the *post mortem*, gave corroborative evidence. Portions of the stomach had been preserved for further examination.

Mr. Brown stated that he was a pharmaceutical chemist carrying on business at 168, Hockley Hill. He had been in business on his own account for twenty-one years. Continuing, he said that his drugs were supplied by Messrs. Southall and Barclay and Messrs. Wyley (Limited). The phenacetine powder supplied by Messrs. Southall and Barclay was used up on June 18, and some more, supplied by Messrs. Wyley, was brought up from the cellar, where it had been kept in a bottle. The bottle was not opened until June 21. Some of the contents was made up into powders, containing ten grains each. Deceased called at his shop on the afternoon in question, and asked for ten grains of phenacetine powder, and witness weighed it out on to a piece of paper from the bottle which had been sealed up by Dr. Pogson. Deceased said the powder was bitter. Witness then put his finger into the bottle and touched it on his tongue, and found that it was so. Deceased asked if it was quinine, and witness replied that he thought it was salicin. Witness knew that phenacetine had no taste. Deceased asked him whether it would do him any harm, and witness replied, "No, it would not," or words to that effect. Deceased also told him that once he took some phenacetine, mixed with sugar, in London, and it made him ill. Witness did not charge the deceased for what he had taken. Deceased advised witness to send the bottle and its contents back to the suppliers, and he said he should do so. He then left the shop, and soon after his coachman came back and asked witness to go and see the deceased. Witness said he could not leave the shop, but immediately sent Dr. Pogson. Afterwards Dr. Pogson told him that Mr. Harrop had died, and he advised Dr. Pogson to seal the bottle up. Witness kept all poisons

locked up in a chest. There were no poisonous drugs near to the bottle produced.

In answer to the foreman of the jury, witness said he had sold a few of the packets made up from the contents of the bottle from which he supplied the deceased.

The Coroner remarked that the remainder of the powders were in the hands of his officers.

Inspector Gosling gave evidence as to receiving the sealed bottle from Superintendent Beard, and also respecting a visit he paid to Mr. Brown's shop. Mr. Brown handed him two bottles containing strychnine, one of which he got from a box behind the counter, and the other from near the window; he also gave him some powders which had been made up from the bottle labelled "Phenacetine." Mr. Brown gave him all the assistance he could.

The Coroner said that the enquiry could not be concluded until the contents of the bottle had been analysed. It was a most important matter, and would have to be fully investigated. The enquiry was adjourned till July 15.

THE MISCHIEF OF COCAINE.—The *Times* reports that at the Paddington Coroner's Court, on July 1, Dr. G. Danford Thomas held an inquest with reference to the death of Mrs. Susan Jane Ridgeway, aged 47, who died on Saturday through taking an overdose of cocaine.—The Rev. Charles John Ridgeway, vicar of Christ Church, Lancaster Gate, Hyde Park, and residing at Porchester Terrace, Bayswater, identified the body as that of his wife, and stated that she had suffered much with neuralgic pains in the gums, for which she had occasionally used cocaine as a local anæsthetic.—Gerald Ridgeway stated that the deceased was his mother. On Saturday morning he heard a cry, and on going to his mother's room, he found her very ill in bed. With the exception of uttering the one word "cocaine," she was unable to speak. A doctor was sent for, but death took place half an hour afterwards.—Dr. John Sadler Curgenven, of 12, Craven Hill Gardens, stated that he had attended Mrs. Ridgeway for five years. She had suffered intensely, and the witness prescribed a solution of cocaine for her twelve months ago. He gave directions that it was to be applied on cotton-wool to the gums, but did not specify what quantity was to be used. It was a disputed point as to how much taken internally would cause death, but a small dose would, in the witness's opinion, be practically harmless. He was called to see the deceased on Saturday morning, and found her in a state of collapse, with all the symptoms of cocaine poisoning. Death, which, despite the remedies which were adopted, took place shortly afterwards, was due to poisoning by cocaine.—The jury returned a verdict of "Death by misadventure.'

CONVICTIONS UNDER THE SPIRITS ACT.—At the Mansion House on July 1, Elston Kelk Law, of 110, Cheapside, was summoned before Mr. Alderman Vaughan Morgan, upon four summonses, the first for sending out and delivering, on January 22, 1895, nine gallons of spirits without a certificate; the second, for not making in his stock-book the entries required by the Spirits Act, 1880; and the third and fourth for carrying on, at 14, Basinghall Street, in January, and at 12, Bow Lane, in March, the trade and business of a compounder of spirits without having a licence.—Mr. Alpe appeared on the part of the Inland Revenue in support of the summonses; Mr. Horace Avory defended.—The defendant is the proprietor of "Peach Bitters," and he has a licence to carry on the business of a compounder of spirits at 110, Cheapside. The "Peach Bitters" were manufactured for the defendant by Mr. W. H. Plews, a chemist, 14, Basinghall Street, and the spirits required for the manufacture of the bitters were sent, duty paid, to the defendant at 110, Cheapside, accompanied by a certificate, and afterwards sent by him to Mr. Plews. It was alleged that nine gallons of spirits were sent from the defendant's premises to Mr. Plews without being accompanied by a certificate, and without the entries required by the Spirits Act, 1880, being made in the defendant's stock-book. The defendant subsequently took other premises at 12, Bow Lane, where the bitters were manufactured for him. The defendant had entered into communication with the Inland Revenue authorities for the purpose of having the compounder's licence which he had for 110, Cheapside, transferred to 12, Bow Lane, and but for the absence of an Inland Revenue officer on leave, it would have been transferred.—Mr. Alderman Vaughan Morgan dismissed the two summonses for carrying on the business of a compounder of spirits at 14, Basinghall Street, and 12, Bow Lane, without a licence. He thought that technically the defendant had committed a breach of the law in sending out the spirits without a certificate, and in not making the entries required in his stock-book, but it was merely a technical breach. He thought that a nominal penalty was quite sufficient. He fined the defendant 20*s.* on each of the two summonses for sending out the spirits without a certificate, and for not making the entries required in his stock-book.

W. H. Plews was also summoned for carrying on at 14, Basinghall Street in January, 1895, the trade and business of a compounder of spirits without having in force a licence.—Mr. Walter Beard, solicitor for the defence, said the defendant thought that the compounder's licence which Mr. Law had for 110, Cheapside, would enable the business of a compounder of spirits to be carried on at 14, Basinghall Street, as long as the business was only carried on at one address.—Mr. Alderman Vaughan Morgan said he thought it was done in ignorance. He fined the defendant £10.

ROYAL INSTITUTION.—A General Monthly Meeting of the members of the Royal Institution was held on the 1st inst. Sir James Crichton-Browne presiding. The following were elected members:—Messrs. Sidney Crompton, Walter Daniel Cronin, A. F. M. Spalding; Lady Evans and Miss S. Rose-Innes.

ANNUAL EXCURSION AND DINNER OF THE EMPLOYÉS OF MESSRS. BURROUGHS, WELLCOME AND CO.—The staff of this firm had their annual summer outing at Southsea on Saturday, the 29th ult. The special train bringing the Dartford contingent, to the number of nearly 300, arrived at London Bridge at 8.45, where another party was picked up, which included Mr. John Moss, Mr. C. W. White, of Bombay, several representatives of the medical, pharmaceutical, and lay press, and the Snow Hill staff, ladies being present as well as gentlemen. After a pleasant and speedy journey, Portsmouth was reached in very threatening weather. Here the whole party dispersed, to meet for dinner an hour later, in the large ball-room of the Esplanade Hotel, which had been nicely decorated with flowers and flags for the occasion. Mr. H. S. Wellcome occupied the chair, and after a substantial repast had been done full justice to, a brief toast list was gone through. "The Queen" having been duly honoured, Mr. A. W. Gerrard, of Chertsey, proposed "The Firm" in a few happy remarks, coupling with the toast the name of Mr. Wellcome. The latter, in the course of his response, alluded in a feeling manner to the memory of the late Mr. S. M. Burroughs. He assured his hearers that the firm was in a more prosperous position than ever before, and that its future was even more promising, and in conclusion stated that no change in the constitution of the firm was contemplated, nor would it ever take place as long as his connection with the firm lasted. Mr. Wellcome then proposed "The Employés," acknowledging as he did so the indebtedness of the firm to the whole staff for their fidelity, and assuring them that their interests and his own would always be identical. He coupled with the toast the names of Mr. R. Clay Sudlow, general manager, and Mr. A. Searl, F.C.S., manager of the works. These gentleman having responded, Mr. Wellcome proposed "The Medical Profession" and "The Press and Visitors," the first being briefly responded to by Dr. Rocke, of Haslar, and the latter by Mr. Tyndall (*Medical Press and Circular*) and Mr. A. C. Wootton (*Chemist and Druggist*). A vote of thanks to the stewards terminated this part of the proceedings. Rain now commenced to fall sharply, and it was feared that the remainder of the afternoon would be spoilt. Fortunately, however, it cleared up after about an hour, and the fine weather was taken full advantage of for rowing, sailing, and trips round the harbour and to the Isle of Wight. At 6.30 tea was served in the same hall, after which only an hour remained before those who wished to catch the special train had to make for the station. A good many, however, preferred to return on the Sunday or Monday. It should be mentioned that a complimentary telegram was sent during dinner to the employés of G. B. Kent and Sons, who were at Hastings on their annual excursion, conveying the good wishes of those present. Later, Mr. Wellcome announced the receipt of a cordial reply; and shortly afterwards a telegram was received from Mr. Moser, the firm's continental representative, who sent from Vienna his best wishes and greetings to those present. The arrangements throughout reflected great credit upon the stewards, and the conspicuous success of the whole outing must have been as gratifying to Mr. Wellcome as it was to all those who participated in it.

Sad End of a Chemist's Traveller.—Mr. Tom Hill Rowe, a well-known traveller in the West of England for Messrs. Stone and Son, chemists, of Exeter, has died from the effects of a fall, followed by brain fever. An inquest has been held, but was adjourned until Monday, July 8.

Incorporated Medical Practitioners' Association.—A branch of the Incorporated Medical Practitioners' Association has been formed at Plymouth, the first meeting being held on Thursday last.

A Surgeon Poisoned.—The Wolverhampton coroner held an inquest on Saturday last, at Pelsall, respecting the death of Archibald Roxburgh, surgeon, Newland Villas, Norton Road, Pelsall, who was found dead in his house on the 28th ult. The evidence showed that deceased had given way to intemperance, sometimes consuming a bottle of whisky a day without appearing intoxicated.—Dr. Codd, of the Wolverhampton Infirmary, said that he had made a post-mortem examination of the body, and he was of opinion that deceased had been in the habit of injecting morphine to induce sleep. In the stomach there were traces of prussic acid, and a bottle which was found near where deceased was lying contained the poison in the strongest form in ordinary use. The drug might have been taken with the object of destroying the apparent effects of drink. Deceased's condition was consonant with poisoning by prussic acid.—The coroner said that he was of opinion that deceased took prussic acid to remove the effects of drunkenness. There was no evidence to show that he had taken it with any other intent. An open verdict was returned.

Meeting of Junior Pharmacists at Plymouth.—There is no more flourishing Association than that of the Three Towns and District Chemists' Association, and it is most encouraging to see the interest taken in its welfare by the Junior Section, which from time to time holds meetings at which lectures are delivered. These prove very helpful to the younger members of the craft. Such a meeting was held on Thursday evening last at the Foresters' Hall, Octagon, Plymouth, when Mr. W. Fairweather occupied the chair; those also present including Messrs. Cocks, Vickery, Buckner, Barber, Treneer, Behennah, Downing, Darke, and H. O. Westcott (the popular hon. sec.). After the transaction of the general business, Mr. John D. Turney, gave a very interesting lecture, the fourth of a series on "Materia Medica," and at the close of the meeting a hearty vote of thanks was tendered to the lecturer, and also to Mr. Fairweather for presiding.

New Wing for the Devon and Exeter Hospital.—The Committee of the Devon and Exeter Hospital on Thursday last accepted the tender of £6445, sent in by Messrs. Tree and Bolley, of Exeter, for the erection of a new wing to the institution. Structural alterations to the present building have also been resolved upon. The work is to be proceeded with at once, and it is to have the foundation-stone ready for laying by the President (Mr. A. O. Sillifant) in about a month's time.

Royal Botanic Society.—It is understood that the movement initiated by Mr. J. S. Rubinstein for admitting the public to these gardens on certain fixed days has already met with success, the council having decided, in view of the highly satisfactory results of the experiment tried on Whit Monday, to open the gardens on every Monday to the end of September. A military band will form an attraction on August 5, the next Bank Holiday.

Excise Prosecution at Huddersfield.—At the County Police court, Huddersfield, on July 2, Thomas Needham, of Kirkburton, described as a chemist and druggist, but whose name does not appear on the Register for 1895 with the address given, was charged with having sold methylated spirit without being licensed to do so. Mr. Lee, supervisor of Excise, prosecuted, and Mr. J. H. Turner defended. It appeared that on April 18 and 22, Mr. P. J. Murray visited the defendant's shop, and on the first occasion he purchased half a pint of spirit, and on the second a pint and a half. In 1891 the defendant was fined for a similar offence to the present. He had a number of shops in the West Riding, and was in the habit of supplying them with methylated spirit in gallon bottles from his central stores in Buxton Road, Huddersfield.—Mr. Turner for the defence, said that the defendant had changed his manager at Kirkburton, and though he had advised his other managers that his licence had expired he had overlooked the sending of a notice to the new manager at Kirkburton.—The Bench fined the defendant £12 10*s*, and ordered him to pay the costs.

SCOTTISH NEWS.

[Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.]

Duncan, Flockhart, and Co.'s Temporary Premises.—The temporary premises at 9, Princes Street, to be occupied in July by Messrs. Duncan, Flockhart, and Co., are being rapidly pushed forward. The firm have been successful in securing an admirably situated and commodious shop well fitted for their purposes.

Alteration of Premises.—The pharmacy of Mr. George Lunan, 20, Queensferry Street, is at present undergoing an extensive alteration. The floor is being lowered about 2 feet, and the front brought forward to the line of the street. When completed the premises are to be fitted up with electric light.

Electric Light Installation.—The premises of Messrs. H. C. Baildon and Son, at 73, Princes Street, and 144, Princes Street, have been handsomely fitted with electric light. This is the first pharmacy in Edinburgh to take advantage of the new municipal supply wires.

Dangers of Sulphur Fumigation.—One of the dangers of sulphur fumigation was exemplified on Saturday, June 29, at the residence of Mr. Robert Watt, 28, Upper Gilmore Place, Edinburgh. The woodwork, as well as the bed and bedclothes, were destroyed in a bedroom where sulphur was being burned to destroy moths. Damage to the amount of £30 or £40 was done by the fire, which fortunately was speedily extinguished. It is well for chemists to caution purchasers as to the possible dangers of this very effective method of fumigation. The safest plan is to use one of the specially prepared sulphur candles.

Pharmacy, School Boards, and Science.—At a lively meeting of the Hawick School Board on June 28, Mr. Thomas Maben, F.C.S., Chairman of the Board of Examiners in Scotland, was elected a member in room of Baillie Martin Dechan, F.C.S., F.I.C., who has been appointed chemistry teacher in connection with a scheme by which the Board has rented the rooms and apparatus of the Buccleuch Memorial Institute, for the teaching of elementary science to the pupils of the secondary school.

Aberdeen and North of Scotland Society of Chemists and Druggists.—On Wednesday, June 26, in magnificent weather, the members of the Aberdeen and North of Scotland Society of Chemists and Druggists, in conjunction with the members of the East Aberdeenshire Chemists' Association, held their annual excursion, the party numbering in all about forty. The excursion started from Aberdeen at 9.25 a.m., and on arrival at Mintlaw were joined by the Buchan contingent. Here carriages were in waiting, and the party drove through the grounds of Pitfour House, and, alighting, walked to Old Deer and through the lovely grounds of Aden House. Re-entering the carriages the drive was resumed for twelve miles across country to the famous "Bullers of Buchan"—a huge vertical well in the precipitious red granite margin of the sea, about 50 feet in diameter and 100 feet deep. At one point the sea has cut a passage through the solid rock, thus forming a natural bridge or archway, by which the sea rushes into the bottom of the well. The majority of the party put to sea in boats and rowed through the archway, and the company assembled on the natural bridge and were photographed. Thereafter the journey was continued northwards for about seven miles to Peterhead, passing on the way the famous convict harbour works, where a number of convicts were seen employed at stone-breaking and cement manufacture. The company reached Peterhead about 4 o'clock. Dinner was served in the North-Eastern Hotel, Mr. John Johnston, President of the Aberdeen Society, acting as Chairman, and Mr. John Grant, Methlick, President of the East Aberdeenshire Branch, as croupier. After dinner there was a lengthy toast list, including "The Pharmaceutical Society of Great Britain," by Mr. W. J. McGregor, Ellon, replied to by the Chairman; "Aberdeen and North of Scotland Society of Chemists and Druggists," by Mr. J. F. Tocher, Peterhead, replied to by Mr. James Paterson; "East Aberdeenshire Chemists' Association," by Mr. David Ritchie, Aberdeen, replied to by the Croupier; "The Medical

Profession," by Mr. Andrew Craig, replied to by Dr. Alexander, Old Deer, and Dr. Johnston, Longside; "The Ladies," by Mr. J. Cruickshank, replied to by Dr. Johnston. The excursionists returned to Aberdeen by the last train, all delighted with the day's outing, and feeling grateful to Mr. Cruickshank, of Aberdeen, and Mr. Tocher, of Peterhead, who supervised the arrangements.

AN OBSCURE SECTION OF THE FOOD AND DRUGS ACT.—An interesting case came before Sheriff Strachan (the newly-appointed successor to the late Sheriff Birnie) in the Glasgow Sheriff Court on June 26, when two charges were brought against a co-operative society and a retail grocer for selling to a sanitary officer a quantity of ground ginger alleged to contain from 20 to 25 per cent. of exhausted ginger. This might be thought a clear case, but the Sheriff said the language of the 6th Section of the Food and Drugs Act, 1875, on which this complaint was founded, had been frequently animadverted on and very strongly condemned by the judges. While holding the complaint as relevant, he thought it right to say it would not be enough for the prosecutor merely to prove that the article sold contained 20 per cent. of spent or exhausted ginger. He would require to go further and show that it was so different in nature, substance, and quality, that it could not, in any reasonable sense, be termed ground ginger. The hearing of the proof was fixed for July 23.

EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.—The second botanical ramble of the season took place on Wednesday, June 26, to Colinton Dell, and was conducted by Mr. William Duncan. The weather was fine and clear, although, within a few miles, there were severe thunderstorms and heavy rain and hail showers. About fifty members attended, and started from the Caledonian Station by 8.30 p.m. train for Colinton, walking back through the dell, round by Craiglockhart, and back to town, which was reached about 11 p.m. The advantage of the previous week's meeting was evident in the readiness with which a number were able to identify many of the numerous plants gathered. *Valeriana pyrenaica* was in full flower, but *Valeriana officinalis* was not yet in bloom. *Sambucus nigra* had just come into bloom in some of the more exposed places. Many specimens of *Geum urbanum*, *G. intermedium*, and *G. rivale* were met with. *Circæa alpina* was just coming into flower. The excursion was a very interesting and instructive one, and the pleasant outing seemed to be thoroughly enjoyed by all, the homeward march being enlivened by the singing of the usual popular choruses, led by an excellent tenor voice from a Princes Street pharmacy.

THE KINNINMONT PRIZE.—It will be remembered that by Mr. Kinninmont's desire the money raised in connection with the testimonial presented to him on his retirement from the Board of Examiners for Scotland was set apart to provide an annual prize for the encouragement of students of pharmacy in West Scotland desiring to take the Major qualification. The scheme has now been formulated, and the prize will take the form of a gold medal and books value £3 3*s*. The examination is to be a written one, and the first will take place in May or June, 1896. assistants in Glasgow and the counties of Lanark, Dumbarton, Ayr, Argyle, Renfrew, Bute, Dumfries, Kirkcudbright, and Wigton, who have been employed in the above places for six months previous to the examination, or who have served an apprenticeship within the districts named, but have removed outside the radius within twelve months of the examination will be eligible to compete, provided they have passed the Minor examination during the two years preceding the examination. The subjects of examination are botany, electricity, and magnetism. All information can be had from Mr. W. L. Currie, Secretary to the Committee, 223, Byres Road, Dowanhill, Glasgow.

HONOUR TO A DUNDEE PROFESSOR.—The Council of the Royal Society has awarded the Makdougall-Brisbane prize for the biennial period 1892–94, to Professor James Walker, University College, Dundee, for his work on physical chemistry, part of which has been published in the "Proceedings" of the Royal Society. In making the award, the Council took into consideration the work done by Professor Walker, along with Professor Crum Brown on the Electrolytic Synthesis of Dibasic Acids, published in the "Transactions" of the Society. The prize will be presented at the last meeting of the present session, on July 15. It is understood that the prize is a gold medal and £50.

THE SUPPLY OF MEDICINES TO THE POOR.—At a meeting of the Glasgow City Parish Council on July 2, the following five offers for the quarterly supply of medicines to the dispensary were submitted, viz.:—James Taylor, £50 10*s*. 11½*d*.; Brown Brothers and Co., £50 13*s*. 3*d*.; The Glasgow Apothecaries Co., £50 15*s*. 0½*d*.; The New Apothecaries Co., £52 5*s*. 6*d*.; W. and R. Hatrick and Co., £53 4*s*. 3½*d*. The offer of the first named, being the lowest, was accepted. An offer from the British and Foreign Mineral Water Company to supply syphons of soda and other waters at 2*s*. 6*d*. per dozen was accepted. The Chairman was authorised to arrange along with the apothecary for the holidays of Mr. Halley and his assistant as usual, and it was agreed that a duly-qualified druggist should be engaged to supply Mr. Halley's place during the fortnight he is absent, and that a junior hand be engaged to fill the assistant's post during his holidays. Mr. J. Anderson Russell, chemist and druggist, moved "that in future it be regarded as a fixed principle that the medicines supplied by the Council of this Parish to the out-door poor be dispensed by qualified chemists only, excepting in the event of special circumstances rendering such a course impracticable." Mr. Morrin seconded the motion, which was agreed to. Mr. Russell then moved "that application be made to the Excise or other authorities for withdrawal of the duty on spirits used medicinally, and dispensed in the parish dispensary." This was carried by the casting vote of the Chairman.

A CHEMIST DISABLED BY ILLNESS.—The shop of the late Mr. James Binnie, 281, High Street, Edinburgh, has been closed. Mr. Alexander Leal, who succeeded Mr. Binnie, had the misfortune to be disabled by illness shortly after entering into possession.

WELSH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

NEW MAGISTRATE.—Mr. Edward Rees, chemist, of Machynlleth is among the new magistrates appointed for the county of Montgomery.

A NEW COUNTY COURT.—Chemists and druggists in the Rhondda district of Glamorganshire will be glad to learn that the recent agitation for the establishment of a county court at Porth has at last met with success. Mr. Davies, chemist, Porth, and secretary of the Porth Chamber of Trade, was a member of a deputation which waited upon His Honour Judge Gwilym Williams last week, and His Honour informed them that the Treasury had consented to the creation of a new county court district for Porth and neighbourhood. The new district had practically been determined upon, and it is expected that the sittings will commence about August or September next.

THE LATE DR. MORGAN OF SWANSEA.—The business of the late Dr. Morgan of Swansea, public analyst for Glamorganshire and most of the South Wales counties and boroughs, will be carried on in future by the son of the deceased gentleman, in conjunction with Mr. Seyler, B.Sc., Dr. Morgan's chief assistant. The latter gentleman is deputy analyst to the Glamorgan County Council, and will probably succeed to some of the late Dr. Morgan's public appointments.

HICKS AND COMPANY, LIMITED.—The directors of Messrs. Hicks and Company, Limited, wholesale and retail chemists, have just issued their sixth annual report to the shareholders. They state that the net profits will enable them to pay a dividend of 6 per cent. on the preference shares, and to recommend a dividend of 5 per cent. on the ordinary capital. Since the last meeting the directors have purchased the retail chemist's business carried on for many years by Alderman Yorath in Canton, and have obtained a twenty-one years' lease of the premises on very favourable terms. To adapt the premises to the Company's requirements the directors have had the shop thoroughly refitted and restocked, and made a cellar for storage. To enable them to do

this the directors became responsible for an increased overdraft at the bank, and to reduce this they propose issuing 6 per cent. non-cumulative preference shares to the present shareholders of the Company, and afterwards to the public. Although the directors have not this year been able to increase the dividend, they are confident that their new acquisitions will strengthen and increase the profits of the Company. The retiring director, Mr. A. Coleman, and the auditors, Messrs. W. C. Clark and Dovey, are eligible, and offer themselves for re-election. The trade profits during the year, after providing for wages, salaries, rent, rates, taxes, repairs and renewals, bad debts, trade, and expenses and insurance, amount to £674 9*s.* 7½*d.*, which, with the £28 2*s.* 10½*d.* brought forward, makes a total of £702 12*s.* 6*d.* Of this sum £100 will be devoted to directors' and auditors' fees, and after payment of the dividends named a balance of £20 15*s.* 6*d.* will be carried forward to the next account.

IRISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

The Pharmaceutical Society of Ireland *v.* Fannin.—A brief telegraphic report of the decision of Mr. Swifte, the magistrate who heard the above prosecution in the Southern Police Court, Dublin, was given in our Supplement for June 29. There were in this case, it will be recollected, three summonses against Mrs. Margaret Fannin and Mr. Richard Booth, trustees and executors of the late Mr. Thomas E. Fannin, carrying on business at 41, Grafton Street, Dublin, as medical booksellers, surgical instrument makers, and vendors of drugs, for having on February 13 and March 15 last kept open shop for the sale of poisonous preparations, and sold them without being qualified to do so. Mr. Swifte, in the course of a lengthy judgment, which is unavoidably held over this week, and with which it is understood that Mr. Hayes, President of the Irish Pharmaceutical Society, and Dr. Whittaker have expressed themselves satisfied, imposed mitigated penalties of £3 in each of the three cases, with 10*s.* costs.

Pharmaceutical Prosecution at Roscommon.—At Roscommon Petty Sessions on Monday, July 1, the presiding magistrates being Mr. R. L. Brown (Chairman). Mr. John Neilon, and Mr. William Tully, the hearing was resumed of five summonses at the suit of the Pharmaceutical Society of Ireland *v.* Miss Jane E. Jones, Mr. James Jones, and Mr. Anthony Cowdy, carrying on business in Castle Street, Roscommon, for keeping open shop for the sale of poisons, and for having on March 1 sold arsenic contained in Cooper's Sheep Dipping Powder and Biggs' Sheep Dip to the Society's inspector, they not being duly qualified under the Pharmacy Acts to sell them, and also for having sold the poisons without the packages being labelled as required by the Poisons Act. Another summons for the same offences had been since the last day taken out against Mr. Henry Jones, alleged to be a part owner of the defendants' premises.

Mr. J. M. Whelan, solicitor, prosecuted on the part of the Pharmaceutical Society.

Mr. S. St. L. Burke, solicitor, appeared for the defence, and read a letter from Mr. Anthony Cowdy dated June 27 from Muckamore, co. Antrim, and stating that he had been informed that five summonses were left for him at the private residence of Miss Jane Jones, Roscommon, but that as he had been advised that as he did not reside there the service was bad, he respectfully declined to appear before the Court.

The Chairman said that they adjourned the case on the last day only because they thought time had not been given to Mr. Cowdy to appear. Otherwise they considered the service on him proper, and would hear the case.

Mr. Whelan said that since the last day he had inspected a copy of the will of the late Mr. John Jones, and he found that the defendants, Mr. James Jones, Miss Jones, and Mr. Cowdy were executors named in it, and that the premises in which the poisons were sold were by the will bequeathed——

Mr. Burke objected. This was not evidence.

Mr. Whelan said he had an attested copy of the will. The will itself was in possession of the other side.

The Chairman declined to accept the copy of the will as evidence.

Mr. George Phillips was sworn, and proved that on March 1 last he purchased at the establishment of Miss Jones in that town packages of Cooper's Sheep Dipping Powder and Biggs' Sheep Dip. The name of the seller did not appear on them. He saw the name "John Jones" over the door of the establishment.

Professor Charles Tichborne deposed that he had made an analysis of the contents of the packages. The Cooper's powder contained arsenic enough to poison 500 adults, and the Biggs' dip contained arsenic enough to poison 1000 adults.

Mr. Whelan then called Mr. John Kerr, book-keeper in the defendant's establishment, and was proceeding to examine him when

Mr. Burke objected to the evidence of the witness. This was an attempt to prove by oral testimony what should be proved by a document.

The magistrates allowed the examination of the witness to proceed.

Mr. Kerr was sworn, and on being asked who were his employers, at first objected to answer the question as "unfair."

The Bench decided that he should answer.

In reply to Mr. Whelan's questions, Mr. Kerr deposed that he was in the employment of Miss Jones and also of the late Mr. John Jones. He could not tell who were the owners of the premises. Miss Jones paid his salary. There had been no change since Mr. John Jones's time, and Mr. James Jones was there. Witness gave evidence at the last Quarter Sessions in a process in which the complainants were "Jane E. Jones, James Jones, and Anthony Cowdy, executors of John Jones, deceased." Miss Jones and James were managing the business at the present time. Henry Jones had nothing to do with it that he was aware of. John Jones died in March, 1893. Miss Jones and Mr. J. Jones had control of the department where the sheep dips were sold. Miss Jones generally took the money out of the till.

Mr. Whelan called on the Bench to convict Miss Jones and Mr. J. Jones.

Mr. Neilon said it appeared from the Society's Register for 1895 that the name of Mr. John Jones was still on it.

Mr. Burke submitted that it had not been proved that his clients were not registered. About the middle of last March the police called at Miss Jones's place and told her that as Mr. John Jones was dead, poisons could not be sold there any more, and no more sheep washes had been sold there since.

The magistrates having conferred,

The Chairman said they were of opinion that it had not been satisfactorily proved that the persons named as defendants in the summonses were the owners of the place in question, and therefore the summonses would be dismissed on the merits, but without costs.

Death of a Pharmacist's Wife.—Mr. James Guiler, L.P.S.I., of Belfast, has this week, in his deep sorrow at the loss of his wife, the sincere sympathy of his fellow-members of the profession in that city. "Guiler's Pharmacy," as it is designated, is a well-known establishment in the Ormeau Road, which is a leading artery through one of the most populous quarters of Belfast. Such blows as these fall to our lot in the midst of all our prosperity.

Aërated Waters and Whisky.—This has no doubt been one of the busiest seasons on record in the aërated water manufactories in Belfast. All the large establishments in that city have been working to their very fullest capacity in order to meet the great demand made upon their resources by both the home and foreign trade. The Cromac Springs, which are so admirably adapted for the purposes of aëration, and to which Belfast must attribute its fame for the production of aërated waters in all their extraordinary variety, has stood the prolonged drought remarkably well, and in none of the establishments, almost all of which are situated in the Cromac district, or on the track of the Cromac stream, has there been any want of water to report. But while the output of these aërated waters has been almost marvellous, what has been the output of whisky this week? On Tuesday last Messrs. Dunville and Co. paid to the Collector of Inland Revenue a cheque for £50,572 8*s.* 2*d.*, one of the largest cheques ever issued for a consignment of whisky to England. Other large consignments are to follow in the latter part of the week.

FOREIGN NEWS.

[*From our Special Correspondents.*]

International Exposition of Hygiene at Paris.—Last week this Exposition was opened in the presence of the President of the Republic, in the Palais des Arts Liberaux, Champs de Mars. A prominent feature of this Exhibition, and one to which much importance is attached, is the various systems of water filtration and sterilisation. The President of the Republic, who is a great water drinker, was greatly interested, and discussed at length the different methods of filters with their respective inventors. M. Maignen, who received a prize from the Society for encouragement of national industry, had the honour of personally explaining his system and practically demonstrating its advantages to the President. It consists in first sterilising the water by the addition of a salt, and then filtering through a special composition. This not only renders river water perfectly bright and free from unpleasant taste, but also renders it perfectly innocuous. It is very probable that through the personal efforts of the President, Paris will be largely supplied with fountains on this principle, already in use in Cherbourg and other provincial towns. This will be a great boon to the poor population, and probably be the means of preventing much of that summer cholera so prevalent among the working classes, who are necessarily compelled to drink the river water. A new method of water filtration which attracted notice was the "Pastille," consisting of chemically pure paper pulp subjected to a pressure of 8000 lbs. to the square inch. The water can be made to pass through this medium at the rate of eighty gallons per hour. The pastilles can be easily renewed, and have the advantage of being inexpensive.

Action of Resorcin on Albumin.—The coagulative action of resorcin on albumin is utilised by M. Carrez for the detection of that substance in urine. The *Journal de Pharmacie* describes the manipulation necessary, which is very simple. One gramme of resorcin is introduced into a test tube, and dissolved by the addition of 2 C.c. of distilled water, then by the aid of a pipette the suspected urine (either acid or alkaline) is gently poured on to the solution. If albumin be present, a white ring is immediately formed between the two liquids. Peptones, however, show the same effect, but the ring disappears on plunging the test tube into hot water. The liability of mistaking a precipitate of uric acid for albumin when nitric acid is used as a test, is thus obviated.

Exhibition at the Hague.—The exhibition of medicinal and useful plants at the Hague, from July 8 till 16, promises to be interesting in many respects. Important exhibits and specimens of cinchona, tobacco, tamarind, tea, coffee, pepper, cork, indiarubber, etc., will be found there. The contributions of Dr. Vorderman, of Batavia (Indian medicaments), those of the Botanical Gardens at Batavia, of the Colonial Museum at Harlem, and of several other scientific institutes will offer a special interest. It follows from the nature of the exhibition that all kinds of drugs, chemical preparations, herbaria, microscopes, and other apparatus will be exhibited in great variety. For the library important contributions will be sent by Professor Wysman, Dr. Greshoff, les fils D'Emile Deyrolle in Paris, Jeyler's Institute, etc. For the section "Photography Applied to Botanical Investigation," several amateurs have promised contributions.

Vitriol Throwing in France.—Vitriol throwing as a means of gratifying personal vengeance is still resorted to by certain classes of French society. A case occurred this week which might have had very serious results but for the perspicacity of a pharmacien, who, noticing the excited state of mind of his customer, supplied eau de javelle (solution of chlorinated potash) in place of the corrosive fluid asked for. This fluid was thrown in the face of the victim, who happily escaped more frightened than hurt.

Ammonia as a Germicide.—According to Mr. Von Rigler, is a perfect germicide. The *Bulletin de la Société de Pharmacie de Bordeaux* describes the result of an experiment made by him. In a room of 100 cubic metres he suspended threads impregnated with microbean cultures, and placed on the floor shallow vessels containing ammoniacal solution. In the space of two hours the cholera and typhoid baccilli were killed, the dyphtheria baccilus, however, required eight hours. This is certainly a plea in favour of the use of lavender salts now so extensively sold.

POISONING CASES AND INQUESTS.

Laudanum.—Mary Elizabeth Bew, aged 33, died on Friday, June 21, at 60, Ellington Street, Barnsbury, from the effects of laudanum, self-administered. Verdict: "Suicide while of unsound mind."

Strychnine.—Emma Oakley, aged 31, died on Friday, June 21, in the Bodmin Barracks, Bodmin, from the effects of strychnine, self-administered. Verdict: "Deceased poisoned herself whilst in an unsound state of mind."

Prussic Acid.—A young man named George Herbert Potter, died on Saturday, June 22, in the Victoria Park, Swansea, from the effects of prussic acid, self-administered. Verdict: "Suicide whilst temporarily insane."

Prussic Acid.—Mrs. James died on Monday, June 17, at Croydon, from the effects of prussic acid, self-administered. Verdict: "Suicide whilst of unsound mind."

Carbolic Acid.—An inquest was held on Monday, June 24, on an unknown woman, aged about 22, who was found dead in a railway carriage at Chalk Farm. A young woman, answering deceased's description, purchased sixpennyworth of carbolic acid at a chemist's shop in Ball's Pond Road, Islington, but nothing further has been gleaned. Verdict: "Suicide while temporarily insane."

Mouse Powder.—John Welsh, aged 46, died on Tuesday, June 18, at Manchester, from the effects of a mouse powder, self-administered. Verdict: "Suicide whilst insane."

Cyanide of Potassium.—Herbert Mawe Belton, aged 36, died on Wednesday, June 19, at 7, Orchard Avenue, Hull, from the effects of cyanide of potassium, self-administered. Verdict: "Suicide whilst temporarily insane."

Oxalic Acid.—Frances Gay, aged 47, died on Friday, June 21, at 4, St. Mary Street, Stonehouse, from the effects of oxalic acid, self-administered. Verdict: "Suicide while temporarily insane."

Laudanum.—Catherine Richardson, aged 64, died on Friday, June 21, at 3, Roland Grove, Roland Road, Handsworth, from the effects of laudanum, self-administered.

Prussic Acid.—William James Terrell, aged 68, an unqualified practitioner, died on Friday, June 21, at Oxford Terrace, St. James Road, Halifax, from the effects of prussic acid, self-administered. Verdict: "Deceased had committed suicide by poisoning himself, but there was not sufficient evidence to show the state of his mind at the time."

Paraffin.—Henrietta Wilkins, a married woman, died on Tuesday, June 25, at Corston, from the effects of poisoning by paraffin. Verdict: "Deceased died from enteritis, caused by drinking paraffin while temporarily insane."

Laudanum.—Ada Gilbert, aged three months, died on Thursday June 27, at Arnold, from the effects of laudanum, administered by her mother in mistake for syrup of rhubarb. Verdict: "Death had resulted from misadventure."

Arsenic.—Samuel A. M. Woods, aged 51, died on Wednesday, June 26, at Scofton, from the effects of arsenic contained in a wasp-destroyer, self-administered. Verdict: "Deceased poisoned himself whilst in a state of unsound mind."

Caustic Potash.—Emily Elizabeth Hull, aged 4½ years, died at Cheltenham from the effects of caustic potash. At the inquest held on Thursday, June 27, the jury returned a verdict that "Death was due to caustic potash, but there was no evidence to show how the poison was administered or taken."

Hartshorn and Oil.—Henry Foxley, aged 54, died on Saturday, June 29, in the Queen's Hospital, Birmingham, from the effects of hartshorn and oil, self-administered. Verdict: "Suicide whilst temporarily insane."

OBITUARY.

Coull.—On June 22, Mary Thomson, relict of Robert Coull, and mother of George Coull, B.Sc., at 23, Cambridge Gardens, Leith.

Windle.—On June 12, James Windle, Chemist and Druggist, Preston. (Aged 67.)

Thompson.—On June 21, Henry Thompson, Chemist and Druggist, Norwich. (Aged 79.)

Oldham,—On June 23, W. T. Oldham, Chemist and Druggist, Wisbech. (Aged 78.)

Sanderson.—On June 28, G. C. Sanderson, Chemist and Druggist, Manchester. (Aged 60.)

Shields.—On June 28, Spooner Shields, Chemist and Druggist, Liverpool. (Aged 68.)

Goddard.—On July 1, William Henry Goddard, Chemist and Druggist, Barrow-in-Furness. (Aged 53.)

Huxley.—On June 29,Thomas Henry Huxley, P.C., F.R.S., D.C.L. etc. (Aged 70.) Professor Huxley was born at Ealing in 1825, and was educated at a local school at which his father was one of the masters, but owed most of his success in early life to hard private study, in which he took up German scientific literature and medicine, receiving considerable assistance in the latter subject from a brother-in-law, who was a physician. After attending medical lectures at Charing Cross Hospital School, he took the degree of M.B. at the University of London, gaining considerable distinction in physiology. He entered the Navy as assistant-surgeon in 1846, and in 1847 proceeded for a three years' cruise in H.M.S. "Rattlesnake" to the eastern and northern coasts of Australia. Here he found ample matter for studies in natural history, which he communicated in memoirs to the Linnean and Royal Societies, and in a work entitled 'Oceanic Hydrozoa,' published in 1859. In 1851, the year after his return, Mr. Huxley was elected a Fellow of the Royal Society, and in the following year received one of the two medals annually given by the Society. After receiving several appointments of a scientific character he visited the Alps in 1856 with the late Professor Tyndall, between whom and himself there grew up a warm friendship. Mr. Huxley took for the subject of a lecture to working men at the Royal School of Mines in Jermyn Street, "The Relation of Man to the Lower Animals," and this caused great controversy at the next and subsequent meetings of the British Association. The result of the controversy was published in 1863 as "Evidence as to Man's Place in Nature." About the same time Professor Huxley published a series of lectures on "The Knowledge of the Causes of the Phenomena of Organic Nature." His writings and lectures created considerable interest during the next year, and he was elected Professor of Comparative Anatomy at the Royal College of Surgeons, and in 1869 became President of the Geological and Ethnological Societies. In 1870 he presided over the meeting of the British Association at Liverpool. The same year he was elected to the London School Board, and rendered himself conspicuous by his antagonism to denominational teaching. Owing to the state of his health he retired from the Board in 1872. In the following December he was elected Lord Rector of Aberdeen University, which office he held till 1876. Mr. Huxley was appointed Inspector of the Salmon Fisheries, but in 1885 was obliged to retire owing to ill-health, and at the same time he resigned most of his other offices. He had since been living quietly at Eastbourne. Besides being a member of the Privy Council, to which he was called in 1892, Professor Huxley held many high distinctions from learned societies at home and abroad. Breslau, Edinburgh, Dublin, Cambridge, and Würzburg conferred on him their Doctorates. In 1883 he was Rede Lecturer at Cambridge. Brussels, Stockholm, Copenhagen, Cairo, Berlin, Göttingen, Haarlem, St. Petersburg, Lisbon, Rome (Lyncei), Munich, Philadelphia, and other academies gave him their diplomas. The Royal Society of Edinburgh made him an Honorary Fellow, as did the American Academy of Science; while, in 1879, he was elected a Corresponding Member of the Institute of France, in the section of anatomy and zoology, in place of Von Baer. He was, also, a Ridder of the Polar Star of Sweden, and it was understood that he would most likely have been the next choice for the Prussian "*Ordre pour le Mérite.*" The funeral took place on Wednesday last.

NEW REMEDIES.

[*The notes given under this heading embody recent suggestions in therapeutics, and cover both new drugs and preparations, and old ones under new aspects. The word "parts" is used to represent parts by weight, both for solids and liquids.*]

Bilberry Juice as a Remedy for Eczema.—Wintermitz (*Corresp. Bl. f. Schwiz. Aerzte*) recommends the painting of the diseased patches of acute, moist, or scaly eczema with bilberry juice evaporated to the consistence of syrup. A small quantity of tincture of myrrh or very little salicylic acid should also be added. Washing off is best effected with a 0·6 per cent. solution of salt (*Pharm. Centralh.*, xxxvi., 308).

Trional as a Soporific.—Guttman expresses a very favourable opinion of trional, regarding it as possessing more advantages and fewer disadvantages than any soporific that has hitherto been used. It is especially useful for children, as the heart is not influenced, and for consumptive patients, as it checks night sweating. A full dose produces from six to ten hours' quiet sleep, and is followed by no discomfort whatever (*Ph. Centralh.*, xxxiv., 331).

Gurjun Balsam in Leprosy.—Von Reisnen gives wood-oil internally, commencing with daily doses of five drops, increasing gradually to seventy or more, suspending the treatment when intolerance is shown. Externally the leprous parts are treated with an ointment of gurjun balsam, 3 parts; lanolin, 1 part. (*Rev. de Thérap. Med. Chir.*, lxii., 315, after *Ann. dermat.*)

Creasote and Quinine Hydrochlorate in Whooping Cough.—Dr. Francke employs a capsule containing 5 centigrammes of creasote mixed with tamarind pulp, with good results. If the temperature is high at night, he also gives 30 centigrammes of quinine hydrochlorate when the patient is over four years of age (*Rev. de Thérap. Med. Chirur.*, lxii., 319).

Local Treatment of Furunculosis.—Neuberger employs soap plaster containing 10 per cent. of salicylic acid for the local treatment of furunculosis. The application must be continued until cicatrisation is complete.

Cocaine Hydrochlorate in Pertussis.—Dr. Carré has treated upwards of 300 cases of whooping cough with internal doses of cocaine hydrochlorate with the best results. Although the experiments were conducted at the most unfavourable season of the year, only two cases were lost, both under six months of age, and in these the drug was only tried as a last resource when other remedies had failed. No ill-effects from the alkaloid were observed in any instance. The dose with infants was commenced at $\frac{1}{10}$ of a grain of the hydrochlorate three times a day; older children were given to commence $\frac{1}{6}$ of a grain, gradually increased as the age or case required (*Lancet*, i., 1895, 1429).

Comparison of Sulphonal and Trional.—Webber has found both drugs serviceable, but they differ so widely in their detail of action as to make them respectively applicable to widely divergent cases of insomnia. A comparison indicates in which instances either may be useful. Sulphonal is sparingly soluble in cold water and slow in action, so that it is better to give the dose in the evening before bed-time. The effect of a full dose is, however, long continued, it will often produce sleep on the second night, sometimes even on the third. Trional is much more soluble, it produces sleep much more quickly, even within a few minutes. Its action is less prolonged than sulphonal. After sulphonal there may be great drowsiness during the next day, this is less likely to occur after trional, and is much less intense. Trional is preferable for those patients who have a difficulty in getting to sleep on going to bed, whereas sulphonal should be given to those who wake after a short sleep and remain wakeful. The effects of trional do not last so long, nor is the sleep induced of such length as with sulphonal. In either case the dose of the drug is from 10 to 20 grains, generally 10 is sufficient, but in obstinate cases it is better to give 20 grains at once. After sulphonal there is often cerebral heaviness and distress. This is much less after trional, sometimes, however, it occasions slight vertigo before sleep is induced, if the patient rises from bed, consequently patients should not be allowed to rise after taking the dose (*Bost. Med. Surg. Journ.*, cxxxii., 516).

NOTES AND QUERIES.

Bleaching Gutta-Percha.

Gutta-percha may be bleached by dissolving in twenty times its weight of benzol, chloroform, or carbon disulphide, adding a little fine, dry Paris plaster, and agitating occasionally, then allowing the solution to stand for forty-eight hours for the plaster to carry down all suspended impurities. Next decant the clear liquid and add gradually to twice its volume of strong alcohol (90 per cent.), with continual agitation. As a result the gutta-percha is precipitated in a pasty, white mass, which should be triturated in a mortar and subsequently exposed to the air for several weeks until dry. On the large scale the previously cleansed gutta-percha is dissolved in coal-tar naphtha, turpentine, or other cheap solvent by the aid of heat, instead of the more volatile solvents mentioned above [*Reply to A. Rogers.*]

Sheep Dip.

An arsenical sheep dip may be prepared by boiling together arsenious acid, 6 ozs.; potassium carbonate, 6 ozs.; sublimed sulphur, 4 ozs.; and soft soap, 6 ozs., with sufficient water to effect solution of the arsenic; then add more water to make up to 12 or 16 gallons, and strain through a coarse sieve. If desired, powdered hellebore, 2 ozs., may be added, or the potassium salt may be replaced by sodium carbonate. If the dip is to be sold in packets, mix arsenious acid, 6 ozs.; dried sodium carbonate, 6 ozs.; and sublimed sulphur, 4 ozs. The purchaser should be directed to add the soft soap before boiling, and to make up to 16 gallons. You may roughly calculate that 1 gallon of wash will be required for each sheep. Sometimes carbolic acid, crude cresol, or tobacco liquor is used in place of arsenic. [*Reply to G. Harvie.*]

Oleate of Ammonia as a Cleansing Agent.

Cloudy ammonia is understood to be a diluted solution of ammonium oleate in liquid ammonia. The process is claimed to be protected under a patent, and the name of the preparation copyrighted. In the *Bulletin of Pharmacy* Edel recommends the following method of preparation:—Oleic acid, 1 part; alcohol (methylated), 1 part; strong solution of ammonia (16°), 14 parts. Pour the acid into a bottle, add the alcohol and ammonia, cork tightly, and allow to stand for a week or more until saponification is complete. The resulting liquid can be diluted with ammonia or water as required. For cleaning glassware in the laboratory the following mixture is recommended:—Oleate of ammonia solution as above, 3 parts; powdered pumice stone, 2 parts; solution of ammonia (16°), to make 16 parts. It is excellent for cleaning mortars and measures. For cleaning cloth the following is used:—Oleate of ammonia solution, 2 parts; solution of ammonia (16°), 2 parts; ether, 1 part; benzol, 5 parts; chloroform, 1 part. Mix the ammonia and the oleate, then add the ether, agitate thoroughly, next add the benzol, again shake well, lastly add the chloroform with constant agitation. Finally shake at intervals until a creamy liquid results. This is an ideal grease eradicator for clothing. A furniture polish to be applied with a cloth and rubbed till dry is made from—Oleate of ammonia solution, 2 parts; ammonia (16°), 2 parts; shellac varnish, 6 parts; boiled linseed oil, 6 parts. Mix the ammonia and oleate, then add shellac and shake well, finally add the oil, and again shake. [*Reply to G. Harvie.*]

Solution of Iodine in Cassia Oil for Dental Work.

Ames, of Chicago, finds that a combination of 2 grains of iodine and 60 grains of cassia oil gives a syrupy liquid which is superior to any other antiseptic dressing which he has tried; its syrupy consistence renders it easy of application to pulp canals, and it can be used with confidence in cases where the dressing has to be sealed up. On keeping for a time, the solution will become quite hard, in which condition, if softened by immersion in hot water, it can be used as a temporary setting for crowns instead of cement or gutta-percha; the soft mass becoming hard again on cooling. If a crown fits the root accurately it is held most satisfactorily with this antiseptic glue. If it should be desired to obviate the hardening this can be effected by adding 1 or 2 per cent. of terebene to the mixture. By adding more terebene a larger proportion of iodine can be added also, and, therefore, a more potent liquid of the same syrupy consistence obtained. For this the following proportions are suggested:—Pure oil of cassia, 12 parts; terebene, 1 part; iodine, 1 part. It is essential that the cassia oil should be pure; the oil of Ceylon cinnamon is not satisfactory for this purpose (*B. J. Dent. Sci.*, xxxviii., 554).

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

Communications for the Current Week's Journal should reach the Office not Later than Wednesday Morning. Telegrams can be Received on Thursday Morning. All Communications respecting Editorial matters must be Addressed "Editor, 17, Bloomsbury Square, London," and not in any case to individuals supposed to be connected with the Editorial Staff of the Journal.

All Instructions from Members, Associates, and Students of the Pharmaceutical Society, respecting the transmission of the Journal, must be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London, W.C.

Business communications—including advertisements, orders for copies of the Journal, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Cheques and money orders should be made payable to "Street Brothers."

Correspondents who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for illustrations should be done with pen and Chinese ink, and consist of clean, sharp lines, without shading by washes. They should also be prepared twice the desired size, so as to allow for reduction.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Queries addressed to the "Editor" will be replied to as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries."

Reprints of articles cannot be supplied unless authors communicate with the Editor before publication.

LETTERS.

Section-Cutting.

"Wrist-Joint" thinks that "'Elbow-Joint' was unduly critical in interpreting the instructions on this point. Perhaps the word 'firmly' was ill-chosen, but beginners at least will usually find it convenient to 'steady' the right elbow against the side of the body. It is then given a sliding movement, and the wrist and fingers make the necessary adjustments."

Dispensing by Medical Men.

A Correspondent observes that "it is evident that it will be difficult to transfer dispensing throughout the country from unqualified hands, unless chemists get friends who are not chemists, interested in the matter. If they get such friends, however, with a thorough grasp of the significance of 'qualification' they can easily have things their own way. The trades union view-point is better to be avoided, because it provokes opposition, and the qualification view-point is an infinitely better one."

ANSWERS.

E. K. C. Knight.—The reply to your query whether "euonymin" is "a plant or a tree, and in either case does it flower?" must be a general negative. It really is a dry alcoholic extract (Extractum Euonymi Siccum of the B.P.) of euonymus bark, which, in turn, is obtained from the roots of *Euonymus atropurpureus*. The green euonymin contains chlorophyll which is inert, and it is not so active as that prepared from the root-bark. Yes! it is a powerful hepatic stimulant.

"Secundus."—The specimens are: (1) *Phleum pratense;* (2) *Poa trivialis;* (3) *Holcus lanatus;* (4) probably *Aira cæspitosa*, but too imperfect to name with certainty; (5) *Lolium perenne;* (6) *Dactylis glomerata.*

G. A. Thompson.—On further investigation the plant proves to be *Lonicera involucrata*, Bank, a native of North America.

Jno. F. J. Rodgers.—(1) *Saponaria vaccaria;* (2) *Salvia sp.* Send a specimen with flowers expanded; (3) *Apera spica-venti.*

"Clifford."—(1) *Potentilla recta*, L.; (2) *Trifolium pratense;* (3) *Trifolium medium.*

Communications, Letters, Etc., have been received from Messrs. Allen, Browne, Coates, Cooper, Elborne, Floyd, Hallberg, Hardwick, Hill, McKellar, Reeve, Russell, Schröder, Simmonds, Thompson, Wright.

THE PREPARATION OF DIGITALIN.*

BY H. KILIANI.

The general result of the author's previous investigation† consisted in proving that digitonin is a definitely crystallisable substance and in finding a practically applicable method of preparing the glucoside obtained by Schmiedeberg and named by him digitalin. That substance has since then been prepared in the works of Messrs. Böhringer and Sons, of Waldhof, and sold under the designation of "digitalinum verum."

Further investigation, carried out with the assistance of that firm, has now enabled the author to publish further details as to the nature of the material, which has long been prepared by E. Merck, of Darmstadt, from foxglove seed, under the name *digitalinum pur.*, and also to describe a process for the preparation of the medicinally valuable glucoside, digitalin, in a state of purity. The original intention of preparing the active principles directly from the seeds or leaves was not carried out, but the material met with in trade, and readily obtainable under the name of *digitalinum pur.*, was taken as the raw material.

Proceeding from the basis furnished by Schmiedeberg's work relating to the glucosides of foxglove seeds, there were, according to that authority, two methods which might be adopted. In order to extract from the raw material the inert digitonin which is quantitatively its chief constituent, it may be converted by saturated baryta water into the form of a sparingly soluble barium compound, from which it can afterwards be separated. If all the constituents are to be obtained, the commercial article (*digitalinum pur.*) is to be extracted first with ether and then with absolute alcohol. According to Schmiedeberg, alcohol removes, for the most part, only digitalin and the substance which he has described under the name of digitalcin, while most of the digitonin remains undissolved. "The alcoholic liquor is then mixed with one-half or one-third its volume of ether, whereby any dissolved digitonin is precipitated together with some of the digitalein, almost the whole of the digitalin remaining in solution together with a considerable proportion of digitalein, After distilling off the ether and adding water to the remaining alcoholic liquid, then gradually evaporating at a gentle heat, digitalin separates, generally contaminated with some digitonein, in the form of a flocculent or almost gelatinous mass which is to be collected on a filter and washed with water to remove digitalein."

In trying the barium method a rapid coloration of the liquid was observed, indicating chemical alteration. Consequently that method was abandoned, as it was considered essential to exclude any reagent which could bring about alteration of the material.

The alcohol and ether process, as described by Schmiedeberg, was also found to be quite inadequate for the purpose, partly because of the absence of precise data as to quantities and more especially because the mixed glucosides, on consecutive treatment with ether and alcohol, readily absorb moisture from the air, forming a tenacious viscid mass which does not admit of perfect separation of its constituents by the solvents.

In order to effect complete separation, the use of absolute alcohol and ether must be carried out in a different manner. In the first place, however, it was necessary to ascertain whether the direct separation of one or other constituent in the crystalline condition might not be possible, perhaps, by using other solvents. Numerous experiments made with that object gave negative results, but they were useful in so far as they furnished indications that in operating upon such substances, crystallisation cannot be effected even by gradual evaporation and that an essential condition is the production of a supersaturated solution, which is to be protected from evaporation and access of atmospheric moisture by carefully closing the containing vessel. Such supersaturated solutions of mixed substances in the amorphous condition can be prepared not only by heating the material with the least possible proportion of solvent, but also by keeping them in contact with the solvent at the ordinary temperature in well-closed vessels until a syrupy mixture is formed. Under such conditions a substance in the amorphous state is considerably more soluble than the corresponding crystals. Having ascertained by preliminary trial the solvent suitable for the purpose, crystallisation of any crystallisable substance present will then take place in a short time, and it was only by carrying out this method of crystallisation that a means was found of penetrating the labyrinth of digitalis substances.

Moderately diluted alcohol was eventually found to be the solvent from which digitonin, the chief constituent of the glucoside from foxglove seeds, can be obtained in a crystalline condition.

The fact has frequently been observed that when aqueous solutions of Merck's digitalin are mixed with strong alcohol turbidity is produced, while, on the other hand, alcoholic solutions become turbid when mixed with water. Acting upon this observation, some crude digitalin was dissolved in the least proportion of water requisite (twice its weight) and absolute alcohol added until a slight turbidity was caused, the requisite quantity of alcohol being ascertained by weighing. After the lapse of twelve hours a few crystals had formed in the liquid and, after two days, the quantity had considerably increased. From the data noted the proportion of water to alcohol was found to be as 18:85 and that the minimum quantity of 85 per cent. alcohol requisite for dissolving the crude glucoside and for obtaining a maximum crystallisation, was found to be exactly four times the weight of the crude material. With these proportions it was ascertained that, by this simple process and in one operation, from 43 to 45 per cent. of the crude material could be separated in the form of finely crystallised digitonin, which does not belong to the substances acting upon the heart. In that way a key to the solution of the problem was obtained.

The mother liquor from this first crystallisation was then evaporated to dryness in a vacuum. The residue contained so little digitonin that, when dissolved in the proper proportion of boiling 85 per cent. alcohol, no further formation of crystals of that glucoside could be obtained from it. A further crystallisation of digitonin was obtained either on dissolving the residue in three parts of warm 85 per cent. alcohol and adding to the cold solution chloroform (one-third of its weight), or by dissolving the residue in an equal weight of hot water and adding to the syrupy liquid amylic alcohol in the proportion of 22 parts for 100 parts of water. The former method is preferable because the separation of the crystals from the mother liquid is more easily effected.

All attempts to separate from the dried residue of the second mother liquor a crystalline or distinctly individual substance were unsuccessful. The residual mixture of

* *Archiv der Pharm.*, 233, 299. † *Pharm. Journ.*, li., 1061.

glucosides was, however, found to contain a considerable proportion of a very dark coloured substance insoluble in cold absolute alcohol. The perfectly dry residue was, therefore, dissolved in the minimum quantity (16 parts by weight) of boiling absolute alcohol. After cooling and standing for some time, a copious dark coloured deposit separated (No. 1) and after twelve hours the comparatively pale coloured liquid was poured off. On adding to this liquid ether (0·72) a flocculent deposit separated, separable by filtration, though it gradually became smeary and stopped the pores of the filter, partially passing into solution again. That difficulty was easily overcome. The alcoholic liquid poured off from deposit No. 1 was mixed with 4 per cent., by weight, of water and then with its own weight of ether (0·72). The water had the effect of making the flocculent deposit (No. 2) cohere, and within twelve to twenty-four hours it adhered to the sides of the vessel, so that the liquid could be readily poured off. By this procedure a very satisfactory separation of the material into its constituents was effected. That was evident from the circumstance that, after removing as much as possible the soluble substance, the deposit No. 1 had become almost insoluble in boiling absolute alcohol. The deposit No. 2, after being dried, was found to contain a considerable proportion of a substance sparingly soluble in absolute alcohol and the residue left on evaporating the ethereal alcoholic liquid (No. 3) was readily soluble in absolute alcohol at the ordinary temperature. Still more distinct differentiation was indicated by the results of experiments carried out by Professor Boehm, to test the action of these products upon frogs.

No. 1 did not produce the typical digitalis action even in a dose of 10 milligrammes.

No. 2 produced a full effect in doses of from 3 to 5 milligrammes.

No. 3 produced a full effect in a dose of only 1 milligramme.

These observations show that in regard to the preparation of the active glucoside the fraction No. 3 was almost exclusively of importance.

The deposit No. 1 consisted chiefly of substances that were perfectly amorphous, readily soluble in water, and very slightly soluble in strong alcohol; very probably products of the decomposition of the natural glucosides. It contained only a minute amount of a crystallisable substance which is probably interesting in a pharmacological sense. By dissolving the perfectly dried deposit in twice its weight of a mixture of equal parts acetone and water, very small but regularly formed tabular crystals separate after some time. The total quantity is not more than a few decigrammes from one kilo. of crude digitalin. The crystals separated from mother liquor are almost insoluble in water, and they contain, together with much organic substance, both calcium and potassium. When dissolved with boiling 50 per cent. acetic acid, the greater part of the organic contituent separates from solution, on cooling, as crystalline laminæ grouped in rosettes. The original crystals were found by Professor Boehm to have a powerful toxic effect upon frogs, but owing to want of material no further experiments have been made.

The deposit No. 2 should consist chiefly of the substance to which Schmiedeberg gave the name of digitalein, that is to say, a specific heart poison readily soluble in water. But when the dry substance is dissolved with a minimum proportion of boiling absolute alcohol it becomes evident that it can be separated into a portion sparingly soluble and a portion that is readily soluble, the former possessing characters similar to those of deposit No. 1, and the latter corresponding with fraction No. 3. There is nothing to indicate the presence of any definitely individual chemical substance.

The fraction No. 3, on the contrary, contains a preponderating proportion of a substance very sparingly soluble in water, the presence of which had previously been concealed its association with other readily soluble substances and its separation prevented by their presence. The preparation of small quantities of this constituent of crude digitalin was therefore easily practicable. Since Professor Boehm has ascertained that, in doses of from 5 to 7 tenths of a milligramme, the imperfectly purified substance produces complete systolic stoppage of the heart in frogs, there can no longer be any doubt that this is the active substance present in the glucosides of foxglove seed; at the same time the characters of this substance show that it is identical with Schmiedeberg's digitalin. Hitherto that substance has never been obtained in a crystalline condition, but it has the characteristic peculiarity of separating from supersaturated solutions in the form of granules. That circumstance admits of the above-described "crystallisation" method being applied to the fraction No. 3. In that way it has been ascertained that the maximum separation of granules is obtained when the dried material is stirred up with three times its weight of 20 per cent. alcohol and the concentrated solution, thus obtained, is allowed to stand for twenty-four hours, protected from evaporation. The fraction No. 3 contains, in addition to digitalin, a minute quantity of an oily resinous substance, very sparingly soluble in water: it is desirable to separate that by shaking the liquid when already filled with granules, with ether. After separating the ether the granules are collected on the porous plate of an exhaust pump, so that they form a thin layer and, after being drained, they are washed with 10 per cent. alcohol and, lastly, with water. The digitalin thus obtained may, after drying upon porous slabs and in a vacuum, be recrystallised from 95 per cent. alcohol without difficulty. The hot saturated solution solidifies soon after cooling to a thick paste, consisting of the characteristic granules, which can be separated from mother liquor by means of an exhaust apparatus. The characters of the *digitalinum verum* thus obtained have already been described (see *Ph. J.*, li., 1061).

When the filtrate from crude digitalinum verum is perfectly dried in a vacuum, the residue dissolved in three parts of 95 per cent. alcohol and an equal volume of ether added, a further quantity of digitalin may be obtained from the decanted alcoholic ether solution in the same manner as in the treatment of the fraction No. 3. As an inference from this observation, as well as from the facts relating to deposit 2 above described, it seems very doubtful whether there is among the glucosides of foxglove seed a peculiar heart poison that is readily soluble in water, in fact, whether there really is such a substance as digitalein. Kiliani considers that, more probably, the heart action produced by several readily soluble preparations, is due to the presence in them of digitalin, in varying amount, which cannot easily be separated from the preponderating amount of associated substances, because its solubility is influenced, in more than ordinary degree, by the proportion of readily soluble material associated with it. The above-described method of investigation leads to the following conclusions in regard to the con-

stituents of commercial digitalin known as *digitalinum pur.*

The mixed glucosides obtained from the seed of *Digitalis purpurea* consist, to the extent of at least one-half, of digitonin, which is a readily crystallisable substance.

The essential ingredient and the only one which has importance from its action on the heart, is digitalin (*digitalinum verum*), while the existence of digitalein is at least highly questionable.

In addition, there is a finely crystallisable organic compound containing calcium and potassium.

Digitonin and *digitalinum verum* are both very sparingly soluble in water when they are in a state of purity. The ready solubility of the mixed glucosides (commercial digitalin) is determined by the presence of a smeary and absolutely amorphous substance.

Digitogenin has never been detected in the preparation supplied by Merck.

The crystals which Schmiedeberg referred to as digitin were unquestionably only digitonin.

The comprehensive investigation above described having led to a clear perception of these facts, there remained the desideratum of devising a practically applicable and productive method of separating digitalin. The procedure above described would not answer for that purpose, since it involves the following operations :—

1. Solution of the crude glucosides in 4 parts absolute alcohol.
2. Separation of the digitonin crystallising out.
3. Perfect drying of the filtrate.
4. Solution of the dry residue in 6 parts of boiling absolute alcohol.
5. Precipitation of the alcoholic liquor by ether.
6. Evaporation of the ethereal alcoholic liquor.
7. Treatment of the residue with 3 parts of 20 per cent. alcohol.
8. Filtration of the purified crude digitalin, and
9. Recrystallisation of the product.

Considering that the crude digitalin supplied by Merck at the time when Kiliani's experiments were commenced did not produce a full effect upon frogs until a dose of from 8 to 10 milligrammes had been administered, while half a milligramme of the purified digitalin is capable of producing the same effect, it will be evident that the commercial article cannot contain more than 5·5 per cent. of true digitalin, and it is equally clear that the complicated process above described would be altogether inapplicable. There is, however, little difficulty in devising a more convenient and less costly process on the basis of the following consideration :

Digitonin, and the amorphous substances associated with it, are readily precipitated from their alcoholic solution by the addition of ether, the former almost quantitatively and the latter for the greater part at least. Digitalin itself has the same character ; but since it exists in the mixed crude glucosides in such small proportion, an alcoholic solution of the total mixed glucosides contains so small an amount of digitalin that it is not precipitated from this extremely dilute alcoholic solution on the addition of ether in proper proportion. Consequently, an ethereal alcoholic liquid would thus be obtained corresponding to the above-described fraction No. 3. Assuming that to be correct, there would only be the troublesome evaporation of that solution to a dry residue to do away with in order to arrive at a practically applicable process. That is, in fact, possible. By ascertaining the actual weight or the volume of the ethereal alcoholic liquid and by determining, in a small portion of it, the amount of dry contents in the whole = A, while assuming that, in case 96 per cent. alcohol has been used, the small amount of water will not be sensibly altered by distillation, a short calculation will lead to the conclusion that the liquor has only to be distilled until it weighs 1·6.A, and to have a subsequent addition of water equal to 2·4.A, in order to have present for each part of dry contents three times its weight of 20 per cent. alcohol—the condition most favourable for the perfect separation of digitalin. The accuracy of this calculation was confirmed experimentally, and it was found that, in carrying out the operation on a large scale, the above-mentioned shaking with ether, before collecting the separated digitalin on a filter, may be omitted, because the oily resinous substances that remain mixed with the digitalin, if the treatment with ether is not carried out, will remain dissolved in the alcohol from which the digitalin is subsequently recrystallised.

The simplified method of preparing purified digitalin is therefore as follows :—

Commercial digitalin is dissolved with 4 per cent. of 95 per cent. alcohol, for which slight warming is required. After cooling, the solution is gradually mixed with 5 parts of ether (0·72), and the whole left at rest in a closed vessel for twenty-four hours. The liquid is then decanted off, weighed or measured, and the quantity of dry contents (=A) ascertained. The ether is then distilled off, together with greater part of the alcohol, until the residue is equal to 1·6.A: it is then mixed with water (=2·4.A), left for twenty-four hours so that no evaporation can take place, the separated digitalin is collected by means of a suction apparatus, allowed to drain, then washed, first with 10 per cent. alcohol and afterwards with water, and lastly dried upon porous slabs *in vacuo*. The dry product is then further purified by recrystallisation from 95 per cent. alcohol and if necessary by the use of animal charcoal.

Very probably a further simplification of this process may be introduced. It is known that the glucosides can be precipitated from a suitably prepared extract of foxglove seed by means of tannic acid ; the washed precipitate is then mixed with lead oxide or zinc oxide, dried, and extracted with alcohol. The solution, after ascertaining the amount of dry contents, is to be correspondingly distilled until it contains four parts of alcohol for each part of dry substance, and then mixed with ether, the other steps of the process being carried out as already described. The precipitate produced by ether, of course, contains a large amount of digitonin, and can be treated for the production of that glucoside in a pure state.

SODIUM ACETYLIDE, Na_2C_2, is prepared by De Forcrand (*Comp. rend.*, CXX., 1215) by heating metallic sodium in a slow current of dry acetylene gas. Acted upon by water acidulated with sulphuric acid it gives off freely, at 20° C., acetylene gas, and sodium sulphate remains in solution. In the absence of the acid sodium hydrate and acetylene are formed.

CREOSOTE mixed with magnesia forms a product that is insoluble in water. It is easily reduced to powder, is comparatively tasteless, and can be readily dispensed, being preferably associated with some syrup (*Journ. de pharm. d'Anvers*). A German preparation is made so as to contain 10 per cent. of creosote.

PHOTOGRAPHY IN NATURAL COLOURS.

The recent exhibition of results obtained by Dr. Joly, of Dublin, at the Royal Society's conversazione, has called forth numerous comments in the press upon the subject, and in particular, an article in the *Times* has formed the basis for more than one article in other papers, all in the same key, it being urged that the problems should be attacked from the chemical side. It is a matter of regret that the writers of the said articles were not a little better acquainted with the fundamental principles underlying the whole thing, and were not better acquainted with the elementary laws of chromatics. The following brief review of the present position of colour photography may be not out of place at this moment:—

Ignoring early experiments such as those of Senebier in 1782 and Seebeck in 1810, we come to the method associated more directly with the name of Becquerel. His method consisted primarily in the formation of silver subchloride on silver-plated copper, and the obtaining of the colours by contact printing or projection of a spectrum on to the same. The date of his work was 1848. There have been since the publication of his procedure many experiments upon the same lines, in many cases commercial chloride printing-out papers being the basis.

In 1891, Professor Lippmann, of Paris, startled the world with his announcement of having obtained permanent photographs in colours which were absolutely inalterable by light. Since then numerous experiments have been made, and considerable improvements effected in the process. The most successful have been those of MM. Lumière, of Lyons, and an opportunity having been afforded of carefully examining these results, both in the hand and when projected on to the screen, it may be said without hesitation that by this process the problem is solved.

Briefly the method of procedure is as follows:—A sheet of glass is coated very thinly with an emulsion of silver bromide in a very fine state of division, so fine that when coated the plate looks like clear glass. This is then exposed in contact with a tank of mercury as shown in Fig. 1, and in section in Fig. 2, in which are shown

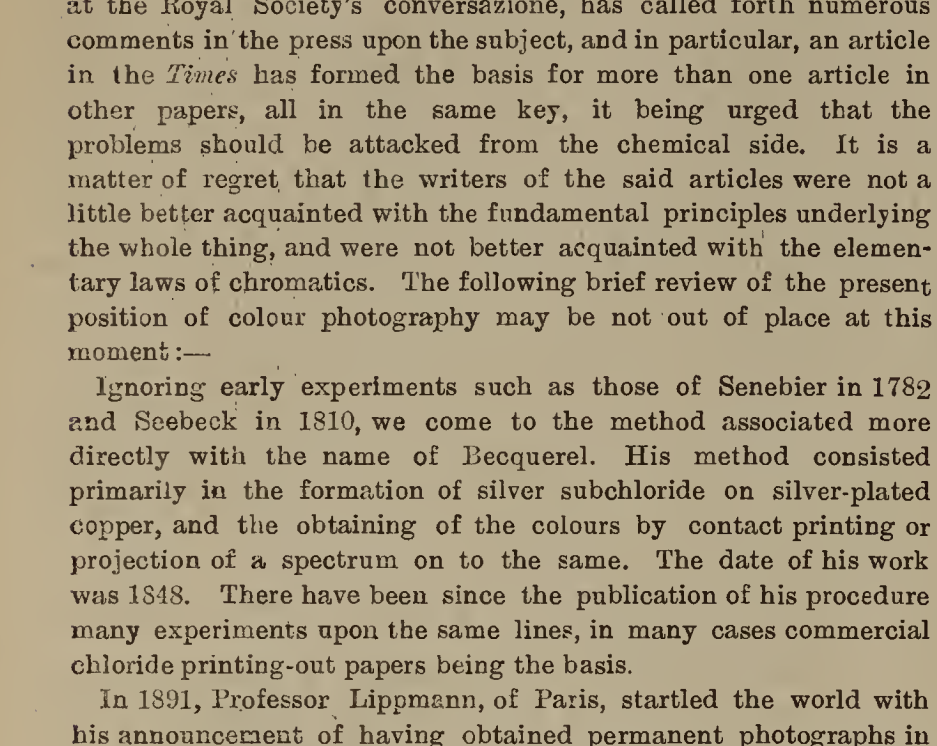

Fig. 1.

the arrangement of the mercury, the sensitive film, and the glass support, the last being nearest the lens. In Fig. 1, G is the glass, M the mercury, F the back of the tank, and C the indiarubber which prevents the escape of the mercury. No. 2 in Fig. 1 merely represents the spectrum photographed in this way.

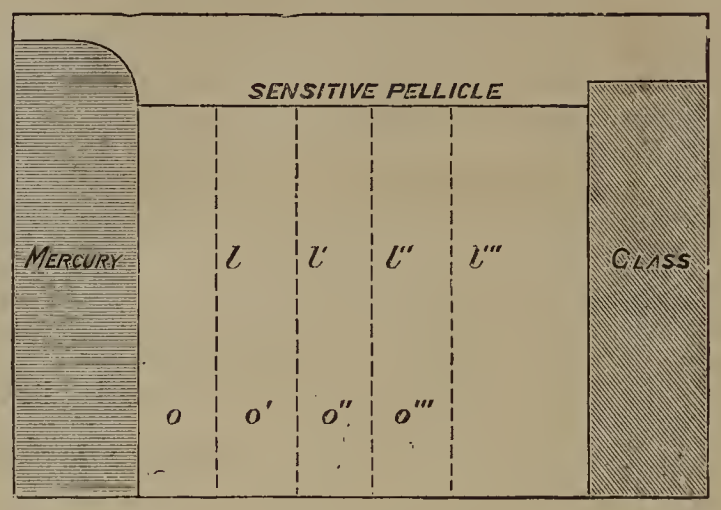

Fig. 2.

The formation of the colour, in Lippmann's process is considered to be practically identical with that in Becquerel's work, and the explanation, whilst a little obtuse, is not difficult to follow.

It is a well-known fact that light is propagated in the ether. In Fig. 3 (I) let the small dots represent the particles of ether in the path of a ray of light. They will vibrate as shown in

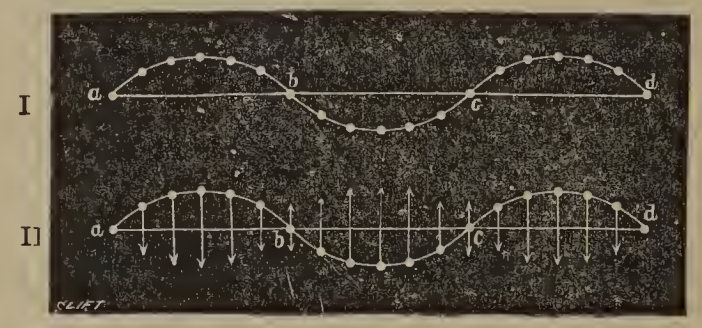

Fig. 3.

Fig. 3 (II), and the length of the wave of light which gives colour will be the distance from a to c, or b to d, for it is well known that light is propagated in waves like those on the surface of water. Now supposing a ray of light proceeding in the direction of a, b, c, d, shown in Fig. 3, meets with a reflecting surface at d, and is sent back along the same path, the pull or vibration of the ether particles is merely additive from d to c, from c to b, and from b to a; but at d, c, b, and a the pull is in opposite directions, as shown by the arrows; now it is one of the simplest laws in dynamics that the pull of equal forces in contrary directions must produce a state of rest, therefore in our film of gelatin we get at d, c, b, and a no light, and therefore no silver deposit, whilst in between the light is increased, and the silver salt so affected that it can be reduced to the metallic state. It is obvious from an examination of Fig. 3 that b is half a wave length between a and c, and c half a wave length from b and d, consequently, we have formed at these points, just half a wave length apart, blank spaces, as shown in Fig. 4, in which the silver deposited in the upper row represents the half wave length of red, the middle, the half wave length of green, and the lower, the half wave length of violet. These three colours are merely taken as examples, but precisely the same argument applies to every other wave length of light. Now when a ray of white light strikes such a film it only reflects that light which possesses a wave length just double the distance between the varying deposits of silver, and the

result is colour. This is due to the interference of light, a subject that cannot now be entered upon.

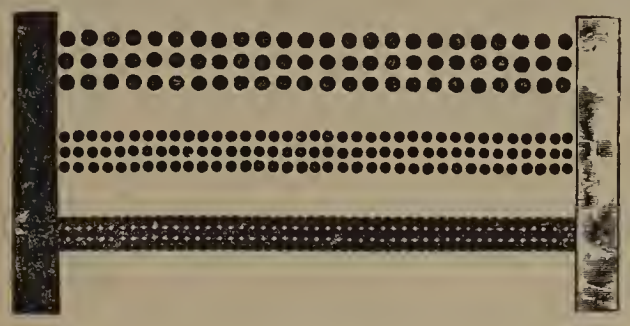

Fig. 4.

We now come to the other processes, including Dr. Joly's, of producing photographs in natural colours. In these the basis is that of the three primary colours, red, green, and violet. Dry plates sensitised for the particular colours are exposed behind screens of those colours; from these negatives, positives, or printing surfaces are made, the positives being viewed through coloured glasses, and the printing surfaces being printed from in red, yellow, and blue, the artists' primary colours.

Dr. Joly, instead of using three separate screens, puts all his screens on one plate in the shape of fine lines closely ruled, but the theory remains the same.

Fig. 5.

Assume Fig. 5 to be merely three lines ruled in red, green, and violet, which it is desired to reproduce in colours. The negative taken through the red screen will merely show the red line as a black deposit, the green and violet clear glass. The negative taken through the green glass will merely show the green as a black deposit, the red and violet clear glass; that through the violet will show the violet opaque and the red and green clear glass. The positives from these will, of course, be just the reverse, and representing clear glass by dotted lines and opaque deposit by continuous lines we shall get Fig. 6, representing the red sensation positive.

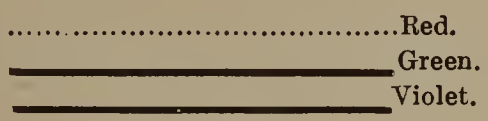

Fig. 6.

In the same way for the green we shall get Fig. 7.

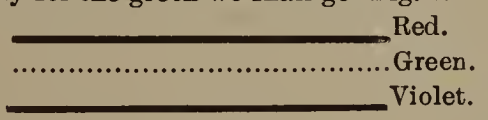

Fig. 7.

And the same for the violet in Fig. 8.

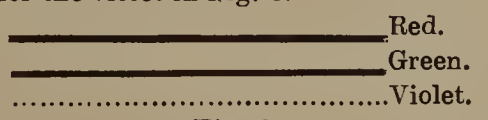

Fig. 8.

Now it is obvious that when we place the coloured screens before such results, whether they be obtained in three negatives or one negative, we shall through Fig. 6 only get red, through Fig. 7 only green, and through Fig. 8 only violet light, and thus we get the primaries from which the intermediate or secondary colours—orange yellow, and blue—are made by varying admixtures.

The statement that we are as far as ever from solving the problem is absurd; it has been solved. And that any extended study of the effect of the individual colours of the spectrum upon light sensitive substances is required is completely *ultra vires* Granting that colour *per se* does not exist in substances, what matter whether we, by means of a black or brown deposit of metal, obtain the excitation of the retinal nerves so as to produce the sensation of colour? It might equally be said that the process by means of which we see the colours of plants or other objects is not a true solution of colour formation, as to say that Ives' and Joly's processes, or even Lippmann's, are not true solutions of the problem. What the particles of natural objects, such as a geranium petal, grass, and dyed fabrics do to the white light incident upon their surfaces, is done also by these processes of the photo- or physico-chemist—that is, part of the constituent rays of light are absorbed or suppressed, and the result is what we call colour.

"TIMES" ON THE METRIC SYSTEM.

The new Decimal Asscciation will claim that it has won a great victory. And certainly one more testimony in favour of the adoption of the metric system of weights and measures in substitution for our own is recorded. A Select Committee of the House of Commons has almost unanimously reported in favour of the former. There are no qualifications to this opinion, and no misgivings are expressed as to the course to be taken. They would have the metric system at once legalised for all purposes, and after a lapse of two years would make it compulsory; and they propose that the way be opened by teaching it in all public schools as "a necessary and integral part of arithmetic." The arguments for these conclusions are familiar. The metric system has been in substance adopted by every European country except England and Russia, and also by many non-European countries. The United States havc just taken a step in the same direction, for they have made, by a Federal law, the metric system compulsory for pharmaceutical purposes. The Committee think that not only is our foreign trade seriously handicapped by the peculiarities of the Imperial standards, but that our home trade will be benefited if simpler standards of weights and measures than those now existing are adopted. Certainly the ease with which calculations, complicated and protracted under our system, can be made where the metric system is in use is to be envied. Any child in a French school can rapidly solve problems such as would occupy twice as long a skilful calculator using our measures. There is force in the argument that school children would be the gainers by the change, even if it be an exaggeration to say that "no less than one year's school time would be saved if the metric system were taught in schools." There is the high authority of Lord Kelvin for saying that "our English system is a wickedly brain-destroying piece of bondage." The scientific argument for the change is not to be made light of. Lord Kelvin has repeatedly pressed, in the interests of science, for the abandonment of a system which makes the physicist's task needlessly laborious. Again and again he has pointed out that English men of science are placed at a disadvantage in dealing with weights and measures, which must be translated into metric equivalents; and, indeed, in scientific circles, without waiting for legislation, there is a general adoption of the latter. Why, then, has our existing system, with all its incongruities, been retained? As long ago as 1862 the question was examined by a Select Committee. It has never been suffered to go entirely to sleep, and the Decimal Association has done much to revive interest in the subject. Why has there been a reluctance to do as so many other countries have done, and why, when the proposal has been brought before the House of Commons, has it been defeated?

It is not challenging the soundness of the chief conclusions of the committee to suggest that they have not measured exactly the

"area of disturbance" likely to be affected by their proposals. Wholesale and international trade ought not to be exclusively considered. The effect on retail business and the operations of workmen must also be looked at; one must think what would happen if carpenters and tailors, hawkers, hucksters, and costers were told that henceforth they must give up the yard, the pound, and the gallon, and talk of mètres and centimètres, hectogrammes and kilogrammes, litres and kilolitres. In countries where a multiplicity of standards prevailed, the introduction of the metric system was a reform of great value. But throughout the greater part of the British Empire, and indeed among all English-speaking races, the same fundamental units are in use. The reasons which brought about the change in Germany, for example, have much less cogency in this country. In the draft report which Mr. Stevenson submitted to the Committee, but failed to induce them to adopt, it is also pointed out that something has been done to mitigate the inconveniences caused in some branches of foreign trade by our system of weights. The Standards Department of the Board of Trade has taken steps to verify metric standards; and it is stated that "in recent years use has been made of the facilities provided by the Board of Trade for the verification of metric standards in science and the preparation and packing of goods for foreign countries where the metric system exists." Besides, assuming the last Committee to be right in their opinions, is no weight to be attached to the contention supported by the Committee of 1862, that a decimal coinage is a necessary preliminary to the adoption of a metric system of weights and measures? The two things hang together in more ways than one. In replacing the copper coinage by bronze new links were formed; the new coins were prescribed fractions of an avoirdupois ounce. The Committee recommend that the metric system should be taught in elementary schools, so as to prepare people for the compulsory introduction of the metric system and the disuse of Imperial standards. They even suggest, with the same object in view, that instruction as to decimal fractions shall be given at an earlier age than is now the case in schools. All these measures seem unnecessary if it be true that the system would be instantly understood and appreciated by all classes.

Those most reluctant to adopt further changes would probably, in face of the report of the Committee and the evidence given before it, admit that it is unreasonable to maintain in its present stringent form Section 19 of the Weights and Measures Act, 1878, which makes obligatory in contracts or dealings with respect to goods the use of Imperial weights and measures, on pain of the contract being void and the seller being fined. It is not enough to know that "the London County Council have ordered their inspectors of weights and measures not to prosecute traders who use metric standards for the purposes of their foreign trade." It would be expedient to set at rest once and for ever all doubts as to the legal position of those who prepare and pack their goods and publish price lists and catalogues with a view to trade in countries having metric standards. Only the Decimal Association must not drive us too fast. The transition might be more difficult than is supposed by those who look at the matter solely from the point of view of the chemist or physicist in his laboratory, the astronomer dealing with large figures, or the merchant whose business is chiefly with countries which measure by kilos. and mètres. If there has been a tardiness to adopt the ideas formulated long ago by Laplace and Lagrange, the reason is not solely the folly and laziness of mankind. There can be no objection to employing for scientific purposes a metric system and abandoning "the British insularity in weights and measures" on which, not without reason, one or two generations of men of science have poured contempt. But the Committee is in a hurry to do much more. France, it is to be remembered, did not for a time make the metric system absolutely exclusive; the old weights and measures were, under certain restrictions, temporarily tolerated. We are probably being educated up to the point at which its introduction would work no great inconvenience and would be accepted by those who would now resent its compulsory adoption. In many arts and sciences the system is in use, and names once strange to ordinary Englishmen have become familiar. But it would be well to have more convincing assurance than any the Committee offers before assuming that popular education on this subject is complete. Perhaps, if we wait a little longer, some improvements in matters of detail may be hit upon. The latest and not the least enthusiastic advocate of the metric system contends that "the French nomenclature is not only bad, but the worst in existence," and it would be a pity to adopt in two years terms which might be discarded in as many more.—*Times.*

REPORT OF THE SELECT COMMITTEE ON WEIGHTS AND MEASURES.

The Select Committee of the House of Commons appointed to enquire whether any and what changes in the present system of Weights and Measures should be adopted has considered the matters referred to it, and agreed to the following Report, which was presented on July 1. The members of the Committee report that—

They have in the first place received evidence from witnesses representing many different interests, (1) official; (2) commercial; (3) manufacturing; (4) trade; (5) educational; (6) professional.

They have also received from numerous corporations, school boards, and other public bodies, resolutions without exception in favour of the adoption of the metrical system.

Your Committee finds that, almost all the witnesses express a strong opinion as to the complicated and unsatisfactory condition of our present weights and measures, and of the distinct and serious drawback to our commerce, especially our foreign trade, which this system entails, differing as it does from the system (metrical) now adopted by every European nation except ourselves and Russia, as well as by far the majority of non-European countries with which this kingdom trades. The evidence, however, goes further to show that not only is our foreign trade, in every branch, seriously handicapped, but that the home trade would be benefited if more simple and uniform standards of weights and measures than those now existing were adopted.

Moreover, strong evidence was brought forward as to the serious loss of time incurred by English school children in having to learn the complicated system of tables of existing weights and measures, and the urgent need of the adoption of a simpler system. It was stated that no less than one year's school time would be saved if the metrical system were taught in place of that now in use.

Evidence from competent witnesses proved to the satisfaction of your Committee that a compulsory change from an old and complicated system to the metrical had taken place in Germany, Norway and Sweden, Switzerland, Italy, and many other European countries without serious opposition or inconvenience. That this change was carried out in a comparatively short period, and that as soon as the simple character of the new system was understood, it was appreciated by all classes of the population, and no attempt to use the old units or to return to the old system was made.

In the United States, where a system founded on the English units exists, a Commission is at present engaged in an investigation of the same character as that with which your Committee is charged, and the Federal Government has this year passed an Act rendering the metrical system compulsory for pharmaceutical purposes.

Your Committee believes that the adoption of the metrical system by England would greatly tend to render that system universal.

Your Committee recommends:—

(*a.*) That the metrical system of weights and measures be at once legalised for all purposes.

(*b.*) That after a lapse of two years the metrical system be rendered compulsory by Act of Parliament.

(*c.*) That the metrical system of weights and measures be taught in all public elementary schools as a necessary and integral part of arithmetic, and that decimals be introduced at an earlier period of the school curriculum than is the case at present.

PHARMACEUTICAL JOURNAL.

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FIFTY-FIFTH YEAR OF PUBLICATION.

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THE BRITISH PHARMACOPŒIA REPORT FOR 1894.

THE approaching revision of the national Pharmacopœia gives a more than ordinary interest to the report on the progress of pharmacy, which has recently been presented by Professor ATTFIELD to the Pharmacopœia Committee of the General Medical Council. This is the ninth of the series of annual reports covering the interval which has elapsed since the publication of the current Pharmacopœia in 1885 and, to complete the material relating to the subject of revision, some papers published during the present year have been noticed in addition to the work done in 1894. A large amount of observation, criticism and suggestion, bearing upon pharmacy and the British Pharmacopœia, has thus been collected in a form readily available for use in the work of compilation, and the frequent reference made in these reports to communications which have been published in the *Pharmaceutical Journal* affords evidence that such work is appreciated and likely to be made useful.

The only important point of general principle referred to in this report relates to the maintenance of the value of the Pharmacopœia as a student's manual. Important as that condition is, both from a medical and pharmaceutical point of view, the opinion is expressed that many of the suggestions relating to it have a too extreme tendency. In connection with the adoption of new methods in the contemplated revision of the Pharmacopœia, the subject chiefly dealt with in the present report is that of standardising galenical preparations, more than half of the space occupied by the report being devoted to its detailed consideration. In regard to the official preparations of belladonna, conium, hyoscyamus, ipecacuanha, jalap, nux vomica, opium, stramonium, cinchona, and to the tinctures generally, specific suggestions are made as to the methods by which an approximation to securing in such preparations definite proportions of their active principles may be arrived at.

But the fact that, under existing conditions, the application of such methods can only provide for approximation to a uniform degree of potency, is very properly pointed out as a warning that standardisation, as at present practicable, is only a partial advance towards a desirable object. In regard to nomenclature, reference is made to the preponderance of agreement with Mr. INCE's suggestion, that names now undeclined, such as chloral, sulphonal, menthol, etc., should be made to follow the ordinary rules of the Latin language. The discontinuance of the use of the final "e" in such words as glycerine and pepsine is also suggested as being advisable in accordance with general practice. Lastly, mention is made of the process of repercolation, and BIRD's advocacy of its official adoption for the preparation of liquid extracts of more uniform character.

Reviewing the various suggestions relating to the preparation of standardised preparations of belladonna, preference appears to be given to that made by CRIPPS, of taking as the basis a liquid extract of the root containing in one hundred fluid parts 0·75 of alkaloid (*Ph. J.*, liv., 793). The process described by CRIPPS for the preparation of liquid extract is given in the report as one suitable for adoption in the new Pharmacopœia, and the several formulæ devised by him for preparing the plaster, alcoholic extract, glycerin, liniment, compound powder, tincture and ointment of belladonna are also proposed for adoption.

In the case of conium preparations the recommendations are that the powdered dry fruit should yield, by a stated process of assay, from 1·5 to 2·5 per cent. of crystalline and nearly white alkaloidal hydrochloride, that the tincture shall be prepared with a more alcoholic menstruum than proof spirit, and standardised so that 100 parts yield 0·25 part of alkaloidal hydrochloride, and that the compound pill shall be prepared with the finely powdered fruit instead of extract. For the cataplasm, extract, succus, ointment and vapor, if they should be retained as at present prepared, standardisation is not recommended. In like manner the standardisation of preparations of henbane made from the fresh leaves is not recommended; but it is suggested that the strength of the tincture should be adjusted so that 100 fluid parts shall contain 0·01 part of alkaloids.

That ipecacuanha should contain from 1·5 to 2·5 per cent. of alkaloids is considered a reasonable requirement. As an improvement of the formula for ipecacuanha wine, reduction of the quantity of acetic acid is recommended; but the mode of preparation from a dry acetic extract is not altered, although it is a very troublesome procedure, and appears to be the cause of deficiency in the strength of the finished preparation (see *ante*, p. 2).

A standardised liquid extract of nux vomica, containing in 100 fluid parts 3 parts of alkaloid, is recommended as the basis for preparing the tincture, containing in 100 fluid parts 0·25 part alkaloid, and the extract containing 15 per cent. by weight of mixed alkaloids.

The question as to the relative value of different methods of determining morphine in opium is briefly referred to, as well as the experimental work of COULL and DOTT (*Ph. J.*, liii., 784, 847, 954; liv., 708), but no definite recommendation is made to alter the present official process.

The suggestion made by FARR and WRIGHT that tincture of stramonium should be made from the leaves, and that it should contain 0·025 part daturine in 100 fluid parts, is mentioned as one which might be accepted, if the little used extract of stramonium and consequently the seed, were omitted from the Pharmacopœia.

On account of the desirability of standardising both of the tinctures of cinchona as well as the liquid extract, a general process of assay applicable to the three preparations is proposed to be inserted, the amount of alkaloids in the simple

tincture to be from 0·95 to 1·05 per 100 fluid parts, and that in the compound tincture to be 0·5 part in 100 fluid parts.

In regard to the general subject of standardisation of tinctures, the work of Farr and Wright (*Ph. J.*, liii., 177, liv., 123) is referred to, but no recommendation is made.

Taking some of the other more important details of the report in the order they are mentioned, the amendment of the data given in the official definition of carbolic acid, as suggested by Coull (*Ph. J.*, liv., 532), is approved of. The introduction of formulæ for aqueous carbolic acid lotion and for carbolic oil, both on the basis of 1 in 20, is mentioned as being apparently needed. The addition of dilute alcohol to carbolic acid for the purpose of preventing solidification by cold, as recommended by Boa (*Ph. J.*, liii., 511) and Henry (*loc. cit.*, 746), is also recorded.

On the basis of Millard's observation that goa powder frequently contains a considerable amount of ash, corresponding additions to the official tests of chrysarobin are suggested.

In view of the possible official recognition of chrysophanic acid, it is noted that, according to Grandis, its melting point varies from 162° to 187° C., but when sublimed the melting point is 190° to 192° C. Attention is directed to the continued want of a satisfactory method of determining the strength of aconite preparations, to Schmidt's demonstration that caffeine forms definite salts, though they appear to be readily decomposed by water (*Ph. J.*, lii., 986), also to the characters and tests of digitalin described by Kiliani, to Spiegel's statement that amorphous gelseminine is much more powerful in its action than crystalline gelsemine (*Ph. J.*, liii., 985), and to Umney's confirmation of the fact observed by Naylor that zinc valerianate varies considerably in composition (*Ph. J.*, liii., 1082).

The suggestions made by Dott in reference to the specific gravity of chloroform and the methods of testing it are mentioned, together with a statement of the form in which he recommends that the characters and tests should be defined officially (*Ph. J.*, liii., 629).

In connection with drugs, mention is made of the suggestion by E. W. Lucas (*Ph. J.*, liii., 665), that catechu should be nearly all soluble in water, and that the amount of ash should be officially limited to 6 per cent., as in the German Pharmacopœia. The process given by Maupy (*Ph. J.*, liii., 895) for detecting castor oil in copaiba is noted, as well as the directions given by Cripps for separating the volatile oil and ascertaining its amount (*Ph. J.*, li., 193). Other details noted are the suggestion of Barclay that an official limit of about 7 per cent. should be adopted for the amount of ash in saffron (*Ph. J.*, liii., 693), and the definition of the alkaloids present in ipecacuanha by Paul and Cownley (*Ph. J.*, liii., 61, and liv., 111., 373, 690). The uncertainty still existing in regard to the value of different kinds of jaborandi receives notice by reference to the papers by Holmes, Wardleworth, Paul and Cownley (*Ph. J.*, lii., 1008; liii., 506, 1065, 1066), but no mention is made of the want of an adequate definition of pilocarpine, the alkaloid to which the medicinal action of the drug is supposed to be due.

Among galenical preparations mentioned in the report, the deficiencies of the B.P.C. process for making belladonna collodion, pointed out by Conroy (*Ph. J.* li., 327), and Umney (*Ph. J.* li., 364), are noted as well as the recommendations of Wright, Naylor and Squire (*Ph. J.* liii., 173, 319, 340, 360, 562). The suggestions of Adams and Lucas in regard to the use of soft paraffin, india-rubber, and wool-fat in plasters, are referred to with approval (*Ph. J.*, liii., 440, 666). The improvements in the "characters and tests" of liquid extract of ergot suggested by Cowie are quoted. Mention is made of the varying amount of morphine in extract of poppies observed by Paul and Cownley (*Ph. J.* liii., 521). The suggestions of W. F. Martin, R. Wood, and Parker as to alterations in the formulæ of pills (*Ph. J.* liii., 697, 922, liv., 197), those of Decker, Angel and Harding, in regard to suppositories (*Ph. J.*, liii., 63, 100, 688), of Lyon in regard to iodide of iron syrup (*Ph. J.*, liii., 863), of Coull in regard to syrup of red roses (*Ph. J.*, liii., 786), of Clessler, Shepherd, Hornblower, Henry, Dott, Farr and Wright, in regard to the tinctures of digitalis, ergot, iodine, lobelia, and opium (*Ph. J.*, liii., 976, 745, liv., 242, 709) and those of Boa, Hyslop and Angel in regard to the preparation of ointments (*Ph. J.*, liii., 861, liv., 170, 210) are noted.

In reference to a possible new feature of the revised Pharmacopœia, reference is made to the papers by White on preparations of the thyroid gland (*Ph. J.*, liii., 194) and by Stuart on other animal extracts (*Ph. J.*, liv., 177.)

SHOP *VERSUS* COLLEGE TRAINING.

"What proprietor," asks a writer in *Merck's Market Report*, "would be willing to engage a college graduate without any knowledge of shop-life, trained only theoretically?" Such a young man, it is pointed out, being at least twenty years of age, would be the most useless and helpless person in any ordinary pharmacy. The lack of all commercial training would make him the laughing-stock of his companions and the public, and even behind the prescription counter he would be nothing but an ornament, knowing either too little or too much. The fact of possessing a college diploma would raise him in his own estimation over all his "non-graduated" fellow creatures, and it might be expected that he would not condescend to be treated like an apprentice and learn patiently and thoroughly the practical side of his vocation, from the drudgery of cleaning bottles upwards. Then, when commencing business for himself, after making hundreds of mistakes, he would probably gradually awaken to the fact that there was a decided lack in his training, for which he must now pay very dearly.

On the other hand, by a thorough course of shop training, entered upon directly after leaving school, all the necessary details of the daily routine become familiar, and the youth insensibly acquires a vast amount of information that can hardly be obtained otherwise. He can be shown in a gentle but convincing manner how many menial duties are necessary, not only to preserve order and cleanliness in the shop, but also as a valuable training in self-restraint. Thus the regular performance of the necessary cleaning, dusting, etc., awaken a love of order at a time when the youthful mind is quickest and readiest to receive ideas. As the apprentice advances his memory and reasoning powers become sharpened, the power of coping with difficulties is daily increased, and the more thorough his training the greater he feels the necessity of a subsequent college course, and the more he appreciates that when completed.

In its proper order, too, the college instruction will be a pleasure to him rather than an irksome discipline. "The names of drugs and chemicals are already familiar to him; every new information recalls some little incident, some little advice or admonition, from the hard time of his apprentice-

ship; as the professor speaks of this tincture, of that mixture, he sees before his mind's eye the bottle or jar saluting him like an old friend; he compares the scientific argument and delineation of a problem with the occasional practical remarks that his preceptor gave him on the same subject, and perceives the difference and yet the harmony in the two conceptions; in fact, his college course is not a weary study of dead figures and meaningless names; no, it is as fertilising rain and sunshine, to make the practical experience sprout and grow, and to enable its possessor to reap a golden harvest."

INAUGURAL SESSIONAL ADDRESS.

THE Inaugural Sessional Address at the opening of the 54th Session of the Pharmaceutical Society's School of Pharmacy, on October 2 next, will be delivered by Professor F. T. ROBERTS, M.D., F.R.C.P. Dr. ROBERTS is Professor of Medicine at University College, London, Physician to University College Hospital, and was formerly Professor of Materia Medica and Therapeutics at University College.

THE ACTIVE PRINCIPLE OF DIGITALIS.

THE *Pharmaceutical Journal* of June 25, 1892, contained a very interesting and important paper by Professor KILIANI giving the results of his investigation of the active principle of digitalis. In the present number of the Journal there is another paper by the same author, giving further information as to the method of preparing digitalin and separating it from other glucosides of foxglove. The material operated upon was the commercial digitalin prepared from foxglove seed in the factory of E. MERCK, and known as *digitalinum pur.*, which appears to be a mixture of several substances, among which that possessing the specific action on the heart and rendering digitalis useful medicinally constitutes only a small fraction of the whole. The published statements relating to the chemistry of digitalis and to the nature of its active principle are so discordant and contradictory that Professor KILIANI's paper cannot fail to be very serviceable, and for that reason it has been thought desirable to publish a comprehensive abstract of it.

SOCIETY OF CHEMICAL INDUSTRY.

ON account of the General Election it has been found necessary to postpone, until the 31st instant, the annual meeting of this Society at Leeds, which was to have taken place next week. Unfortunately, this altered arrangement will clash with the meeting of the British Pharmaceutical Conference at Bournemouth, as well as with that of the British Medical Association in London, and will, in some instances, prevent attendance at one or other of the meetings.

PHARMACISTS AND THE GENERAL ELECTION.

COMMENDABLE evidence of activity in looking after the general interests of chemists and druggists is afforded by the letter from Mr. COCKS, the honorary secretary of the Plymouth, Devonport, Stonehouse and District Chemists' Association (see page 42). The favourable opportunity now offered for representing to local Parliamentary candidates the views held by chemists and druggists in regard to matters affecting their business, and, as they consider, demanding attention by the Legislature, should not be missed, and the example set by this Association might be usefully followed by other provincial associations throughout the kingdom. The letter from Mr. PARK, received at the time of going to press, affords ample proof that the effort involved in so doing will not be wasted.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

DONATIONS.

At a meeting of the Library, Museum, School, and House Committee, held on Wednesday, the 10th inst., the Librarian and Curator presented the following reports of donations to the Society's Library, Museum, and Herbarium:—

To the Library (London).

University of Edinburgh:
Calendar, 1895.

École supérieure de pharmacie de Paris:
Description et construction des densimètres compensateurs, par C. F. M. Galaine, 1895.
Contribution à l'étude chimique et botanique des gommes, par L. C. Lutz, 1895.
Recherches sur la localisation de l'anagyrine et de la cytisine, par P. Guérin, 1895.

H.M. Secretary of State for India in Council:
The Bower Manuscript, edited by A. F. R. Hoernle, part 2, fasciculus 2, 1895.

Mr. F. M. Bailey, Colonial Botanist, Queensland:
Queensland Bulletin, No. 5, 2nd series; Botany Bulletin, No. 10.

Museum.

Baron T. von Mueller, K.C.M.G., M. and Ph.D., Melbourne:
Kino from *Eucalyptus regnæus.*

Professor H. H. Rusby, M.D., New York:
Thirty-three specimens of medicinal barks, nineteen specimens of leaves and flowers, two of fruits, and eighteen specimens of roots; a specimen of American isinglass.

Messrs. Wright, Layman, and Umney:
A specimen of spurious balsam of tolu.

FIRST EXAMINATION QUESTIONS.

JULY 9th, 1895.

LATIN.

Time allowed—from 11 a.m. to 12.30 p.m.

I. For all Candidates. Translate into Latin:—
1. Above five hundred men were slain.
2. I will answer neither you nor your brother.
3. It is a mother's duty to teach her daughters.
4. There are some who say this is not true.
5. Then Crassus said: "I for my part do not believe it."

II. Translate into English *either* A (Caesar) *or* B (Virgil).

Candidates must not attempt both authors.

A.—CAESAR.

1. Helvetii jam per angustias et fines Sequanorum suas copias transduxerant, et in Aeduorum fines pervenerant, eorumque agros populabantur. Aedui, quum se suaque ab iis defendere non possent, legatos ad Caesarem mittunt rogatum auxilium: Ita se omni tempore de Populo Romano meritos esse, ut paene in conspectu exercitus nostri agri vastari, liberi eorum in servitutem abduci, oppida expugnari non debuerint.

2. Quod quum fieret, non irridicule quidam ex militibus decimae legionis dixit: Plus, quam pollicitus esset, Caesarem ei facere; pollicitum, se in cohortis praetoriae loco decimam legionem habiturum, nunc ad equum rescribere.

Planities erat magna, et in ea tumulus terrenus satis grandis. Hic locus aequo fere spatio ab castris utrisque aberat. Eo, ut erat dictum, ad colloquium venerunt.

Grammatical Questions.

For those only who take Caesar.

1. Decline in the singular *ea tumulus*, and in the plural *hic locus* (Par. 2).
2. Give the principal parts of all the verbs in Paragraph 1.
3. Write in Latin, 23, 66*th*, *an old man of eighty*, *fourfold*, *three-sevenths*.
4. Parse fully—*plus*, *quam*, *pollicitus*, *esset*, *Caesarem ei facere* (Par 2).

B.—Virgil.

1. Haec ait, et Maia genitum demittit ab alto,
Ut terrae utque novae pateant Karthaginis arces
Hospitio Teucris, ne fati nescia Dido
Finibus arceret. Volat ille per aëra magnum
Remigio alarum, ac Libyae citus astitit oris.
Et iam iussa facit, ponuntque ferocia Poeni
Corda volente deo ; in primis regina quietum
Accipit in Teucros animum mentemque benignam.

2. Vix ea fatus erat, cum circumfusa repente
Scindit se nubes et in athera purgat apertum.
Restitit Aeneas claraque in luce refulsit
Os umerosque deo similis ; namque ipsa decoram
Caesariem nato genetrix lumenque iuventae
Purpureum et laetos oculis adflarat honores ;
Quale manus addunt ebori decus, aut ubi flavo
Argentum Pariusve lapis circumdatur auro.

Grammatical Questions.

(For those only who take Virgil.)

1. Decline in the singular *ea tumulus*, and in the plural *hic locus*.

2. Give the principal parts of all the verbs in Passage 1.

3. Write in Latin—23, 66*th*, *an old man of eighty*, *fourfold*, *three-sevenths*.

4. Parse fully—*Haec ait, et Maia genitum demittit ab alto* (Passage 1).

ARITHMETIC.

Time allowed—from 12.30 *p.m.* to 2 *p.m.*

[The working of these questions, as well as the answers, must be written out *in full*.]

1. The dividend is One million two hundred and thirty-eight thousand seven hundred and sixty, the quotient 2289, and the remainder 411 : what is the divisor ?

2. What length of paper, 27 in. wide, will be required to cover a wall 15 ft. 8 in. long by 11 ft. 3 in. high ?

3. Simplify $\dfrac{\frac{1}{3}\text{ of } 2{\cdot}179 - \frac{5}{6}\text{ of } {\cdot}8684}{\frac{2\frac{1}{3}}{5} - \frac{2}{5\frac{5}{8}} + \frac{1\frac{5}{8}}{4\frac{5}{7}}}$.

4. A man owns $\frac{7}{25}$ of a ship, and sells ·3571428 of his share : what fraction of the ship does he still own ?

5. A courier is sent who travels at the rate of 7 myriametres in 5 hours ; 8 hours after his departure another courier is sent to overtake him, travelling at the rate of 5 myriametres in 3 hours. Find, approximately, how many miles the second courier will have travelled when he overtakes the first.

6. A grocer buys coffee at £8 10*s*. per cwt., and chicory at £2 10*s*. per cwt. ; he mixes them in the proportion of 5 parts chicory to 7 coffee. At what rate per cwt. must he sell the mixture to gain $16\frac{2}{3}$ per cent. on his outlay ?

7. Find the buying price of a 3 per cent. stock when the investment of £434 12*s*. 6*d*. produces an income of £14 5*s*.

ENGLISH.

Time allowed—from 3 *p.m. to* 4.30 *p.m.*

1. Parse fully—*None can tell what I suffered from their malice.*

2. Name the different kinds of subordinate sentences, and give *one* example of each.

3. Correct the following sentences, giving your reasons :—

(i.) I thought he will go quick.

(ii.) He was the friend of the general's who you were talking about.

(iii.) He was only asked one question in the secretary's office.

4. In the following passage, supply the necessary capital letters, and put in the stops and inverted commas where necessary :—there she is cried miss shaldon with excitement it is she she is better she is well again it is like coming out of her coffin florence shuddered at the comparison and with the strong light on the lower part of the housekeeper's white and rigid face it did not look unlike it is this the lady who has been ill asked the doctor

5. Write a short composition on *one* of the following subjects :—
(*This must be attempted by every candidate.*)

(i.) The evils of obstinacy.

(ii.) What is meant by a *gentleman*.

(iii.) "He who pursues two hares catches neither."

(iv.) "De mortuis nil nisi bonum."

JACOB BELL SCHOLARSHIPS EXAMINATION.

FIRST PAPER.

Time allowed, Three hours (11 *to* 2).

LATIN.

1. Translate into English :—

Tempus erat, quo prima quies mortalibus aegris
Incipit et dono divom gratissima serpit.
In somnis ecce ante oculos maestissimus Hector
Visuf adesse mihi largosque effundere fletus,
Raptatus bigis ut quondam aterque cruento
Pulvere perque pedes traiectus lora tumentis.
Ei mihi ! qualis erat (quantum mutatus ab illo
Hectore, qui redit exuvias indutus Achilli
Vel Danaum Phrygios iaculatus puppibus ignis),
Squalentem barbam et concretos sanguine crinis
Volneraque illa gerens, quae circum plurima muros
Accepit patrios !

2. Translate into English :—

(*a*) Tere optime Myrrham et Saccharum purificatum simul ut fiat pulvis. Partitis dosibus quotidie sumendus, in vehiculo aliquo idoneo.

(*b*) Sub divo calefiant, donec omnis evolutio gasis cessaverit. Solutum refrigeretur, filtretur et evaporatione sub divo ad libram unam cum dimidia redigatur. Caute serva.

3. Parse fully—*quo*, *divom*, *Raptatus*, *redit*, *gerens* ; with a special note on the tense of *redit* (Question 1).

4. Translate into Latin :—

(*a*) It is of great importance with reference to our honour that I should come to the city as soon as possible.

(*b*) Since the matter has been brought to such a pass that it has to be settled whether he shall make atonement to the republic or we shall be slaves, by the immortal gods, let us at length take to ourselves our hereditary spirit and valour, that we may either recover the liberty that is proper to the Roman race and name, or may prefer death to slavery.

ENGLISH.

1. Parse fully :— "If he evade us there,
Enforce him with his envy to the people."

2. Write a short essay on *one* of the following subjects :—

(*a*) The sagacity of insects.

(*b*) The social condition of England during the latter part of the Plantagenet period.

(*c*) "To dally much with subjects mean and low
Proves that the mind is weak or makes it so."

ARITHMETIC.

1. Find the greatest unit of time by means of which 23 hrs. 2 min. 36 secs. and 1 day 22 hrs. 8 min. 55 secs. can both be expressed as integers.

2. Reduce $\dfrac{3\frac{1}{2}}{7}\text{ of }\dfrac{99}{100}\text{ of }\dfrac{50}{451}$ of ·0409 of 1 cwt. 3 qrs. 7 lbs. to the decimal of $2\frac{1}{2}$ tons.

3. If the special gravity of alcohol be ·8, how many kilograms of alcohol will be required to fill one-third full a tank measuring 1·50 metres by 3·20 metres by 80 centimetres ?

FRENCH.

1. Translate into English :—

Il n'entrait dans ce refus aucune jalousie ; mais un profond découragement accablait ces deux infortunés depuis la nouvelle qui les séparait de leur unique ami. Ils se rappelèrent la promesse que leur fit, en partant, Prascovie, de s'intéresser à eux, persuadés ainsi que tous les habitants d'Ischim, d'après mille bruits qui couraient dans le public, de la faveur sans bornes qu'elle avait obtenue ; ils se crurent oubliés ; et, n'osant se plaindre à son père, ils renfermaient en leur cœur le sombre chagrin qui les dévorait.

La veille du jour où Lopouloff devait les quitter, ils voulurent prendre congé de lui pour n'avoir pas la douleur d'assister à son départ ; ils sortirent de chez lui à neuf heures du soir, et se retirèrent, le cœur navré de toutes les douleurs que les hommes peuvent supporter sans mourir.

2. Translate into French :—

When I first saw England she was in mourning for the young Princess Charlotte, the hope of the empire. I came from India as a child, and our ship touched an island on the way, where my black servant took me a long walk over rocks and hills, until we reached

a garden where we saw a man walking. "That is he," said the black man, "that is Bonaparte; he eats three sheep every day, and all the little children he can lay hands on."

GERMAN.

1. Translate into English:—

Eines Tages sassen mehrere deutsche Fürsten beisammen und sprachen von den Ländern, welche sie regierten. Jeder lobte das seinige besonders. Der Eine sagte: "Mein Land hat Gold und Silber. Es ist das reichste von Allen." "In meinem Lande," sagte ein anderer Fürst, "wächst der beste Wein. Das ist besser als Gold und Silber." "Die schönsten Städte," rief ein dritter Fürst, "sind in meinem Lande. Und was könnt Ihr zum Lobe Eures Landes sagen?" fragte er einen Fürsten, der noch nicht gesprochen hatte. "In meinem Lande," antwortete dieser, "sind keine grossen Städte; auch wächst nicht viel Wein darin und es hat weder Gold noch Silber; aber ich kann im Sommer auf freiem Felde schlafen und bin vor all meinen Unterthanen sicher." "Wahrhaftig," riefen die Fürsten, "Ihr habt das beste Land!"

2. Translate into German:—

We were in Scotland last summer, and we liked it very much. We saw all the old towns, and the high mountains, and the beautiful lakes. My cousins travelled with us for six weeks, but afterwards they returned home. They have a very large house and garden in the country, where they always live in the autumn; and next month we shall visit them.

SECOND PAPER.

Time allowed, Two Hours (3 *to* 5).

CHEMISTRY.

1. What is meant by "Standard temperature and pressure," and what simple method is used for calculating the weight of one litre of the elementary gases at such temperature and pressure?

2. What is the action of a red heat on $AgNO_3$, and what will be the nature and weight of the residue left after so treating 10 Gms. of that substance—

Ag = 108.

PHARMACY.

1. Discuss the process of evaporation, its objects, the methods of carrying out, and name the various B.P. preparations produced by its means.

2. What is the composition of a "Seidlitz Powder," and what takes place on mixing it with water, and after?

BOTANY.

1. Describe shortly the characteristics of the stem, root, leaves, and flowers of monoctyledons and dicotyledons.

2. Give a short account of the difference between the flowers of wheat, pea, daisy, and poppy.

MANCHESTER PHARMACEUTICAL ASSOCIATION SCHOLARSHIP EXAMINATION.

FIRST PAPER.

Time allowed, Three hours (11 *to* 2).

The papers in English, Arithmetic, French, German, and Latin, set for this examination, were the same as those for the Jacob Bell Scholarships Examination, except that the following was given as an alternative Latin paper:—

LATIN.

1. Translate into English:—

Quo proelio bellum Venetorum totiusque orae maritimae confectum. Nam quum omnis iuventus, omnes etiam gravioris aetatis, in quibus aliquid consilii aut dignitatis fuit, eo convenerant, tum navium quod ubique fuerat in unum locum coëgerant; quibus amissis, reliqui neque, quo se reciperent, neque quemadmodum oppida defenderent, habebant. Itaque se suaque omnia Caesari dediderunt. In quos eo gravius Caesar vindicandum statuit, quo diligentius in reliquum tempus a barbaris ius legatorum conservaretur. Itaque omni senatu necato, reliquos sub corona vendidit.

2. Parse fully—*gravioris, eo, quibus amissis, gravius, vindicandum, reliquum, conservaretur* (Question 1).

SECOND PAPER.

Time allowed: Two hours (3 *to* 5).

CHEMISTRY.

1. Describe the construction of the Bunsen burner and the properties of the various parts of the flame produced by such burner.

2. If 100 litres of hydrogen at 0° C. be heated to 16° C., what volume will it then occupy, the pressure remaining constant?

PHARMACY.

1. Describe the process for making green extracts. Mention those that are official.

2. What are the best excipients for making the following into pills? Arsenious acid, camphor, carbolic acid, creasote, dried sulphate of iron, permanganate of potash, soft extracts, tannin, nitrate of silver.

BOTANY.

1. Give an account of the functions of the leaf, and mention some of the substances formed by the exercise of these functions.

2. Define the following: Diclinous, bulb, spore, monœcious, cambium, saprophyte.

SOCIETIES IN LONDON.

SCHOOL OF PHARMACY STUDENTS' ASSOCIATION.

The final meeting of the session was held on Thursday, June 27, and in the absence, from indisposition, of the President, Professor Attfield, F.R.S., the chair was taken by Mr. T. A. Henry, Vice-President. The Secretary read the following—

ANNUAL REPORT OF THE EXECUTIVE COMMITTEE.

"The Executive Committee of the School of Pharmacy Students' Association, elected by the members at the commencement of the session in November last, has met and transacted business as follows:—At a meeting on November 29, 1894, the Secretary reported to the Committee that the usual nomination and voting papers had been issued to all members at the beginning of the session, and that the papers and reports of the previous session had been copied in type, bound, and presented to the Library of the Pharmaceutical Society. The Committee appointed the following gentlemen as reporters to the Association on the sciences allied to pharmacy:—Pharmacy, Mr. W. Moore; Botany, Mr. E. Goulding; Materia Medica, Mr. C. J. Taylor; Physics, Mr. H. T. Durant; Organic Chemistry, Mr. C. S. Ellis; Inorganic Chemistry, Mr. A. T. Hill; Analytical Chemistry, Mr. R. G. Guyer.

"On April 25 the Committee met and arranged suitable localities and dates for the Saturday afternoon botanical excursions; they regret, however, that the diminished attendance noted last year was still further accentuated, and several excursions fell through from this cause. They would suggest that in a subsequent session the experiment be tried of enlisting the services of a good botanist as leader for each excursion. At a meeting on June 27, a grant of 7*s.* 6*d.* from the Research Fund was made to Mr. H. Brown to defray the cost incurred in his examination of commercial extract and tincture of cinchona.

"The numerical strength of the Association has slightly diminished, there being 52 ordinary and 10 life members this session, as against 60 ordinary and 9 life members last year. The number of meetings held, including to-night's, has been 14, and the total attendance 210, making an average of 15 at each meeting. The following twenty communications have been read:—

"Introductory Address, by Mr. Robert Hampson; 'History of the Word Chemistry,' by Mr. C. S. Ellis; 'Sugar,' by Mr. S. Davis; 'A Piece of Granite,' by Mr. H. Read; 'Vinegar,' by Mr. W. H. Maunder; 'Electricity in Relation to Chemistry,' by Mr. F. F. A. Tunbridge; 'Some Dartmoor Flowers,' by Mr. D. P. Fuge; 'Photography as a Hobby for Chemists,' by Mr. G. S. Durrant; 'Chemistry in Relation to Agriculture,' by Mr. S. Bastow; 'Bacteriology,' by Mr. A. Lilly; 'Argon,' by Mr. A. M. Peter; 'Report on Pharmacy,' by Mr. W. Moore; 'Dispensing Notes,' by various members; 'Report on Inorganic Chemistry,' by Mr. A. T. Hill; 'Michael Faraday,' by Mr. B. Jealous; 'Report on Botany,' by Mr. E. Goulding; 'Plant Distribution,' by Mr. J. R. Walker; 'Report on Materia Medica,' by Mr. C. J. Taylor; 'Extract and Tincture of Cinchona,' by Mr. H. Brown; 'Report on Physics,' by Mr. H. T. Durant.

"The Treasurer's accounts, to be presently audited, show that the receipts from members' subscriptions and interest on invested funds amount to £7 11*s.* 6*d.*, and the total expenditure, including a grant from the Research Fund, to £8 12*s.* 6*d.*, leaving a balance of £23 16*s.* 9*d.*"

Messrs. S. Bastow and H. L. Lee were then appointed to audit the Treasurer's accounts, which they reported to be correct.

The adoption of the report was thereupon moved by the Chairman, seconded by Mr. A. Lilly, and carried unanimously.

A vote of thanks to the President, officers, and Executive Committee was proposed by Mr. G. W. Allen, seconded by Mr. Joseph Ince, and adopted with acclamation.

The meeting then adjourned.

REVIEWS AND NOTICES OF BOOKS.

CHEMICAL ANALYSIS OF OILS, FATS, WAXES, AND OF THE COMMERCIAL PRODUCTS DERIVED THEREFROM. From the German of Professor Dr. R. BENEDIKT, revised and enlarged by Dr. J. LEWKOWITSCH, F.I.C., F.C.S. Pp. i. to xviii.; 1–683. Price 21*s*. (Macmillan and Co., London.)

A manual on the above subject, written by a competent authority, has been much needed, as there is no book in our language which contains in a readily accessible form the information necessary to workers in this branch of technical chemistry. It may at once be conceded that this work fulfils its purpose to a very great extent, and it may be regarded as indispensable, not only to the analyst but to many pharmacists. Dr. Benedikt has been fortunate in securing the services of Dr. Lewkowitsch as translator and reviser, and in the latter's hands the original has had full justice done to it. Moreover, the body of the work has been to a great extent rewritten and enlarged, so as to meet more satisfactorily the requirements of chemists in this country.

It is obviously impossible to adequately review a work of this magnitude in the space at disposal here; a few only of its most important features can be attended to. After a brief description of the chemical constituents of fats and waxes, a general account of their physical and chemical properties is given. This leads up to a detailed account of their physical properties, and the methods employed for their analysis. The body of the work is occupied by a detailed account of the methods adopted for the examination of the various kinds of fat, oil, etc., and the means of detecting adulterants. Under each substance the chemical and physical constants are tabulated, the names of the various observers being recorded in each case, and this plan itself constitutes an admirable feature of the book. Throughout the text many references are given to the original papers of different authors, and it will be noticed that a large proportion of them have their origin in this country. Pharmacists will find much of interest to them under the headings of beeswax, wool-fat, lard, etc., and the methods recommended for the detection of adulterants will be found reliable. The general arrangement of the book is satisfactory considering the wide scope that a work of this nature covers, and it is remarkably free from typographical errors. A comprehensive index adds to its general usefulness.

Works of this kind are very often nothing more or less than mere compilations, several analytical processes being given under each substance without any attempt being made to differentiate the good from the bad. This objection cannot, however, be urged in the present instance, for Dr. Lewkowitsch's book bears throughout the stamp of a writer thoroughly conversant with the details of the subject to which it relates. Under each heading the results of the more prominent workers are briefly summarised, attention being drawn to those processes which can be relied upon to give good results. For every-day work, or for occasional reference, this plan effects a great saving of time and trouble, and in the majority of cases experience shows that only processes of practical utility have been recommended.

FORMULAIRE DES SPÉCIALITÉS PHARMACEUTIQUES. By Dr. M. GAUTIER and F. RENAULT. Pp. 280. Price 3 francs. (J. B. Baillière et Fils, 12, rue Hautefeuille, Paris.)

The intention of this little book is to meet the growing tendency among medical men to prescribe special preparations. In the first part each preparation is mentioned under the names of the chief drug entering into its composition. Thus, under "Coca" occur "Vin antidiabétique Rabot," "Vin Delanoë," "Vin Auguet," "Vin Chevrier," "Vin Mariani à la coca du Péron," and "Thé Mariani à la Coca." The composition, so far as it is known, is stated in each case, and the therapeutic uses, method of administration, and doses are also given. Part two is devoted to an enumeration of the different specialities suitable for each ailment, and part three is simply a list of the preparations and their makers' names. The information given will doubtless be of value to pharmacists who are so unfortunate as to be called upon to stock and dispense these modern developments of the pharmaceutic art.

A DICTIONARY OF PHOTOGRAPHY. By E. J. WALL, F.R.P.S. Sixth Edition. Pp. 630, illustrated. Price 7*s*. 6*d*. (Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London. 1895.)

This is one of the most useful books the amateur or professional photographer can possess, for it will be found difficult to refer to it on any point connected with the science or art of photography without finding up-to-date information on that point. The conciseness with which the different matters are necessarily treated in nowise detracts from the value of the book, for the practical worker appreciates to the full the excision of all unnecessary verbiage in such compilations. In the Appendix, which occupies about a third of the book, details are given of plate-maker's formulæ, useful tables for calculating the time of exposure follow, then numerous other tables of specific gravities, thermometer scales, solubilities, speed of shutters, weights, measures, logarithms, etc., etc. A bibliography and a list of French and German synonyms conclude the volume, which must be seen and used to be appreciated as it deserves.

A STUDENTS' TEXT-BOOK OF BOTANY. BY SYDNEY H. VINES, M.A., D.Sc., F.R.S., Professor of Botany in the University of Oxford. Second half. Pp. 431 to 821. (Swan, Sonnenschein and Co., London. 1895.)

With the appearance of the second half of Professor Vines' work the student is provided with what for many years will no doubt prove the leading English work upon the science. The first half appeared more than a year ago, and dealt with morphological and anatomical questions. The latter part of it was given up to classification, the cryptogams chiefly being treated of. The present part continues the subject, and opens with a discussion of the chief features of the phanerogams. The special anatomical points peculiar to gymnosperms and angiosperms respectively are somewhat exhaustively treated, and their relations to the groups below them clearly shown. Indeed, in reading this section one is again impressed with the idea Professor Vines made so prominent in the earlier volume, that the vegetable kingdom can be shown to exhibit gradual and progressive evolution throughout, and that the violent

antithesis insisted on by the older botanists between cryptogams and phanerogams has no real foundation.

The differences between gametophyte and sporophyte are plainly set out, and the existence of the first-named under peculiar form in the phanerogams is emphasised. It is perhaps a little to be regretted that Professor Vines has not entered somewhat more fully in the present volume into the question of the formation or development of the seed, and the reason why no cryptogam possesses one, the matter turning as it does not on any radical difference in the life history of the two forms, but upon the conditions of growth and behaviour of the gametophyte with reference to the spore and the sporangium.

The chapter on the morphology of the flower in the angiosperms deserves a very careful study. Not only is it singularly full and stated in a very readable if not fascinating manner, but it shows very clearly the identity of plan running through the whole of phyllotaxy. The same laws of arrangement that have been ascertained in the case of vegetative organs are shown to be traceable through the whole series of floral ones, and the fact that the flower is a branch, and the inflorescence a branch system, is established. The greater prominence of whorled phyllotaxis instead of spiral or scattered really is the chief characteristic feature of the difference between the two.

In the more detailed consideration of the natural orders of flowering plants, Professor Vines is, perhaps, rather less successful. He has touched somewhat boldly one of the problems of classification, viz., the position of certain orders in the group Monochlamideæ, and has removed some of them into the higher groups. Thus we find Polygonaceæ transferred to the Menispermales, being associated in the same cohort with Berberidaceæ; Euphorbiaceæ, and its allies, generally included in the cohort Euphorbiales, have been transferred bodily to the Discifloræ. There is much to be said for this mode of treatment. The description of the natural orders is less formal than in most works on classification, but on the whole it seems more attractive on that account. A good feature is the matter given in small type after the diagnostic marks of the orders, in which peculiarities of genera and species which show particular individuality are carefully and fully set out. Most readers would have liked to see a little more about the geographical range of each natural order.

The last section of the book, consisting of about one hundred pages, is given up to physiology. This part is somewhat disappointing as coming from an author who is perhaps the first of English vegetable physiologists. The section proceeds rather on the lines of the old Prantl and Vines, and the author does not seem to have given himself a very free hand in treating the subject. He treats of the functions of the various systems of tissues, and passes thence to consider the functions of the members of the plant. The last section is very difficult to make plain, because there is so little absolute individuality about the members, one shading off into another with such ease, and the function of one being at any rate partially discharged by another in so many cases. The distinction between different organs and their functions which is so marked in the animal body is so little accentuated in the vegetable organism, where division of labour is not so exact as in the former case. In the latter part of this section Professor Vines is much more himself, the chapters on the special physiology of movement and of reproduction being worthy of careful study and analysis.

English students are now to be congratulated on the possession of a volume which, coming from an English author, at once does away with the reproach that botany in England is practically fostered by German ideas and thought.

CORRESPONDENCE.

[*Letters to the Editor should be written as concisely as possible, on one side of the paper only, and preferably with name and address for publication.*]

THE ACONITINE RESEARCH.

Sir,—In the report of the proceedings of the Pharmaceutical Council published in this day's Journal an incorrect inference may be drawn from the statement that upon Mr. Hampson's motion the Council went into committee to discuss the motion of which I had given notice, and that, on resuming, it appeared that my motion had not been seconded. I have in the past been a strong advocate for discussion in Committee, but in relation to recent investigations into the work of the Research Laboratory I have been convinced that every step in Committee has added to the confusion and helped to mask the truth. As soon as the motion to go into Committee was carried, I refused to proceed with my motion. I shall be glad, however, if you will allow me to place in parallel columns two sentences which refer to Professor Dunstan's claim to priority that he was the first to record the fact that the constitution of aconitine was acetyl-benzoyl-aconine, and to ask some questions suggested by their perusal. The first paragraph is from the "Special Report" of the Research Committee, and we are told in that report that during the investigation "the Director was present to answer questions and give any information required." The second paragraph is from the "Reply to Dr. Freund," by Professor Dunstan and Mr. Carr, reprinted in the Journal, June 8, page 1117, which paper six eminent men thought it wise to advise the Council to publish.

The Committee finds :—

3rd.—That Professor Dunstan and Mr. Carr's own *abstracts*, published before the appearance of Messrs. Freund and Beck's paper, contain the *complete* and *conclusive evidence* of the constitution of aconitine, namely, that it is acetyl-benzoyl-aconine.

Professor Dunstan states :—

This *third paper* contains the *only complete proof* which has hitherto been adduced that aconitine is acetyl-benzaconine, and it will be seen that it furnishes the results of estimations of acetic acid which, it was stated in our short paper published in the Proceedings nearly two months before, were in *process* of *being made*.

1st. If the "third paper," which was published nearly two months after the "abstracts," contains the "only complete proof" of the constitution of aconitine, in what way do the said abstracts contain the "complete and conclusive evidence" of the said constitution?

2nd. In following out a research is it customary for the investigator to take for granted that estimations which are "in process of being made" will furnish any predesired result?

3rd. If the estimations of acetic acid which were "in process of being made" had yielded a different result, would the abstracts still have contained the "complete and conclusive evidence of the constitution of aconitine, namely, that it is acetyl-benzoyl-aconine"?

A satisfactory solution of these questions is desirable because the Special Committee which reported to the Council on Wednesday also received the assistance and accepted the assurances of the Director of the Research Laboratory in framing thoir report.

Newcastle-on-Tyne, July 6. N. H. MARTIN.

PHARMACISTS AND THE GENERAL ELECTION.

Sir,—Kindly note the enclosed leaflet. Deputations of our Association (see report of meeting on page 44) have waited on and presented the same to our local Parliamentary candidates. I have also written to all the local secretaries and one of the principal chemists in thirty other towns where they have not one, in Devon and Cornwall, asking them to do likewise.

JAMES COCKS, *Hon. Sec.*,
The Plymouth, Devonport, Stonehouse and District Chemists' Association.

Plymouth, July 9, 1895.

[ENCLOSURE.]

We desire to lay before you certain anomalies in connection with our business, hoping you will give them your careful consideration as matters of great importance affecting both the safety and well-being of the public and Chemists as a class.

Dispensing of Poisons.—Since it is illegal for any but qualified men, or persons working directly under their supervision, to dispense poisons, it should be also illegal for any unqualified person to do so in a surgery or dispensary in the absence of the surgeon, whereas it is very rare that either in surgeries or dispensaries are qualified persons employed, but more frequently persons without either qualification or proper training.

Dispensers to P.L. Unions.—The necessity of calling the attention of the President of the Local Government Board to the recent lowering by that department of the standard of qualification to be possessed by dispensers to P.L. Unions. "*Vide* New Local G. B. Regulations, *Ph. Journal*, June 22, page 1178."

Parliamentary Action.—That Chemists as a class are specially trained and examined, who, from the character of their business, have necessarily to spend a very large proportion of their time in their business, and we trust that should any Bill affecting them come before Parliament, you will be in favour of giving them as large a measure of consideration in dealing in Drugs and Chemicals as possible.

Company Trading.—We wish to direct the attention of Parliament to the facilities which the Limited Liability Companies Acts offer for the formation of a "Company," consisting practically of one individual, for the purpose of evading the provisions of the Pharmacy Act of 1868.

Early Closing.—That our Association has passed a resolution in favour of being included in any Bill dealing with the question of compulsory early closing.

Sir,—I beg to acquaint you with the results of our most successful interviews with the parliamentary candidates for Plymouth (undertaken by F. Hunt, Local Sec., R. F. Roper, and myself, delegated by our local association) this morning. All the candidates received us most courteously, and promised to give any matters concerning retail chemists coming before Parliament their fullest consideration, as they were wholly in accord with the views as expressed in the circular laid before them and as enlarged upon by us.

Having regard to the examinations passed by us, they all admitted our professional status, which they considered entitled us to certain privileges that ought to be reserved and jealously safeguarded. One candidate expressed an opinion that the new Local Government Board regulation was an evident mistake, and the work of an official unacquainted with the Pharmacy Act. Another agreed that there was absolutely nothing in our statements with which he was not in cordial sympathy. All the candidates agreed that they required information on subjects relating to our interests, and suggested in case of any future proposed legislation that the members be further coached or "briefed" by the Pharmaceutical Society, local association, or individual members of the trade.

From the character of our reception, we can only hope that all candidates have been or will be interviewed in like manner. I am writing this in haste in an endeavour to catch the post in time, that you may be able if you see fit to make any comment in this week's issue of the Journal.

CHAS. J. PARK,
President of the Plymouth, Devonport, Stonehouse, and District Chemists' Association.

Plymouth, July 10, 1895.

QUALIFICATION OF PUBLIC DISPENSERS.

Sir,—Allow me to endorse your protest against the recent order of the Local Government Board *re* Union Dispensers. The inclusion of apothecaries' assistants and army compounders as being eligible for these appointments, thus placing them on an equal footing with pharmaceutical graduates, is so grossly unfair, that a protest in the name of chemists and druggists against this injustice should be made. The apothecaries' assistants are not required to produce any evidence of training before examination, and the army compounder's training, so it appears, is limited to six months! I think it will be conceded that to allow a lesser qualification than that required for a retailer of poisons is very retrogressive, nay more, very risky, for an official occupying the very onerous and responsible post of dispenser in the public service. The Prison Commissioners accept as dispensers none but qualified chemists and druggists; this order of the Local Government Board would lead one to infer that the Government consider a pauper of less importance than a felon! Your contemporary, the *Chemist and Druggist*, in a leading article last week on the above subject, entitled "Pharmacy Below Par," remarks, "Chemists and druggists in Great Britain and pharmaceutical chemists in Ireland cannot surely regard with equanimity a Government department's estimation of statutory pharmaceutical qualifications which places them on a level with apothecaries' assistants and army compounders. It is of the highest importance to the interests of pharmacy that Government departments should be made to appreciate the difference between the qualifications sanctioned by the Pharmacy Acts and those minor qualifications which are not the subject of an enactment." I feel that this protest has the right ring, and am glad that the Pharmaceutical Council intends making timely representations on the subject. In the meanwhile, I think it is high time that the misleading name of "Minor" given to the Society's qualifying examination should be abolished, and a more adequate title such as "qualifying," or examination for the "Licence" be substituted. The name "preliminary" has been done away with, and "First" examination is now used. Let justice be done in this instance to qualified men, and let the unfair minimising of the Society's qualification in the eyes of the public and authorities, by the Society's own nomenclature, be a thing of the past. The "Major" examination is essentially an "honours" examination, and might be called so, or examination for the "Membership," always, however, letting it be known that the "Chemists and Druggists" examination confers the legal qualification. A step of this nature will do more to right us with the public and authorities than any one act the Society is capable of doing, and this without going outside its legitimate functions.

"POOR LAW DISPENSER."

NOTES AND NEWS.

Pharmaceutical Council Meeting.—Mr. Robert Hampson, Treasurer to the Pharmaceutical Society, draws attention to the fact that his name was inadvertently omitted from the list of those present at the Council meeting on Wednesday, July 3.

Pharmacists and the General Election.—The *Western Daily Mercury*, commenting on the proposal of Mr. R. H. Rendle, C.C., to put pressure on the local Parliamentary candidates, so as to secure that all preparations of the British Pharmacopœia shall be retailed by registered chemists only (see p. 42), approves of the "firmness displayed by the President (Mr. C. J. Park) in giving his casting vote against what to thinking persons must appear an outrageous proposal. Imagine the absurdity of restricting the sale of articles of every-day use, like salts, borax, castor oil, vinegar, seidlitz powders, and other simple drugs, too numerous to mention, to chemists only." It is acknowledged that the chemist is undoubtedly entitled to a certain amount of consideration, in view of his experience, training, and professional standing; and that had a proposition been brought forward suggesting that certain of the higher-class chemicals and dangerous drugs, requiring skill in handling, should be taken out of the hands of ordinary shopkeepers and sold exclusively by chemists, it would doubtless have commanded general approval on the part of the public. "But such a sweeping measure as Mr. Rendel wishes to see carried would have no chance in Parliament, and could serve no useful purpose. Let all the restrictions required by considerations of public safety be imposed by all means, but needless meddling with one trade in favour of another is not to be tolerated."

Royal Photographic Society.—We are asked to state that the rooms of the Royal Photographic Society at 12, Hanover Square, will be closed from July 20 to August 17, inclusive. Works intended for the Society's fortieth annual exhibition should be delivered at Hanover Square on or before September 14, or at 5A, Pall Mall, East, on September 17. Copies of the prospectus and entry form can be obtained from the assistant-secretary, Mr. R. Child Bayley, at the Society's rooms.

'Natural Science' and the "Challenger" Expedition.—It is stated that Mr. Gladstone has written from Hawarden to the editor of *Natural Science*, offering his best thanks to the editor for the singularly interesting number dealing with the "Challenger" expedition, which has been forwarded to him. The expedition was promoted and despatched during the right hon. gentleman's first administration. Hence, doubtless, the cause of the interest shown in the matter. The enterprise of our contemporary appears to have met with deserved success, for the ordinary issue of the "Challenger" number was exhausted within a week of publication, and a second edition is being prepared as rapidly as the numerous plates permit.

New Bolivian Plants.—Ninety-nine species of new Bolivian plants are enumerated by Professor H. N. Rusby, of New York College of Pharmacy, in the 'Memoirs of the Torrey Botanical Club,' vol. iv., No. 3. Solanaceæ (13) and Orchidaceæ (15) are largely represented in this number. The Orchidaceæ have been described by M. Rolfe, of the Kew Herbarium, and the Scitamineæ, Bromeliaceæ, and Amaryllidaceæ by the well-known authority on those groups, Mr. J. G. Baker, F.R.S. Fasciculi of these plants are being issued by Professor Rusby.

Proposed Huxley Memorial.—The authorities of Charing Cross Hospital have determined to raise a permanent memorial to Professor Huxley, who may with reason be described as one of the most distinguished students that ever passed through the medical school in connection with that institution. It is proposed to found, in connection with the school, an annual lecture, a science scholarship, and a medal, and the following committee has been formed to carry out the idea: Sir Joseph Fayrer, K.C.S.I., F.R.S., Sir Guyer Hunter, K.C.M.G. (both old friends and fellow-students of Professor Huxley at the Charing Cross School), Dr. Watt Black (hon.-treasurer), Mr. J. H. Morgan, Mr. Stanley Boyd, Dr. Montague Murray, and Mr. H. F. Waterhouse (hon.-secretary). Subscriptions will be received and acknowledged by Dr. Watt Black, at the Charing Cross Hospital Medical School.

"Science Progress" and the Spread of Tuberculosis.—In *Science Progress* for July, Dr. Sidney Martin, whose name, by the way, is not distinguished in the list of contents with the magic letters "F.R.S.," leads off by summing up the pathological results of the Royal Commission on Tuberculosis. The sources of infection of the disease are shown to be either the discharges or secretions of tuberculous organs, or tuberculous lesions removed in cases of natural tuberculosis in man or animals. Sputum and milk rank at the head of the first class, the majority of cases of ingestion tuberculosis in children being probably due to milk from tuberculous cows. Dried sputum appears to be responsible for most of the cases of primary lung tuberculosis. Meat from diseased organs is another source of danger, but the risk in the case of both milk and meat can be minimised or even completely eliminated by cooking. The main risk, therefore, attaches to the dispersion of dried sputum, and this can only be reduced by educating people to destroy infective material of such potency. By carefully boiling milk, properly cooking meat, and totally destroying all sputum from infected persons, the spread of tuberculosis will be gradually but surely checked in the course of time. In addition to this interesting and valuable article, there is also an important paper by Dr. W. D. Halliburton on the formation of lymph in this number of *Science Progress*, and Mr. A. C. Seward contributes one on a type of Palæozoic plants.

Federation of Local Pharmaceutical Associations.—We are informed by the honorary secretary, Mr. Chas. Thompson, that arrangements have been made to hold the second annual meeting of this Federation at the Hotel Mont Doré, Bournemouth, on Friday August 2, at 9.30 a.m. An executive meeting will he held on the previous Wednesday evening. The arrangements will thus conveniently fit in with those of the British Pharmaceutical Conference.

British Medical Association.—At the annual meeting of this Association, Drs. Klein, Washbourn, Charteris, Tirard, Hewlett, and Lennox Browne, Professor Fraser, and others, have promised to take part in a discussion upon serum-therapeutics, which has been arranged to take place in the section on pharmacology and therapeutics, on July 31. There will also be a discussion upon the requirements of the medical profession with reference to the revision of the British Pharmacopœia on August 1, when Drs. Leech, Page, Hale White, Tirard, Charteris, and Stockman, and Professors Fraser, MacAlister, and Bradbury are expected to speak. Dr. C. R. Illingworth has promised a paper on "Tabloids, Tabellæ, etc., their Uses and Abuses." The meetings of this section will be held in the East Wing Room, on the Ground Floor of the Conjoin. Examination Hall.

THE MECCA PILGRIMAGE.—Last week, the *British Medical Journal* announced that the Egyptian pilgrims to Mecca, after passing fifteen days in quarantine at El Tor, will be required to undergo another period of three days' observation in a new camp before being allowed to land at Suez. In connection with this, we understand from Professor Attfield, that his son Dr. D. H. Attfield, M.A. Cantab., English Quarantine Medical Officer of the Egyptian Government at Suez, who last year during the Mecca Pilgrimage months filled the post of Sub-Director of the Quarantine Camp at El Tor, has this year during the similar period, been appointed the Chief Director of the extra Egyptian Camp at Ras Mallap.

TINCTURE OF CUSPARIA.—Sir James Sawyer advocates the inclusion of a spirituous tincture of cusparia in the Pharmacopœia. He points out (*Lancet*), that we are not too well supplied with mildly aromatic non-astringent bitter tinctures, and considers that cusparia has been neglected, whilst its watery infusion does not represent the full value of the drug. He has been in the habit of prescribing a tincture made from two and a half ounces of the bark with one pint of proof spirit.

BRITISH PHARMACEUTICAL CONFERENCE.—The first list of papers promised for the Bournemouth Meeting of the British Pharmaceutical Conference is as follows:—

1. "Glycerin Tincture of Cinchona," by Frederick Davis, B.Sc.
2. "Report on Sandal Wood Oil," by Ernest J. Parry, B.Sc.
3. "Report on the Strength of Commercial Samples of B.P. Alkaloidal Tinctures," by E. H. Farr, F.C.S., and R. Wright, F.C.S.
4. "Note on the Relative Strength of the Tincture, Liniment, and Chloroform of Belladonna and Aconite," by R. Wright, F.C.S.
5. "The Volumetric Solutions of the British Pharmacopœia," by W. Elborne, B.A., F.L.S.
6. "The Weights and Measures of the British Pharmacopœia *versus* the Metric System," by W. Elborne, B.A., F.L.S.
7. "Oil of Scotch Fir (*Pinus sylvestris*)" by John C. Umney, F.C.S
8. "Quality of Commercial Powder of Ipecacuanha," by Prof. H. G. Greenish.
9. "Notes on Ipecacuanha," by R. A. Cripps, F.I.C.
10. "Syrupus Hypophos. Co., B.P.C.," by W. A. H. Naylor.

ADVERTISING EXTRAORDINARY.—*To-Day*, in a recent issue, directed attention to the peculiar procedure of the "Star" Veterinary Medicine Manufacturing Company, which, it appears, sends its medicine chests to strangers, on the chance of their being accepted. A very lengthy letter has since been received from Mr. Gray, who describes himself as Principal Consulting Veterinary Surgeon to the company, in which he protests against the remarks made. Mr. Gray can see nothing objectionable in the procedure of the company, first, because the person to whom the medicine is sent may return it if he chooses, and next, because the medicine is good: but *To-Day* does not agree with him. "If the medicine is the very excellent and famous preparation he says it is, there is the less excuse for sending it to people who have not asked for it. Mr. Gray says they can return it without expense to themselves. Perhaps, but the law does not require them to take the trouble to return it, and [they ought not to be subjected to the annoyance of having to get rid of goods they never asked for, and do not want."

ENGLISH NEWS.

[Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.]

DARK-ROOM AT BAWTRY.—Mr. T. W. Nettleship, chemist and druggist, of Market Place, Bawtry, has fitted up a new dark-room, the use of which is free to customers.

PLYMOUTH AND DISTRICT CHEMISTS' ASSOCIATION.—The quarterly meeting of this Association was held at the Foresters' Hall, Plymouth, on Wednesday, July 3. Among those present were C. J. Park (president, in the chair), F. Maitland, E. Green, H. D. Davey, J. G. Netting, R. H. Rendle, R. F. Roper, Condy U'Ren, N. D. Breeze, W. H. Woods, P. A. Kelly, J. D. Turney, J. Hamey Bailey (hon. treasurer), James Cocks (hon. sec.). After the general business and election of new members, it was unanimously decided to join the Federation of Local Pharmaceutical Associations of Great Britain, the President for the time being the delegate to represent the association at such meetings as might be called. In response to a strongly expressed desire, the Excursion Committee agreed to extend the time for purchasing tickets for the annual outing to Lidford.

Mr. J. D. Turney next introduced a discussion on "Night Charges for Dispensing," and after an animated discussion in which nearly all present took part, he moved the following resolution which was carried unanimously:—

> That this meeting considers it advisable that an extra charge (over and above the ordinary dispensing charge), of 50 per cent. be made for each article dispensed between the hours of midnight and 6 a.m.

Mr. R. H. Rendle, C.C, moved the following:—

> To consider the advisability of bringing pressure to bear on Parliamentary candidates at the ensuing election, that all B.P. preparations should be retailed by chemists (registered) only.

After a prolonged discussion the following amendment was proposed by Mr. R. F. Roper:—

> That the Committee be asked to approach the local candidates for Parliament, with a view of laying before them the general condition of our business, and that in any Bill brought before Parliament affecting them, as large a measure of protection as possible should be granted them.

The amendment was carried by the casting vote of the Chairman, after an exhaustive discussion on the various pros and cons., all feeling it was time chemists tried to improve matters somehow. The usual votes of thanks terminated a somewhat lengthy meeting.

SALE OF FOOD AND DRUGS ACT.—Richard Holt, of Liverpool Road, Stoke, described as a chemist, but not on the Register for 1895, was summoned at the Stoke County Police Court last week, for selling white wine vinegar diluted with acetic acid, and fined 40*s.* and costs.

THE AFFILIATION OF PHOTOGRAPHIC SOCIETIES.—A conference of secretaries of London photographic societies was held at No. 12, Hanover Square, on June 26, Mr. C. H. Oakden (South London Photographic Society) in the chair. A long discussion took place upon the steps to be taken with a view to prevent the numerous exhibitions held in London clashing so much as they had done in former years, and a course to be pursued with that end was finally decided upon. It having been suggested that most of the London societies had one or more members who would be willing to give a lecture or demonstration before another affiliated society in return for a similar service to their own society, one or two exchanges were arranged for on the spot, and each of the secretaries present expressed their belief that they had one or more members who would be willing to co-operate. It was proposed by Mr. Panting (Woolwich Photographic Society), seconded by Mr. Everitt (London and Provincial Photographic Association), and carried, that out-of-pocket expenses shall be paid by the society receiving the demonstration. A discussion took place upon the suggestion that means should be taken to prevent members who gave trouble in the matter

of paying their subscriptions or otherwise from being elected as members of other affiliated societies, and steps were taken to carry out that idea. It was agreed that the conference should be called together again during the first or second week in September.

Poisoning Case at Jarrow.—At the Jarrow Police Court, on July 3, before Mr. Coroner Graham, an adjourned inquiry was held into the circumstances attending the death of William Urquhart, 56 years of age, a fitter, who lived at 93, Tyne Street, Jarrow. The former evidence, which was read over, was to the effect that the deceased had been confined to his bed for about eighteen months. Nothing unusual was noticed in his appearance until about 5 p.m. on the 6th ult., when he became suddenly ill, and died shortly afterwards. When Walter Urquhart, the son, returned home in the evening his mother told him that his father was dead, and she was going to poison herself. His mother had frequently told him that she would poison his father and herself. — The prisoner here interrupted the coroner and said that she would not have poisoned her husband had he not been willing.—In reply to his mother witness said that on several occasions he had heard his father say that he wished he was dead.—Sergeant Walton said that prisoner said to him, "I have poisoned him; he would not take it himself; I have tried him for a long time, as he would not go to the Infirmary, and I was obliged to do something." At the police station she said, in reply to the charge of having murdered her husband, "There was no malice; we were as friendly as could be; I kissed him after he took it. I then said to him, 'You will now be soon clear of your pain,' and he died shortly afterwards. He mixed it himself on the bed, and after he took it he said 'I feel funny,' and died immediately."

Several witnesses deposed to prisoner telling them that she had got the poison, and was going to poison her husband and herself.

Mr. R. Clarke, registered chemist, Jarrow, said that on the 5th ult., at a quarter to seven o'clock, Mrs. Urquhart called at his shop, and asked for a packet of rat poison. He asked what she was going to do with it, and she replied, "Kill mice." He supplied her with a packet of vermin killer which contained about twenty grains of strychnine. He entered it in the book for the sale of poisons, and she signed it with her proper name and address. She then went away, but returned the following day, and asked for another packet, saying she had thrown the other one away. As she was under the influence of drink he did not give her another packet.

Mr. J. D. Rose, registered chemist, said Elizabeth Urquhart called at his shop on the 6th ult., between 2.15 and 2.45 p.m., and asked his apprentice for a "threepenny packet of strychnine or arsenic for killing mice." He was at once called to the counter, and she requested him to supply her with a powder for killing mice. He saw at a glance that she was not a fit and proper person to be trusted with the most harmless of poisons, so he informed her he had not such a thing, and could not supply her wants. She would not accept his negative reply to her request, and so stubborn was she that after some prevarication he was induced, for the sake of quietness, and to avoid any unpleasantness, to supply her with a harmless substitute for the poison she asked for. He gave her a small package containing powdered gentian root. To this he attached a blank poison label, upon which he wrote the words, "For mice." Not feeling satisfied that her desire was to destroy vermin, with the object of testing her bonâ fides, he entered this transaction in an old disused sale of poisons register, to which he requested her to sign her name. This she did with no hesitation. The whole affair took place in the presence of his apprentice.

Mr. T. Keating Stock deposed to analysing the contents of the stomach of the deceased and finding a quantity of strychnine.

The Coroner, having summed up the evidence, the jury returned a verdict of "Wilful murder" against the prisoner, and she was committed to take her trial at the next Assizes.

Newfoundland and North Mexican Plants for the Kew Herbarium.—The *Kew Bulletin* reports that, through Dr. B. L. Robinson, Curator of the Gray Herbarium, Harvard, Kew has received a set of about 260 species of dried plants, including a number not recorded from the island in any of the existing lists, the most complete of which is embodied in Macoun's 'Catalogue of Canadian Plants.' One of the most striking features in the relatively poor flora of Newfoundland is formed by the numerous Vacciniaceæ and Ericaceæ, especially the prostrate, shrubby, berry-bearing kinds, which clothe the swamps and open woods. Macoun enumerates upwards of twenty species belonging to the two natural orders in question. Kew has also acquired by purchase a collection of dried plants, numbering about 550 species, collected by Dr. C. Lumholtz. They are from the Sierra Madre region in the north-west, where Seemann collected forty-five years ago. There is a considerable number of novelties, including a *Pinus* and a *Bravoa*—Amaryllidaceæ.

Sale of Proprietary Ointment Unstamped.—Mr. Edwin Croft Middleton, of Burlington Lane, Chiswick, was summoned, before Mr. Curtis-Bennett, for selling medicine without a stamp, and also without a licence. It was proved that an officer purchased a box of Universal Ointment, with a label on it giving instructions how to use it, but the defendant contended that it was not liable to stamp duty, and said he had been in communication with the authorities, who told him that he could sell it. This was denied by Mr. Alp, and ultimately Mr. Curtis-Bennett adjourned the summons for the defendant to take out a licence, and said that on the next occasion he would deal with the charge of selling the medicine unstamped.

Does Beeswax Come Under the Sale of Food and Drugs Act?—Mr. A. H. Allen, public analyst to the West Riding County Council, has come upon another anomaly in connection with the legislation to prevent adulteration of food. In his last report to the authorities he says wax appears for the first time among the articles submitted to him for analysis. If an article is sold as beeswax it should, he thinks, consist of the wax made by bees, and there is no difficulty in regarding any admixture of paraffin, resin, etc., as an adulterant. But beeswax is certainly not a food, and unless it is to be used for external or internal human use it does not come within the definition of a drug, and hence is outside the Act. If instead of asking for beeswax, white wax be demanded, it appears doubtful whether any white wax, such as is used for making candles, does not comply with the demand of the purchaser who has not asked for and probably does not expect beeswax. These are merely instances of many difficulties attending the administration of the Act, and he hopes public analysts will have opportunity of explaining their views before the Select Committee on Food Products Adulteration before they report. Mr. Allen also states that during the quarter ending March he received, analysed and reported on 413 samples, five of which were received from independent sanitary authorities. He received no fewer than 156 samples of butter, of which 148 were genuine, two were of suspicious character, one consisted of margarine, and five contained a higher proportion of water than 16 per cent.—one as much as 31 per cent. The small number of samples containing an excess of water seemed to disprove the allegation that it is impossible to prevent the presence of excess of water in Irish butter. In none of the samples submitted was there any very glaring violation of the Act. One lot of ginger contained 30 per cent. of exhausted ginger; two lots of coffee had 30 and 50 per cent. of chicory respectively; some samples of tincture of rhubarb were deficient in alcohol; and wax samples contained 25, 40, and 70 per cent. of paraffin wax respectively.

Alleged Bogus Doctor.—P. S. Moore, of Chard, on Monday, arrested a man who is alleged to be a great impostor and a clever swindler. The Frome police have for some time been in search of a man who went by the name of Dr. John De Courcy Young, aged about seventy, on a charge of obtaining money by false pretences. P. S. Moore connected the description circulated with a gentleman who had been lately practising as a surgeon at Chard, under the name of Dr. Thomas Jones. Superintendent Rawlings handed the prisoner over to Sergeant Sharpe, of Frome, and he was then identified as Dr. De Courcy Young, *alias* Hunt. Jones circulated a statement in Chard that he had commenced practice in the town, and for a time he would give medicine and attendance to all patients for a shilling. He stated that he was formerly with Sir Andrew Clark, and had attended Royal patients, Mr. Gladstone, and other personages. Some time after he was arrested he stated that he had taken strychnine, and was going to die in the police cell, all the while feigning illness and contorting his face and limbs. A medical man was sent for, and declared that Jones was pretending, and that he was in a fit condition to be taken to Frome.

OUTING OF MESSRS. BRADY AND MARTIN'S EMPLOYÉS.—On Wednesday, June 26, the annual excursion of the firm of Messrs, Brady and Martin's employés and friends took place to Chollerford, on the North Tyne. A charming day and a lovely country ride were their lot. The head of the firm, Mr. N. H. Martin, F.L.S., with Mrs. Martin and Mr. and Mrs. Stuart, accompanied the party.

NEW SHOP OPENED.—Messrs, Walton and Co., chemists, of the Groat Market, Newcastle, have opened a branch business at Chester-le-Street,

BUSINESS CHANGE.—Mr. A. E. Davidson has succeeded to the business of Mr. Reid, in Sandyford Road, Newcastle. An external and internal renovation has rendered the premises much more worthy of the locality,

SCOTTISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

THE SALE OF GROUND GINGER IN GLASGOW. — In Glasgow Sheriff Court, on June 26, Sheriff Strachan gave his decision on the preliminary pleas raised in the prosecution at the instance of Peter Fyfe, sanitary inspector, against William Aitk'n, grocer, 475, New Keppochhill Road, who was charged with having, on May 1, sold to a sanitary inspector ¼ lb. of ground ginger, which, on analysis, was found to contain 20 per cent. of exhausted ginger. He said that the language of the 6th Section of the Food and Drugs Act, on which this complaint was founded, had been frequently animadverted on and very strongly condemned. In the case of Davidson *v.* M'Leod, Lord Justice-Clerk Moncrieff said that the case like the rest of the statutes on the subject was drawn obscurely and with great want of precision, and Lord Young said that the language of the clause was curiously inaccurate, for the enactment taken literally was that no person should sell to a purchaser another article than he purchased. This was manifestly unintelligible, and they found a meaning only by so changing the language as to make it signify that no person who had sold an article of one description should deliver an article of another description to the purchaser. This obscurity and want of precision in the statute might account for the fact that the complaint in this case was conspicuously marked by the same faults. One would have thought that the proper way to frame a charge under the statute would be to set forth that on a particular day a person demanded from the respondent a certain specified article, and that the respondent sold him an article different in nature, substance, and quality, inasmuch as it contained something which differentiated it from the article demanded. In the present complaint it was not said what it was that the person demanded, or what it was that he got. While it was distinctly stated that the article sold was ground ginger, the very foundation of the complaint was that what was sold was not ground ginger, but some substance essentially different. Curiously enough, this form of complaint, obscure and defective as it appeared to be, was a stereotyped form which had been used in such cases ever since the Act came into operation, and had been repeatedly before the High Court without objection. It was construed as meaning that the article sold was essentially different from the article demanded, but why this should not be expressed in definite and specific language it was very difficult to see. It was said on behalf of the respondent that, according to the complaint, the article demanded was ginger, while the article supplied was also stated to be ginger, so that on the face of the complaint itself the article sold and the article demanded were in nature and substance identical; while, according to the statute, they must be in these two respects at least different. From that arose the question whether, in order to constitute a revelant charge under the statute, it was necessary to allege the admixture of a foreign substance. For the necessity of such an averment there was unquestionably high authority. In the case referred to, Lord Moncrieff was of opinion that the statute was intended to strike only at the introduction of foreign substances. The view adopted by the majority of the Court, however, was that it must be left to the magistrate who tried the case to determine according to the particular circumstances of each case whether in point of fact the article sold was essentially different from the article demanded. He must hold this complaint to be relevant, because if it were well founded in point of fact the statutory offence had necessarily been committed. That it was true in fact the prosecutor undertook to establish, but how he was to do that and thereby solve the problem when ginger ceased to be ginger, was a matter with which, in the meantime, they had no concern. Then it was said that, assuming ground ginger to have been the article demanded, it was not said that any special quality was demanded, or that the demand for ground ginger without qualification implied a demand for something different from what was sold. For it might be that, notwithstanding the presence of the spent ginger in the article sold, it was not only in reality ground ginger, but was of such a quality that it sufficiently answered the demand for that article, no special or particular quality having been asked for. But that was a matter which could only be determined by the evidence. It would not be enough for the prosecutor merely to prove that the article sold contained 20 per cent. of spent or exhausted ginger. He must go further and satisfy him that it was so different in nature, substance, and quality that it could not in any reasonable sense be termed ground ginger. His Lordship fixed July 23 for hearing proof.

SUDDEN DEATH OF A DOCTOR.—Dr. Sloan, a son of the Rev. J. M. Sloan, of Edinburgh, who only commenced to practise in West Calder about six months ago, was found dead in bed on Wednesday, July 3, by his servant when she went to wake him in the morning. He had recently been much troubled by sciatica and neuralgia, and had been in the habit of using chloroform in order to obtain sleep. It seemed clear that he had made a fatal mistake in the use of the anæsthetic. The deceased was much respected in the district. He had a distinguished career in the Edinburgh University medical classes, and was a gold medallist of Glasgow University. He was to have been married this month.

DRUGGING OF CHILDREN. — At the Edinburgh Sheriff Summary Court on Saturday, July 6, before Sheriff Orphoot, a middle-aged woman named Margaret White was charged with assaulting her two children—George, eight years, and Peter, six years—by beating them, and with having drugged George with chloroform in a manner calculated to injure his health. There was a previous conviction for a similar offence in November, 1894. The Sheriff said it was impossible to give a light sentence in view of the previous conviction, and she was sentenced to three months' imprisonment.

ATTEMPTED SUICIDE AT THE POLICE OFFICE.—At the Edinburgh Police Court on Saturday, July 6, Catherine Cook or Burgess pleaded guilty to having, on July 2, in the waiting-room of the Central Police Office, attempted to commit suicide by drinking a quantity of sugar of lead. Dr. Williamson said the accused was perfectly sane, and appeared to have committed the act in consequence of some disappointment she had suffered. She was ordered to find caution of £2 for good behaviour or suffer ten days' imprisonment.

THE COD-LIVER OIL EMULSION CASE. — Sheriff-Substitute Rutherford has issued his judgment in the action recently before him in the Edinburgh Sheriff Court, in which David Middleton, chemist and druggist, 85, Bruntsfield Place, Edinburgh, sued J. M. Wilson and Co., chemists, 16, Leven Street, Edinburgh, to have them interdicted from substituting their own or any other cod-liver oil emulsion for that of the pursuer when ordered by medical prescription, and also for £50 as damages in respect of such substitution. The following is his Lordship's interlocutor :—

The Sheriff having heard Counsel for the parties and having considered the proof with the record, productions, and whole process, finds as a matter of fact (1) that the pursuer is the inventor and manufacturer of a medicinal preparation of cod-liver oil combined with other substances which is known and sold as "Middleton's Cod-Liver Oil Emulsion," and is prescribed by physicians in Edinburgh and elsewhere for their patients. (2) That in the month of March last, Dr. Alexander Veitch was attending professionally the witnesses Miss Isa Duncan and Charles Seggie, for each of whom he prescribed the pursuer's cod-liver oil emulsion as specified in the prescriptions. (3) That the said prescriptions were sent on 16th and 28th March respectively, to the defenders' shop in Leven Street, where they were handed to the defender, Mr. Patrick W. Wilson, to be dispensed. (4) That the defenders had not the pursuer's cod-liver oil emulsion in stock, and on each of the occasions aforesaid, the defender,

Mr. Patrick W. Wilson, who is not a qualified chemist, without informing the patients or Dr. Veitch, and without making any effort to procure the pursuer's emulsion, substituted therefor a preparation of cod-liver oil of the defenders' manufacture. (5) That on March 30 Dr. Veitch accidentally discovered that neither Miss Duncan nor Mr. Seggie had been supplied with the pursuer's emulsion, which he had prescribed for them, and in the course of the same day, accompanied by the pursuer, he called at the defenders' shop in Leven Street, where they saw Mr. Patrick Wilson, who, after some conversation upon the subject, undertook on behalf of the defenders to supply Miss Duncan and Mr. Seggie with the pursuer's emulsion, in compliance with Dr. Veitch's prescriptions, and to make an apology to the pursuer. (6) That the defenders thereafter procured from the pursuer two bottles of his emulsion, which were sent to Miss Duncan and Mr. Seggie respectively, but they have made no apology to the pursuer, and now decline to do so. Finds in fact (1) That the defenders acted wrongly in substituting a different preparation of cod-liver oil for the pursuer's emulsion specially prescribed by Dr. Veitch, and that the pursuer is entitled to interdict. (2) That he has not shown that he has sustained any specific pecuniary loss in the premises. Therefore repels the defences and grants interdict as craved in the prayer of the petition. *Quoad ultra* dismisses the action and decerns; finds the defenders liable to the pursuer in the expenses of process, and remits the account thereof when lodged to the auditor to be taxed according to the higher scale in the table of fees, and allows fees to Counsel, and to report.

In a note appended to his interlocutor, Sheriff Rutherford says, "Apart from the evidence in this case, the Sheriff-Substitute thinks there could hardly be any room for doubt that a druggist or pharmacist is not entitled to deviate from the instructions contained in the written prescription by a medical practitioner, but is bound to comply with them literally and implicitly, and the evidence with reference to the matter is all to the same effect. An attempt was made on the part of the defenders to show that the prescriptions were not to be regarded as true prescriptions, but this contention is inconsistent with the testimony of their own witnesses, Mr. Laird and Mr. Heron, and with the other evidence in the case. But then it was maintained for the defenders that although the patient or the doctor might be entitled to complain of the substitution of a different article for that contained in the prescription, the pursuer had no *locus standi* with reference to the matter. The Sheriff-Substitute cannot adopt that view. It is manifest that by the substitution of another article for that which has been prescribed by the doctor the medicine prescribed may lose credit and reputation, to the great loss of the manufacturer. The Sheriff-Substitute is, therefore, of opinion that the pursuer is entitled to interdict. But pursuer's Counsel did not press his claim for damages, and it is not proved that any loss has been sustained by the pursuer."

EDINBURGH PHARMACY ATHLETIC CLUB.—The programme for the season 1895 96 has just been issued. The Cricket section, conducted by Messrs. W. D. Jameson and D. S. Murray, plays in West Meadows on Mondays and Fridays at 6 a.m. The Cycling section is conducted by Messrs. W. B. Cowie and D. Leitch, by whom runs are arranged for during the season. The Golfing section is conducted by Mr. T. Welsh. The "T. and H. Smith Challenge Trophy" will be played for at the Braid Hills course on July 20, and the "Dick Handicap Challenge Medal" (presented by Mr. R. Dick, of Messrs. Duncan, Flockhart and Co.) will be played for at the same place on July 27, at 6 a.m. The Swimming section, conducted by Messrs. Hamilton and Welsh, meets in the Corporation Baths, Infirmary Street, every Wednesday and Saturday, at 6.30 a.m. A two lengths' handicap race will take place at the Baths on July 16, at 7 a.m., for which entries may be made with the hon. secretary, Mr. J. P. Gibb, 8, Buccleuch Place, Edinburgh, who will furnish information on any part of the Club's work. There are also a Running section, conducted by Messrs. Gibb, Birnie, and Hogg, and a Rambling section, conducted by Messrs. Brown and Jameson.

MESSRS. T. AND H. SMITH AND CO.'S ANNUAL EXCURSION.—T. and H. Smith and Co.'s employés in the retail and wholesale departments at 21, Duke Street, Edinburgh, and the manufacturing department at Blandfield Works, held their annual excursion on Saturday. The company was favoured with magnificent weather, and after a delightful drive amid the splendid scenery of the Pentlands, a picnic was held at the Nether Hubbie's Howe, a charming spot in the heart of the Pentland Hills. Here the party dispersed themselves, some to hill climbing, other to field botany, and the more athletic section to cricket, football and tug of-war. After a most successful and enjoyable outing the company drove back to town, where they arrived about 10 p.m., all immensely delighted with the day's proceedings.

IRISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

THE PHARMACEUTICAL SOCIETY OF IRELAND *v.* FANNIN.—Mr. Swifte, in the course of his judgment in this case, said the will of Mr. Thomas Fannin made no allusion to his selling drugs. Dr. Whittaker, who was examined for the defence, proved that he obtained his degrees in the Colleges of Physicians and Surgeons in Edinburgh in 1880, that he had had sole control of the drug business since 1864; that he had had an interest in the profits since before Mr. Fannin's death; and that practically the drugs had been sold only to medical practitioners and nurses. He admitted that he had never taken out a diploma in pharmacy, and that he was not a registered chemist or druggist, nor a licentiate of the Apothecaries' Hall of Ireland. His certificate of having attended a three months' course in pharmacy had been produced. Dr. Whittaker further admitted that he had not personally sold the poisons—the subject of the summonses—and that they had been sold by an unqualified assistant. He also deposed that the late Mr. Fannin was not registered as a chemist. Mr. Booth was examined, and admitted that when Dr. Whittaker was away on vacation or otherwise there was no qualified person in charge of the drug business. Mr. Campbell, Q.C., for the defendants, claimed that his clients were within the spirit if not within the letter of the exemptions contained in the Irish Pharmacy Act of 1875. His first contention was that the defendants were partners, either with each other or with each other and Dr. Whittaker, and that the principle of the case of the Pharmaceutical Society of Great Britain *v.* the London and Provincial Supply Association, decided by the House of Lords in 1880, applied to the case of partners. He also cited the case of Bremridge *v.* Gray and others. But he (Mr. Swifte) had come to the conclusion that the principle of the House of Lords case did not apply to an ordinary partnership. He had the authority for that of Lord Justice Lindley in his work on "Partnership," at page 20. Independently of these authorities, however, he was of opinion that there was no partnership in the present case, and that Dr. Whittaker was a paid servant. What was the late Mr. Fannin's legal position in his lifetime as to the sale of poisons? He was in business as a vendor of drugs since 1864. In that year and down to 1870, he could sell poisons unrestrictedly except arsenic; as to which, under the Arsenic Act of 1851, being still in full force, he had when selling it to observe special provisions. Then came the Irish Act of 1870, the 33rd and 34th Victoria, chap. 26, which directed somewhat similar precautions as in the case of arsenic to be observed in the sale of a number of other specified poisons, but still left everyone otherwise free to merely sell them. It was the Act of 1875 which first required in that country certain personal qualifications in the sellers of poisons, but that enactment did not affect Mr. Fannin, who was exempted from the penalties of Section 30 by the saving clause in Section 31, with regard to the business of chemists or druggists practising in Ireland on their own account at the time of the passing of the Act. The clause, however, did not extend to permitting him to compound poisons or medical prescriptions. Now, the qualified permission given to the personal representatives of "pharmaceutical chemists" and "chemists and druggists" respectively, actually in business at the time of death, was expressly limited to the case of a person "registered" in either of those characters under the Act. Section 22 stated how persons might become registered, and it did not appear that Mr. Fannin could have been so registered without passing the examination prescribed by Section 21. It was admitted that he never was registered. It seemed plain that he was entitled to carry on his business up to 1888, when he died, but that if he wished to have the power of making it transmissible under Section 32, he should have had himself registered under the Act either as a "pharmaceutical chemist" or a "chemist and druggist." If he had lived until after the passing of the Irish Pharmacy Amend-

ment Act of 1890, he would, under its 6th Section, have lost the immunity which the 31st Section of the Act of 1875 gave him, and he would have been obliged to get himself registered under the Section 6 of the Act of 1890 as a "chemist and druggist," if he wished to continue to sell poisons; but that he could have done without passing any examination, whilst on the other hand there was no provision in that Act making his business transmissible. Mr. Campbell contended that his clients were within the equity, as he called it, of Section 32, on the ground that as Mr. Fannin was in no default in not getting himself registered under the Act of 1875, since he was not obliged to do so, as he died two years before the Act of 1890 made registration compulsory, he should be looked on as if he had in effect been registered under the earlier Act. He (Mr. Swifte) confessed he could not adopt that argument. There was the further point that even if Mr. Fannin had been duly registered under the Act of 1875, Dr. Whittaker did not possess the special qualification required by the 32nd Section for a "duly qualified assistant" because he was not a "pharmaceutical chemist, or a chemist and druggist registered as such" under that Act. Apparently, Mr. Campbell wanted to have the equity doctrine of *cy pres* imported into that criminal prosecution, for he asked him (Mr. Swifte) to hold that because Dr. Whittaker was qualified as a physician and surgeon, and had passed a course in chemistry, he satisfied the requirement of Section 32 as to "duly qualified assistant." That he could not do. Mr. Campbell had contended that as Mrs. Fannin could not be registered under the Act she should be held to be exempt from its operation on the principle adopted in the House of Lords case. But a regulation was made by the Council in February, 1877, admitting women to the examinations for pharmaceutical chemists, and soon after the passing of the Amendment Act of 1890, another regulation was passed admitting them to the registered druggists' examination, and the Society's calendar contained the names of about a dozen women. His Worship, in conclusion, said that Section 32 of the Irish Pharmacy Act, 1875, only applied to the representatives of pharmaceutical chemists or druggists who had been registered as such during their lifetime. He must therefore convict the defendants, but as he had power under the 63rd Section of the Dublin Police Act to mitigate the penalty in these cases, he would impose on the defendants the mitigated fine of £3, with 10*s.* costs, in each case, making a total of ten guineas. He took that course mainly on the ground that the issue to be tried might have been disposed of by one summons instead of three.

PHARMACEUTICAL SOCIETY OF IRELAND.—The monthly meeting of the Council was held on Wednesday, the 3rd instant, at the Society's House, 67, Lower Mount Street, Dublin. The president, Mr. William Hayes, was in the chair, and the other members of the Council present were the Vice-President, Mr. Beggs, Professor Tichborne, and Messrs. Charles Evans, Baxter (Coleraine), Whitla (Monaghan), Charles Evans, Bernard, Regan, and Downes.

The President reported that the summonses against Mr. and Miss Jones, at Roscommon Sessions, for selling poisons without being qualified, and without the parcels being labelled according to the Poisons Act, had been dismissed by the magistrates because they did not consider that the defendants had been proved to be the owners of the premises where the goods had been sold. Under the advice of Mr. R. K. Clay, the Society's solicitor, the Registrar had instructed Mr. Whelan, the Society's local solicitor, to call on the magistrates to state a case for the opinion of the Exchequer Division of the High Court in Dublin. In the Dublin police court Mr. Swifte, in an excellent judgment, which showed that he thoroughly knew the law, had decided in the Society's favour against the Messrs. Fannin, and he (President) believed he expressed the opinion of the Council when he told the magistrate that they were quite satisfied with his decision.

Mr. Downes expressed regret that Mr. Swifte had not been pressed to make a more liberal allowance for costs than 10*s.* in each of the three cases. He believed their costs in that case amounted to about £15. It was not an accidental sale. They had been for twelve months pressing the Messrs. Fannin to discontinue the sale of those preparations.

Mr. Baxter was of opinion that the President deserved their thanks for the way in which he spoke to the magistrate.

A letter from Mr. E. M. Hodgson, who had been Honorary Treasurer to the Society since its establishment, but who recently sent in a letter of resignation of his office of Treasurer and his seat on the Council, intimated that he would comply with the request of the Council to continue in office until the end of the financial year on the understanding that he should then be relieved from duty.

The Vice-President, Professor Tichborne, and Messrs. Wells, Baxter, and Payne were named as delegates to attend the approaching Annual Pharmaceutical Conference.

Sergeant Long, R.I.C., reported that at Arva Petty Sessions, Mr. Bernard Reilly, chemist and druggist, had been fined 1*s*, with 1*s.* costs, for breaches of the 17th Section of the Irish Pharmacy Amendment Act, 1890, and of the Sale of Poisons Act.

Professor Tichborne: It seems an absurd fine.

A letter from Mr. Bremridge, Secretary of the Pharmaceutical Society of Great Britain, informed the Council that no permission had been granted by that Society to any unregistered person in Scotland or elsewhere to sell "Robertson's Scab Cure."

The President: We have already told Mr. Robertson that he cannot sell it here without incurring legal proceedings.

A letter from Dr. R. R. Rentoul, of Liverpool, called the attention of the Council to the provisions of the Midwives' Registration Bill, now before the House of Lords.

The Vice-President: The Bill does not apply to Ireland. We have nothing to do with it.

A letter from Mr. W. J. Wells, Junr., thanked the Council for their resolution of sympathy with him on the occasion of the severe accident which had befallen him, and said his medical advisers had every hope that his sight would be restored.

The President: Mr. Wells is now able to go out, but he cannot attend to business yet.

On the motion of the President, seconded by the Vice-President, Mr. F. J. T. Jackson, of Mirrion, Dublin, was admitted a member; and on the motion of the President, seconded by the Vice-President, Messrs. W. A. Synass, Belfast, and P. J. Fielding, Cork, were nominated for membership.

Other business having been disposed of the Council adjourned.

PHARMACEUTICAL EXAMINATION IN IRELAND.—At an examination for the qualification of assistants to pharmaceutical chemists, the following passed:—Messrs. H. J. Gorman, G. T. Nagle, and J. R. Wilson.

WELSH NEWS.

[Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.]

HICKS AND COMPANY, LIMITED.—The annual meeting of the shareholders of Messrs. Hicks and Company, Limited, wholesale and retail chemists, Cardiff, was held at the registered offices of the Company, Queen Street, Cardiff, on Thursday last. Dr. Sheen presided, and the other directors present were Mr. W. J. Thomas, Aberdare; Mr. W. T. Hicks, managing director; and Mr. Alfred Coleman. There was only a small attendance of shareholders. The Chairman, in moving the adoption of the report and statement of accounts, a summary of which appeared in this Journal last week, stated that since the last meeting they had acquired the business of Alderman Yorath at Canton, and to provide the capital for this extension they proposed to issue a further amount in preference shares. These would in the first instance be offered to the existing shareholders, and the unsubscribed balance would then be offered to the public. The freehold property of the Company was increasing in value, and was now worth nearly double the amount stated in the balance-sheet. Mr. A. Coleman seconded the motion, and it was unanimously carried. On the proposition of the Chairman it was decided to pay the dividend of 6 per cent. on the Preference shares, and a dividend at the rate of 5 per cent. per annum on the Ordinary shares. Mr. A. Coleman was re-elected a director. The retiring auditors, Messrs. Clarke and Dovey, were also re-elected. Votes of thanks to the Chairman and officials terminated the proceedings.

NEATH BOROUGH ANALYST.—At the monthly meeting of the Neath Town Council, held on Thursday last, applications for the position of Borough Analyst were considered from Mr. Rhys Charles, Neath; Mr. John Ruffle, Neath; and Mr. Seyler, B.Sc., Swansea. The vacancy was caused by the death of Dr. Morgan, with whose relatives a vote of condolence was passed. After some discussion it was resolved, on the motion of Councillor Trick, to appoint Mr. Rhys Charles to the post.

FOREIGN NEWS.

[*From our Special Correspondents.*]

Death of an Old Pharmacien.—The funeral took place this week of the oldest-established pharmacien in Paris, M. Arnaud, who had been actively engaged in business for forty years in the Rue Montmartre up to his death—in a pharmacy established in 1760. M. Arnaud was appointed, during the Franco-Prussian war, chief pharmacien to the Ambulance Corps. He was greatly respected in his quarter. A large gathering assembled to pay the last tribute of respect to his memory. M. Arnaud is the father of Dr. Lucien Arnaud, late House Surgeon of the Hospital St. Lazare.

The Ageing of Alcohol by Artificial Means.—As the subject of alcohol is occupying a great deal of attention in France owing to new measures being passed in the Senate for placing the manufacture under State control, a few remarks may not be out of place on the methods adopted by some firms for artificially ageing alcohol, and notably brandy. The ordinary method of spraying the spirit into an atmosphere of oxygen, though improving it, without, however, giving it the qualities of age, has been greatly improved by M. Villon, whose process is as follows:—The spirit is heated to a temperature of 70°C., oxygen is then pumped in at a pressure of five to six atmospheres, and care is taken to maintain the pressure during twelve hours, the liquid being agitated from time to time. The spirit is then drawn off and allowed to repose for a week, when the operation is repeated. Better results are obtained by again subjecting it to the same process after the interval of a week. The advantages of this method are that all traces of fusel oil are destroyed, without deteriorating the aroma of the spirit, at a trifling cost.

Reception in Honour of Dr. Roux.—At the Hôtel de Ville, Paris, on July 5, a reception took place which had been arranged in honour of Doctor Roux, whose scientific discoveries have done so much to mitigate the dangers of diphtheria. M. Pasteur, owing to the state of his health, was unable to be present, so sent a letter of apology, which was read, after which M. Rousselle, the President of the Municipal Council, addressing Doctor Roux, expressed his appreciation of the eminent services that he had rendered. He spoke of his labours at the Laboratory in the Rue d'Ulm, where, under the direction of M. Pasteur, whose absence he so much regretted, he had carried his investigations into the domain of microbian science, with such admirable results. Thanks to his discoveries, the mortality among diphtheritic patients, which had previously amounted to 50 per cent., had fallen to 12 per cent., and they had reason to hope that it might yet diminish to a considerable extent. The influence of the Pasteur Institute on the world had been such that foreign men of science who wished to work in its laboratories were obliged to secure places three or four years before they could take them. After complimenting Dr. Roux in the warmest terms on the example of disinterestedness and devotion to science that he had set, the President of the Municipal Council presented him with a medal, in the name of the city of Paris. A speech from the President of the Council General and the presentation of another medal followed, and then Dr. Roux expressed his acknowledgments in graceful and feeling terms.

Anti-Diphtheritic Serum.—As a supplement to the above brief account of the proceedings at the presentation last week of the two gold medals struck specially in honour of M. Roux, the distinguished collaborateur of M. Pasteur, for his discovery of the anti-diphtheritic serum, a few facts concerning the serum from a pharmaceutical point of view may not be uninteresting to readers of this Journal, now that it has become a stock article in every pharmacy. The fluid is bought direct from the Institut Pasteur, 18, Rue Dutot, Paris, where it is put up in phials containing 10 C.c. and 20 C.c., sealed and enclosed in wooden cases. It retains its properties if kept at a low temperature and excluded from light, a minute quantity of camphor being added as a preservative. It is a clear yellow fluid, and so long as it retains its limpidity is considered fit for use, and to have lost none of its virtues. The dose injected varies from 5 to 15 C.c. according to the age of the patient and the intensity of the attack, and is repeated if necessary every twelve hours. The injections are also made to immunise persons exposed to contagion. It may be added that the mortality from diphtheria since this discovery has fallen from 50 to 12 per cent., and there is every reason to believe that the rate will still diminish.

Digitalis and Digitalin.—At the Academy of Medecines, Dr. François Franck communicated the results of his clinical researches on the physiological action of digitalis as compared with the various digitalines ordinarily prescribed. He found that the crystalline digitalins as manufactured by Nativelle, Adrian, and Petit were identical in potency, and that the amorphous kind (Homolle and Quevenne) possesses at most only half the activity. On the other hand the German product, digitoxin, is three times more toxic, and he expressed his surprise that accidents do not occur in Germany, where a dose of 5 milligrammes of this substance (1/12 grain) is administered corresponding to a 1/4 grain of the French crystalline digitalin, the latter being prescribed in maximum doses of 1/60 grain (one milligramme) daily. In making use of a maceration of digitalis leaves gathered under favourable conditions, he found that 15 grains of the leaves is the equivalent in strength to from 1/12 to 1/10 grain of crystalline digitalin. He concludes, therefore, that the leaves are much more energetic than they are generally considered to be, and most probably contain some other actively toxic principles. His experiments show that the administration of large doses of the leaves as recently recommended by some writers is attended with danger, and he expressed his opinion that the dose of the crystallised digitalin may be advantageously increased (see *ante*. p. 29).

Ozone not a Microbicide.—Professor d'Arsonval, of the College of France, speaking at the Society of Biology, said that the prevalent idea of ozone being comparatively easy to produce in quantity is erroneous. On the contrary, an enormous electromotive power is essential to make even a small quantity, and it was estimated that a force represented by 21 tons was expended in order to prepare about 360 grains. Ozone can be prepared by M. Berthelot's method of flashing the spark of an electric coil between two receptacles containing water acidulated with sulphuric acid, but the results are very meagre. M. d'Arsonval, using his special apparatus, by means of which he was enabled to call into action rapidly alternating currents of high potentiality, succeeded in preparing notable quantities of ozone. In order to test the presumed microbicide power of this gas, he caused pyocyanic cultures of diphtheria and typhoid to be thoroughly exposed to the influence of an atmosphere composed of 43 per cent. of ozone during half an hour; at the lapse of this time the germs were still living. Hence he concludes that the microbicide power of ozone is a myth.

Chemical Works in Germany.—According to Reuter, negotiations which have been pending for several weeks past for the conversion of one of the leading Rhenish industrial establishments into a joint-stock company have just been brought to a conclusion. The well-known chemical works, which were founded at Biebrich under the firm of H. and E. Albert, and have since carried on business in Germany and England, have been transferred to a joint-stock company. The latter has been constituted under the name of Chemical works, formerly H. and E. Albert, with a share capital of 10,000,000 marks. The head office of the company will be at Amoeneburg, near Biebrich. The shares will be issued by the Darmstaedter Bank, and the National Bank for Germany at Berlin and Frankfort-on-Main. Herr Heinrich Albert becomes chairman of the board, which will also include Herr Kapp, a member of the Reichstag, who is a large manufacturer at Weisbaden; Herr Julius Peter, director of a bank at Berlin; Herr Carl Friedrich Hedderich, director of a bank at Darmstadt, and Dr. Julius Upmann, of Weisbaden. Herr Hugo Mueller will be the managing director.

Lady Doctors in Austria.—A petition, presented by Baroness Possauer, who has qualified as a physician, asking for authority to practise, has been referred to the Government by the Budget Committee of the Lower House of the Austrian Diet, with a request that the Government shall give a decision as to the advisability of the practice of medicine and surgery by women.

Russian Weights and Measures.—Professor Mendeléjeff, the eminent chemist, is expected to visit London in August next, in connection with the work of making standards of Russian weights and measures which is now being executed in the British capital.

Prize for M. Lippmann.—Every six years a prize is given by the French Society for the encouragement of national industry to the author of the discovery most useful to French industry. At the annual meeting held last week the prize was awarded to M. Lippmann for his discovery of chromatic photography.

POISONING CASES AND INQUESTS.

Strychnine.—At Jarrow-on-Tyne, on Wednesday, July 3, a coroner's jury returned a verdict of wilful murder against Elizabeth Urquhart, aged 51, for having wilfully given her husband, William Charles Urquhart, a dose of strychnine. Urquhart had been in ailing health for about two years, and the motive assigned for the deed is that his wife had become tired of attending him. When taken into custody the prisoner attempted to poison herself with the same kind of drug.

Chloroform.—Dr. Sloan died on Wednesday, July 3, at West Calder, from the effects of chloroform taken in order to obtain sleep.

Chloroform.—Frederick Charles Banks, aged 64, died on Friday, June 28, at 38, Ashchurch Grove, Hammersmith, from syncope from the inhalation of chloroform. Verdict: "Death from misadventure."

Cocaine.—Susan Jane Ridgeway, aged 47, died on Saturday, June 29, at 36, Porchester Terrace, Bayswater, from the effects of an overdose of cocaine, self-administered. Verdict: "Death by misadventure."

Prussic Acid.—Dr. Archibald Roxburgh died on Friday, June 28, at Pelsall, from the effects of prussic acid, self-administered. Verdict: "Death from an overdose of prussic acid."

Carbolic Acid.—L. S. Bartlett, died at Leeds, from the effects of carbolic acid, self-administered. At the inquest, held on July 5, a verdict of "Suicide" was returned.

Chloroform.—On Sunday, July 7, Bertha Postle, aged 18, died at Ashton-under Lyne from the effects of a dose of chloroform, self-administered.

PATENT OFFICE BUSINESS.

Applications for Patents.

[From the *Illustrated Official Journal (Patents).*]

No. 11,785.—An improved sheep-dip and antiseptic dressing and preservative for hides and the like. June 17.

No. 11,829.—An improved bit for opening the mouths of horses and other animals for the purpose of administering medicine, making examinations, and the like. June 18.

No. 11,839.—An improved clyster-enema with spray-producer. June 18.

No. 11,908.—Improvements in the manufacture of disinfecting preparations. June 19.

No 11,921.—Improvements in the manufacture of sheep-dipping powders. June 19.

No. 12,036.—A remedy for cancer. June 20.

No. 12,085.—A new effervescent medicinal preparation for the relief of neuralgia and other nervous disorders. June 21.

No. 12,231.—Improvements in syringes or injectors. June 24.

No. 12,304.—Improvements in the preparation of chemicals for testing and other analogous purposes. June 25.

No. 12,308.—Improvements in instruments for stopping teeth. June 25.

No. 12,331.—An improved process and apparatus for the preparation of peat fibre to be used for making sheets, threads, or surgical dressings. June 25.

No. 12,353.—Baby food regulator. June 26.

No. 12,390.—Improvements in or connected with clinical thermometers. June 26.

No. 12,434.—Henderson's patent bandage roller. June 27.

No. 12,450.—Improvements in tooth brushes. June 27.

No. 12,555.—An improvement in automatic apparatus relating to the use. June 29.

No. 12,609.—An apparatus for proportioning and mixing substances in the form of powder. June 29.

Specifications Published, June 22.

Purifying alcohol (Hermite, E., Paterson, E. J., and Cooper, C. F.).—The use of charcoal filters for purifying alcohol, "spirits," etc, is said to be obviated by mixing the liquid with an electrolysed solution of sodium chloride mixed with a "little" magnesium chloride. The spirit is distilled off after one or two hours admixture. The inventors recommend the treatment of 100 gallons of raw spirit of normal condition, with 33 gallons of an electrolysed solution containing 400 lbs. of common salt and 40 lbs. of magnesium chloride. No. 13,153 of 1894.

Registering Pulsations, etc. (Burch, de B.).—The pulsations or other movements of living subjects are caused to act upon a pointer, etc., which registers them upon a revolving cylinder as in an indicating barometer. The invention relates to means for revolving the cylinder at any required speed by adjustable gearing operated by an endless band from any suitable source of power. No. 13,637 of 1894.

Methyl-glyoxalidine (Imray, O., communicated from the Farbwerke, formerly Meister Lucius und Brüning).—Methyl-glyoxalidine ($C_4H_8N_2$), identical with the compound obtained by A. W. Hofmann by heating diacetyl-ethylen-diamine (see *Berichte der d. Chem. Ges.*, xxi., 2332), is now prepared by the dry distillation of ethylen-diamine hydrochlorate mixed with sodium acetate. The portion of the distillate obtained between 190° and 220° C., contains both methyl-glyoxalidine and ethylen-diamine. The former is separated by converting both compounds into the hydrochlorate, and fractionally crystallising from alcohol, in which the methyl-glyoxalidine salt is most soluble. The hydrochlorate is treated with alkali, and the base thus liberated is dissolved out by chloroform and dried with potassium carbonate. The base melts at 105°C. and boils at 198°C.; it is easily soluble in alcohol, acetone and chloroform, but almost insoluble in ether. Its homologues may be similarly obtained, the sodium acetate being replaced by propionate, etc. No. 14,600 of 1894.

Reducing Zinc Ores (Biewend, R.).—Sulphurous zinc ores are mixed with coal or coke and metallic iron or iron oxide and heated in a blast furnace, the temperature being very high and the blast being so arranged that carbon monoxide instead of the dioxide is produced by the combustion of the fuel. The sulphur from the zinc ore combines with the iron, and the vaporised zinc passes with the gases from the furnace through a condenser or condensers. The blast may be dispensed with when iron is used, but when the oxide is preferred, the temperature must be sufficient to reduce the whole to the metallic state. No. 15,761 of 1894.

Treating Teeth (Horton, W. P.).—The nerve of a tooth is deadened during treatment with a dental machine, etc., by means of an electric current. One terminal is applied to the side of the patient's face, and the other is connected to the instrument which is boring or otherwise acting upon the tooth. No. 5738 of 1895.

Alloying Nickel with Iron or Steel (Johnson, J., communicated from McConnell, N.).—Instead of melting the metals together as usual, the inventor mixes powdered nickel oxide with powdered carbonaceous matter, and iron or steel borings or other small pieces, and having placed the mixture on the hearth of a furnace, adds the pigs of iron or steel and heats the whole to fusion. It is stated that an alloy obtained by this means has a more regular composition than if otherwise prepared. No. 7575 of 1895.

Preparing Milk for Infants (Gaertner, G.).—To reduce the proportion of casein in cow's milk to about the same amount as exists in human milk, the milk is diluted with twice its bulk of water, sweet whey, decoction of "amylaceous substances," or other liquid free from casein and treated in a centrifugal separator. The outflow is regulated so that two-thirds of poor milk, containing however, its full proportion of casein, is obtained at one outlet, while one-third of milk of normal composition, excepting that two-thirds of its casein has been extracted, is obtained at the other outlet. No. 8044 of 1895.

OBITUARY.

Bridgwater.—On July 2, E. L. Whele Bridgwater, Chemist and Druggist, West Bromwich. (Aged 50.)

Essence of Bitter Almonds, especially if containing hydrocyanic acid, oxidises in contact with the air, oxidation being facilitated by the addition of 5 per cent. of alcohol, but retarded if 10 per cent. be added (*Ann. de pharm.*).

NEW REMEDIES.

[*The notes given under this heading embody recent suggestions in therapeutics, and cover both new drugs and preparations, and old ones under new aspects. The word "parts" is used to represent parts by weight, both for solids and liquids.*]

Salicin and Salicylates in the Treatment of Psoriasis and some other Skin Affections.—Dr. Radcliffe Croker has found salicylates of great value in the treatment of psoriasis, several recent cases being cured, while chronic cases of long standing are much ameliorated. The general method of treatment advocated is the administration of 15 grains of salicylate of sodium in solution three times daily. Where the sodium salt was badly tolerated, a good result was obtained with 3-grain doses of salicin. In addition to being nseful in psoriasis, the salicylates have also afforded favonrable results in erythema multiforme, and in lupus erythematosns. They are, however, chiefly valuable in psoriasis in the period of active development and in hyperæmic cases, which are nnsnitable for treatment with arsenic or thyroid extract (*Lancet*, i., 95, 1421).

Solanum Carolinense in Epilepsy.—Bondurant has experimented with this recently suggested remedy in eleven cases of epilepsy, and arrives at the conclusion that it possesses little, if any, valne. Scarcely any line of treatment hitherto employed has given him snch unfavourable results as the nse of solanum (*Internat. Med. Mag.*, iv., 303, after *Med. News*).

Ichthyol in Pulmonary Tuberculosis.—Scarpa confirms the resnlts of Cohn in the treatment of phthisis by means of internal doses of ichthyol, which have afforded him excellent results in 150 cases, so that he conclndes that ichthyol is more valnable than guaiacol in the treatment of this disease. He employs a one in three solution of pure snlph-ichthyolate of ammonium in water, glycerin, or rectified spirit. Starting with 20 drops daily of this solution the dose is gradually increased by 10 drops up to 180 or 200 drops in twenty-four honrs. The cough lessens in a few days, the expectoration becomes more fluid, in a fortnight the night sweats and fever diminish, and finally entirely disappear. At the same time the general health and the appetite improve and strength returns, and in some cases an apparently perfect cure results (*Rev. de Thérap.*, lxii., 343, after *Therap. Wochensch.*).

Treatment of Myosis of the Nasal Fossæ with Ocinum basilicum.—Vargas (*Chronic. Med. de Lima*) employs albahaca, *Ocinum basilicum*, a labiate, with success in the treatment of nasal myiosis. The plant contains a crystalline camphor allied to menthol and a volatile oil. It prodnces local anæsthesia and is at the same time parasiticidal and antiseptic, so that the larvæ are rendered inactive and expelled. The drug is applied in the form of a 12 per cent. decoction, irrigation of the nasal passages being practised several times daily (*Rev. de Thérap.*, lxii. 349).

Tincture of Iodine in Maladies of the Nose and Pharynx.—Wroblewski (*Therapeut. Monats.*) has for fonr years obtained good results with tincture of iodine in various affections of the nose and pharynx. In atrophic rhinitis he touches the parts with iodine tinctnre three or four times at intervals of several days. In ozœna, in diphtheria, and in epitaxis, good results have been obtained; in chronic laryngitis it is preferable to all other applications, three or four applications being made at intervals of two days (*Rev. de Thérap.*, lxii., 350).

Local Application of Creasote in Laryngeal Tuberculosis.—Before the New York Academy of Medicine Dr. Chapell advocated the local application of creasote in laryngeal tuberculosis. The combination he employs consists of creasote, 1 to 2 drachms; castor oil, 3 drachms; oil of winter-green, 3 drachms; hydrocarbon oil, 1 drachm; menthol, 10 grains. Before applying this, the larynx is thoroughly cleansed and a 10 per cent. solution of cocaine applied. In nlcerative stage he recommends a spray of a solution of creosote, 1 drachm to the ounce (*Glasg. Med. Journ.*, xliii, 68, after *Journ. of Laryng.*).

Malakin as an Antipyretic and Antirheumatic.—Abernethy reports favourably on this synthetic body in cases of rheumatic fever. It is given in 15 grain doses twice daily (*Edin. Med. Journ.*, Feb. 1895).

NOTES AND QUERIES.

[*The information given in this column includes both notes of practical interest to pharmacists, and replies to queries which seem to possess sufficient interest to readers generally.*]

Liquid Dentifrices.

I.—Castile soap, 13½ ozs.; water, 54 ozs.; dissolve by heat, then add glycerin, 36 ozs. by weight; rectified spirit, 3 lbs. 6 ozs.; oil of peppermint, 1 oz., 5½ drachms; oil of winter-green, 1 oz., 5½ drachms; syrup, 4½ lbs.; tincture of cudbear, *q.s.* to tint. Filter. To be used by pouring a small quantity on a wet toothbrush. II.—Castile soap, 12½ ozs.; water, 54 ozs.; glycerin, 36 ozs.; rectified spirit, 54 ozs.; oil of peppermint, 13 drachms; oil of winter-green, 13 drachms; oils of lavender, of cassia, of cloves, of sassafras, of each 1 drachm; chloroform, 2 drachms; tincture of cudbear, 6 drachms. Macerate for several days and filter (*Brit. Journ. Dent. Science*, xxxviii., 568).

Substitute for Gutta-Percha.

According to the *Revue de Thérapeutique*, a substitnte for gutta-percha may be prepared as follows:—Tar, 1 part; paraffin, 10 parts, dissolve together at 120°, then add caoutchouc, 2 parts. Keep at this temperature until a homogeneons mass results.

Casein Emulsion as an Ointment Basis.

Unna finds an ointment basis prepared with emulsified casein preferable to any other in many cases of skin disease, since it adheres closely to the surface of the skin, and is, moreover, more cleanly and elegant than the fatty bases which are generally used. The casein is first freed from all traces of butter-fat by means of ether; 97 parts are then emulsified with 3 parts of potash or soda. This mixture should have a neutral reaction. Unna found that such a varnish of casein, containing an equal part of glycerin, would suspend three parts of vaselin. The product must be sterilised; if a little oxide of zinc or of phenol be then added preservation is ensnred. The finished product should resemble condensed milk in consistence. Tarry bodies and balsams should first be neutralised by mixing with them a quarter per cent. of soft soap. Acids and lime salts are incompatible with this basis and alkaline salts, medicinal soap, and salts of ichthyol render the ointment thick, so that it needs thinning down with vaselin or water. Pyrogallol and resorcin on the contrary, render it thinner, without, however, affecting its drying property when once applied to the skin. Mixtures of ichthyol and resorcin, or of ichthyol and pyrogallol are perfectly compatible, but salicylic acid must be avoided. Neutral powders, snch as zinc oxide, sulphur, or white precipitate, may easily be incorporated up to 20 per cent., and metallic mercury to 33 per cent. (*Journ de Pharm. d'Anvers*, li., 135, after *Scalpel*).

Belgian Method of Making Cerates.

Giot and several other pharmacists advocate the following manipulation in preparing cerates and cold cream. The oil and wax are melted with a gentle heat and strained into a cold mortar where they are allowed to remain undisturbed until thoroughly set. The hardened mass is then thoroughly rubbed up with the pestle until softened and perfectly homogeneous; then are added gradually with thorough trituration the customary ingredients such as aromatic waters, benzoin essences, etc. Further trituration is continued until the cerate becomes white. Operating in this manner a perfectly homogeneous cerate is obtained free from clots, and from which the added water does not separate.—(*Journ. de Pharm d'Anvers*, li., 169).

Cement for Bicycle Tires.

A formula for cuts and cracks in rubber tires was given on page 1087 of last volnme. The following, from the *Era Formulary*, is a variant on it: Dissolve caoutchouc, 20 ozs., and gutta-percha, 10 ozs., in carbon bisulphide, 10 ozs., then add fish glue, 5 ozs. After applying, bind the tire with cord until cement is well set. [*Reply to Cyclist.*]

Nursery Hair Wash.

Infuse a quarter of an ounce of quassia chips in half a pint of cold water, then add half an ounce of borax and one ounce of glycerin, which have previously been rubbed together. Add sufficient rose water or camphor water, or both, to give a pleasant odonr, filter, and make up to one pint. Stavesacre is sometimes used in extreme cases. The seeds should be infused in boiling water. [*Reply to "Aestas."*]

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

COMMUNICATIONS FOR THE CURRENT WEEK'S JOURNAL SHOULD REACH THE OFFICE NOT LATER THAN WEDNESDAY MORNING. TELEGRAMS CAN BE RECEIVED ON THURSDAY MORNING. ALL COMMUNICATIONS RESPECTING EDITORIAL MATTERS MUST BE ADDRESSED "EDITOR, 17, BLOOMSBURY SQUARE, LONDON," AND NOT IN ANY CASE TO INDIVIDUALS SUPPOSED TO BE CONNECTED WITH THE EDITORIAL STAFF OF THE JOURNAL.

ALL INSTRUCTIONS from Members, Associates, and Students of the Pharmaceutical Society, respecting the transmission of the Journal, must be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London, W.C.

BUSINESS communications—including advertisements, orders for copies of the JOURNAL, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Cheques and money orders should be made payable to "Street Brothers."

CORRESPONDENTS who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names—of course not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS for illustrations should be done with pen and Chinese ink, and consist of clean, sharp lines, without shading by washes. They should also be prepared twice the desired size, so as to allow for reduction.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

QUERIES addressed to the "Editor" will be replied to as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries."

REPRINTS of articles cannot be supplied unless authors communicate with the Editor before publication.

LETTERS.

PATENTED MEDICINES AND REGISTERED NAMES.

MR. BENJ. T. KING, registered patent agent, writes as follows:—"I read with much interest your able article on the subject of patented medicines and registered names in your issue of the 22nd ultimo. After the word 'ever,' line 15, page 1178, I think the insertion of the words 'excepting one which describes an expired patent with which it terminates and becomes public property' would explain why several registered words, such as 'Linoleum,' etc., have terminated."

"CARBOLIC ACID POISONINGS."

MR. R. G. MUMBRAY writes as follows:—"The number of deaths from poisoning by carbolic acid is truly lamentable, and when in addition to this fact we consider the intense agony endured by the victims, humanity shudders—inquests are held, verdicts given in accordance with evidence—occasionally the coroner utters a feeble protest against the indiscriminate sale of so deadly a substance, and there the matter ends, the law has been complied with, and awaits the next case. . . . .—How many more lives are to be sacrificed to the demon 'carbol' before the misery and crime, whether arising from omission or commission, is to be checked? Is it necessary that a vicarious offering should be made, that the wives, children, and dependents of the unfortunate sufferers may be exempt from this blot on our humane institutions? God forbid. Then let every medical man, chemist, clergyman, and every sister of mercy unite in demanding legislation on so important a subject."

REMUNERATION OF WITNESSES.

MR. J. D. ROSE, JUNR., of Jarrow-on-Tyne, says: "Last week I was summoned to attend an inquest as a witness, and my attendance at the inquiry lasted four hours. Among other witnesses besides myself there was a barman and also the wives of two labourers. On the following day the coroner's officer offered me half a crown, tendered as expenses for my attendance at the court. This I refused to receive, on the grounds that such a sum was an insult to the profession I belong to, and that my scale of remuneration was surely higher than that of a barman or the wife of a labourer, each of whom received that sum for their services."—When subpœnaed on the part of the Crown, witnesses are allowed travelling and other expenses according to a fixed scale of allowance. By reference to this scale our correspondent can ascertain whether he was tendered the proper fee or not.

WANTED A PHARMACEUTICAL CURRICULUM.

MR. E. L. N. ST. CYR, pharmaceutical chemist, Hayti, thinks "it is time that the Pharmaceutical Society should take the necessary steps of having a respectable Pharmaceutical Curriculum imposed, as the one now existing is a disgrace to Pharmacy in Great Britain, as has been confessed not only by foreigners but by the English. The Council should first impose that four years is required for obtaining the Diploma of Pharmaceutical Chemist, of which two years must be spent in a shop in acquiring practical knowledge, and the remaining two years in a School of Pharmacy recognised by the Council, in acquiring the requisite scientific knowledge upon which the Art of Pharmacy is based. The Society should insist that the Preliminary Examination be passed previous to entering the study of Pharmacy, but as it requires remedying, if mathematics and a foreign language cannot be added to the three subjects now required, I think it had better be abolished altogether, and Certificates from other Examining Boards accepted in lieu."

BRITISH v. METRIC WEIGHTS.

"GILGEN" says, in reply to Mr. Turver (see *ante*, p. 18), "It seems that the modern metric system has already suffered revision, whilst the other, as old as the British constitution, has been religiously preserved intact, but, as pointed out by Herschell, is capable of being brought into line with modern requirements without sacrificing its integrity. One can but give references and presuppose a certain knowledge of the literature of so large a subject, and I suppose that the authorities I quoted slightly outweigh Balfour (is this the bi-metallist?) and Carlyle. I regret the omission of a comma or two, otherwise the sentence is English and correct at that, and I am not responsible if my critic has forgotten the romances as well as the decimal fractions of his early days. Finally, fancy a man finding fault with metaphors, and quoting the author of 'Sartor Resartus,' for are they not "the muscles and tissues and living integuments of language?"

ANSWERS.

"SECUNDUS."—Your specimens are *Arrhenatherum elatius* and *Lepigonum salinum*.

R. GOODWIN MUMBRAY.—It is the *Bocconia cordata*, Willd. (Papureraceæ), China, and nearly allied to *Sanguinaria*, *Glaucium*, *Chelidonium*, etc. The Linnean class is Dodecandria, and order Monogynia.

R. L. MORRIS.—You will find Perkin and Kipping's 'Organic Chemistry' (W. and R. Chambers, 6*s.* 6*d.*) extremely suitable for your purpose. Maisch's 'Organic Materia Medica' (Kimpton, 10*s.* 6*d.*) is not too advanced, so long as you work with the actual specimens before you.

"CHEMICUS."—Try the effect of perfuming with a tincture of orris.

"A. R. B."—See *Ph. J.*, 1894, p. 730, and 1895, pp. 1024 and 1191. Also, Epitome to *Ph. J.* for March 30, p. 116, and the 'Extra Pharmacopœia,' latest edition, p. 25. If you require further information, write again.

PUBLICATIONS RECEIVED.

TEXT-BOOK OF FORENSIC MEDICINE AND TOXICOLOGY. By ARTHUR P. LUFF, M.D., B.Sc. Lond. Vols. I. and II. Pp. 416 and pp. 360. Price 24*s.* (Longmans and Co., London.) From the Publishers.

DIPHTHERIA AND ITS ASSOCIATES. By LENNOX BROWN, F.R.C.S., Ed. Pp. 272. Price 16*s.* (Ballière, Tindall and Cox, London.) From the Author.

DIE GERICHTLICH-CHEMISCHE ERMITTELUNG VON GIFTEN. Von Professor GEORGE DRAGENDORFF, Ph.D., M.D. Pp. 532. Price 12 marks. (Vandenhoeck and Ruprecht, Göttingen.) From the Publishers.

HANDWÖRTERBUCH DER PHARMACIE. Edited by A. BRESTOWSKI. Parts 21 and 22. 2 M. 40 Pf. each Part. (Wilhelm Braumüller, Vienna and Leipzic.) From the Publishers.

CHEMISTRY OF URINE. By ALFRED H. ALLEN, F.I.C., F.C.S. Pp. 212, with 19 illustrations. Price 7*s.* 6*d.* (J. and A. Churchill, London.) From the Publishers.

COMMUNICATIONS, LETTERS, ETC., have been received from Messrs. Bennett, Brown, Coates, Cocks, Hill, Morris, Mumbray, Rox, St. Cyr, Thomas, Thompson, Tillie, Wood.

CHEMICAL EXAMINATION OF THE BARK AND LEAVES OF DRIMYS GRANATENSIS, L.*

BY DR. O. HESSE.

Holmes has shown that coto bark, which first came into commerce in 1851, was often at that time confounded with Winter's bark.† Hence the possibility that there might be a near relation between them was suggested and, so far back as 1878, Wiggers expressed the opinion that Winter's bark might contain either cotoin or paracotoin, although on subsequent examination of Winter's bark that was not found to be the case. The statement made by Elborne‡ that, according to Schuchardt, cotoin had been found in the bark of *Drimys granatensis*, a species which may be regarded as a variety of *Drimys winteri*, was, therefore, surprising. The bark in question had been obtained from Merida, in Venezuela. It was considered by Schuchardt to be true coto bark, and was referred by him to *Cryptocarya pretiosa* Martius, though further examination showed that it was the produce of *Drimys granatensis*, L. Having obtained some of this bark, I have examined it to ascertain whether it contains cotoin, and have also examined the leaves of the same tree, obtained from Schuchardt.

The Bark, which is called Merida coto, does not in external appearance resemble in colour, or otherwise, either paracoto bark, or true coto bark. It is in short pieces of a yellowish-grey colour, traversed longitudinally by hard cellular layers. Neither true coto bark nor paracoto bark have such cellular layers. But when this bark was powdered it gave out a peculiar aromatic odour somewhat similar to that of true coto bark. The odour is however comparatively very faint, so that it might be thought due to a slight admixture of coto bark, but close examination failed to reveal the presence of any such admixture.

The crushed bark was extracted with ether in the same way as coto bark, and a considerable yield of dark brown, viscid extract obtained, which did not show any signs of crystallisation after several months. A portion dissolved in alcohol gave a dirty green coloration on adding a little ferric chloride, while the extract of true coto bark under the same conditions becomes dark reddish brown, this difference showing that the bark could not contain cotoin, and in fact I was not able to detect the presence of the least trace of that substance. The observation attributed to Schuchardt must therefore be erroneous.

On account of this discordant result, it is desirable to describe the treatment adopted in my examination. The extract was first treated with boiling petroleum spirit, and by distilling the solution a varnish-like residue was obtained, which gave no signs of crystallisation. The portion undissolved by petroleum spirit was dissolved in ether, and the solution mixed with petroleum spirit until it became almost colourless. A large quantity of dark coloured oil was thus separated. On treating that oil again with ether very little was dissolved, and on adding petroleum spirit to the solution very little dark coloured oil was separated from it.

The ethereal petroleum solution was then evaporated slowly, but no crystals formed as would have been the case if cotoin had been present. In like manner the dark coloured deposit did not show signs of crystals when left at rest for several weeks. This deposit was then dissolved in cold alcohol, and when the solution was mixed with ether an abundant flocculent deposit (A) was separated, other substances (B) remaining in solution.

By repeatedly dissolving the deposit (A) in alcohol, and then adding ether, a substance was obtained that was comparatively little soluble in cold alcohol but readily in hot alcohol, and it was sufficiently purified by repeated solution in hot alcohol with the use of some animal charcoal. This substance, to which I will give the name of "drimin," had still a slight brownish colour, and its solution in hot alcohol was coloured, but complete decoloration would have consumed the whole of it.

Drimin is a crystalline powder readily soluble in hot alcohol, chloroform, or glacial acetic acid, slightly soluble in cold alcohol, insoluble in ether, petroleum spirit, caustic soda, ammonia, or water. The alcoholic solution is neutral, is not coloured by ferric chloride, but gives a copious flocculent precipitate on addition of basic lead acetate. Drimin dissolves in acetic anhydride, but does not become acetylated. Heated with hydriodic acid (1·7 s.g.) it does not yield alkyl iodide.

Drimin is not altered on exposure to the air, it does not lose weight in the exsiccator, or when heated to 100° or 140° C.; it melts about 256° C. to a dark mass, and burns completely when heated in the air. When an alcoholic solution is heated with hydrochloric acid no sugar is formed. The results of analysis and the depression of the solidification point of a solution in glacial acetic acid, led to the formula $C_{13}H_{14}O_4$, and drimin appears to be an indifferent substance containing neither hydroxyl nor alkyloxyl groups.

The portion (B) remaining in solution gave with ferric chloride a faint green coloration, and a considerable precipitation on adding lead acetate. The residue left on evaporating the liquid was treated with milk of lime which separated, in the undissolved residue, the substance reacting with ferric chloride, though in too small quantity for further examination. The solution was yellow, and when mixed with hydrochloric acid in excess, gave an abundant flocculent precipitate, from which ether dissolved a brownish substance, remaining as an amorphous translucent residue on evaporating off the ether.

The portion undissolved by ether was again dissolved with milk of lime, precipitated by hydrochloric acid, and separated from a further small quantity of the brown coloured substance by treatment with ether. The undissolved residue was dissolved in alcohol, precipitated by addition of water, collected and washed with water. After drying by exposure it was pulverulent, readily soluble in alcohol, scarcely at all soluble in water or ether. The alcoholic solution of this substance is acid, it gives no colour with ferric chloride but a copious precipitate with lead acetate. The substance dissolves readily in lime water, forming a neutral solution which gives a flocculent amorphous precipitate with lead acetate. This substance has the character of an acid, and may be named drimic acid, but no analysis was made, since I was unable to satisfy myself that a sufficiently pure substance had been obtained.

The Leaves are leathery, the upper surface olive green and shiny, the under surfaces whitish and dull. They have a thick midrib, are oblanceolate, 10 to 12 Cm. long, 3 to 4 Cm. broad, entire at the margin and without a terminal spine.

The crushed leaves were extracted with hot ether, and on distilling off the ether the solution yielded a green fatty residue. This was treated with hot alcohol and, on cooling the liquid, a considerable gelatinous crystalline deposit separated, leaving a little green resin in solution.

* *Annalen der Chemie*, vol. 286, p. 369.
† *Pharmaceutical Journal* [3], xxiv., 170.
‡ *Pharmaceutical Journal* [3] xxiv., 169.

After repeated solution of the deposit in hot alcohol, with addition of animal charcoal, it was obtained quite colourless. The air dried substance melted at 71° to 72° C., and consisted for the most part of a substance having a composition represented by the formula $C_{28}H_{58}O_2$, which I propose to name "drimol."

After treatment with alcoholic potash solution, to separate a minute admixture of esters, drimol is readily soluble in hot alcohol or glacial acetic acid; it separates from solution as needles or as a gelatinous crystalline mass. In cold alcohol it is only sparingly soluble, but is freely soluble in ether or chloroform, and is insoluble in hydrochloric acid, caustic soda, or water. It melts at 73°-74° C., and at a higher temperature distils unaltered. The alcoholic solution gives no coloration with ferric chloride. When heated to 80°-85° C. with acetic anhydride for some hours, or when boiled with freshly melted sodium acetate and acetic anhydride, an acetyl derivative is formed, $C_{28}H_{57}(C_2H_3O)O_2$.

Acetyl drimol has the form of small white laminæ, melting at 42°-43° C.; it is readily soluble in ether, chloroform, hot glacial acetic acid, and hot alcohol, slightly soluble in cold alcohol; it is readily saponified by alcoholic potash, yielding potassium acetate and an alcohol corresponding with drimol.

When drimol is heated with hydriodic acid (1·7 sp. gr.) by Zeisel's method it is altered, but only a trace of argentic iodide was found to be formed, and that probably by accident. The residue of the reaction, when recrystallised from hot alcohol, has the form of colourless needles, melting at 47° C., and having a composition represented by the formula $C_{28}H_{57}IO$, its formation taking place according to the equation $C_{28}H_{58}O_2 + HI = C_{28}H_{57}IO + H_2O$. This iodine derivative dissolves readily in hot glacial acetic acid, crystallising out in needles when the solution cools; it is also freely soluble in chloroform or ether. When treated with fuming nitric acid mixed with some argentic nitrate, silver iodide is formed.

By treatment with alcoholic potash this iodine derivative is reconverted into drimol so that it corresponds exactly with acetyl drimol. It will also be seen that drimol, which is to be regarded as a wax alcohol, contains only one hydroxyl group which readily reacts; further experiment must determine whether it also contains a second hydroxyl group, as might be expected.

The examination of the alkaline solution obtained in purifying the first product of drimol from esters showed that it contained a minute quantity of palmitic acid and of an oily acid, but too little for further investigation. No other alcohol such as glycerin could be detected, and it is therefore probable that there may have been some traces of palmityl drimol and of the ester of an oily acid.

NOTE BY MR. E. M. HOLMES ON THE PRECEDING PAPER.

The similarity in the pungent taste of Winter's bark and the coto bark of Bolivia, led not unnaturally to the confusion of these two barks in English commerce as long ago as 1851, and it is not surprising that any bark possessing similar taste and similar properties should pass locally under the name of coto in different districts of South America. This tendency to give the same name, in different countries, to different drugs possessing similar properties leads to frequent mistakes, and to consequent losses in commerce. It is this looseness of nomenclature also that creates some difficulty in arriving at the botanical source of true coto bark. Unless botanical specimens of the plant or tree are gathered in the identical district in which the bark is collected, the wrong plant is almost sure to be sent home. So far as the structure indicates, both coto and paracoto bark are probably derived from some Lauraceous, not from a Magnoliaceous tree. It must be remembered, however, that the Canellaceous genus, *Cinnamodendron*, has similarly pungent properties. An examination of the pungent principle of *Canella alba* and *Cinnamodendron corticosum* might possibly show some relationship between the pungent principles of these three natural orders.

"CONTRIBUTIONS TO OUR KNOWLEDGE OF THE ACONITE ALKALOIDS.

PART XII. THE CONSTITUTION OF PSEUDACONITINE. PRELIMINARY NOTICE."*

BY WYNDHAM R. DUNSTAN, F.R.S., AND FRANCIS H. CARR.

(*From the Research Laboratory of the Pharmaceutical Society.*)

Pseudaconitine is the name given by Alder Wright to the highly toxic alkaloid contained in Nepaul aconite (*Aconitum ferox*). It is a crystalline base, melting at 104° to 105°, whose composition is expressed by the formula $C_{36}H_{49}NO_{12}$. When hydrolysed, it furnishes, according to Alder Wright and Luff (Trans., 1878), *pseudaconine* and 1 molecular proportion of *dimethylprotocatechuic acid* (veratric acid), $C_{36}H_{49}NO_{12} + H_2O = C_{27}H_{41}NO_9 + C_9H_{10}O_4$. The authors are engaged in a re-investigation of this alkaloid in the light of their recent work on the constitution of aconitine derived from *Aconitum napellus* (Trans., 1894, 176, 290).

The pseudaconitine employed by the authors was extracted from the roots of *Aconitum ferox*, some of which were provided by the Government of India through the Imperial Institute. The highly-purified crystalline base melted at 201°, that is nearly 100° higher than the point recorded by Wright and Luff; this melting point was not changed by fractional crystallisation.

When heated slightly above its melting point, pseudaconitine loses a molecular proportion of acetic acid, leaving a new base which it is proposed to name *pyropseudaconitine*. This alkaloid, on hydrolysis, loses a molecular proportion of dimethylprotocatechuic acid, furnishing *pyropseudaconine*.

On complete hydrolysis with alkali, pseudaconitine yields, in addition to the dimethylprotocatechuic acid observed by Wright and Luff, a molecular proportion of acetic acid, which was identified and estimated in the manner described in the authors' previous paper on aconitine.

When pseudaconitine sulphate is heated in a closed tube with water it suffers, like aconitine, partial hydrolysis, the acetyl group alone being eliminated, producing a molecular proportion of acetic acid. In this action a new alkaloid is formed, corresponding with the benzaconine derived in a similar manner from aconitine, which the authors propose to name *veratrylpseudaconine*. This substance is a crystalline base (m. p. 181°) which, when hydrolysed, furnishes pseudaconine and dimethylprotocatechuic acid (veratric acid).

There is, therefore, a close resemblance between the constitution of aconitine and of pseudaconitine, both alkaloids undergoing hydrolysis in a similar manner. The molecule of each alkaloid contains an acetyl group, but in pseudaconitine the benzoyl group of aconitine is replaced by the veratryl group, aconitine being *acetylbenzaconine*, and pseudaconitine, *acetylveratrylpseudaconine*. As far as the authors' investigation has proceeded, pseudaconine appears to be distinctly different from the aconine derived from aconitine. There is little reason at present to doubt that the crystalline highly active alkaloid isolated by the authors is identical with Wright's pseudaconitine, but further evidence on this point is being obtained.

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* From the 'Proceedings of the Chemical Society,' July, 1895.

THE CONFERENCE IN WESSEX.

BOURNEMOUTH, unlike the last few meeting-places of the British Pharmaceutical Conference, possesses absolutely no importance from a historical point of view. Its existence is entirely owing to modern enterprise. It is situated, however, in a district that is steeped in remembrances of the earliest and most stirring times in English history, constituting as it did the most important part of that old kingdom of Wessex which made England a fact before it was a name. To lovers of fiction also, Bournemouth will possess a special interest since it is within the borders of the country made familiar in Thomas Hardy's works, Bournemouth being the Sandbourne of his novels. Its beginnings were very humble and they fall within quite recent times. About the beginning of the present century the site of the town was a secluded valley; its few inhabitants were fishermen and smugglers. The whole surrounding district

Hotel Mont Dore, The Conference Headquarters. *From a Photograph by Messrs. Debenham and Gould.*

was a wilderness of heather and fir trees: cultivated ground was somewhat of a rarity in the neighbourhood, and the extreme seclusion of the stream which drains the valley was such that a decoy pond was formed near it. The present "Coy Pond" represents this earliest trace of human activity in the district. The modern "discoverer" of this pleasant valley was a neighbouring landowner, who planted many thousand acres with fir trees and built himself a mansion about a mile from the decoy pond. Considerably altered and enlarged in the course of years, this house—the oldest building in the town of Bournemouth—yet remains, though now converted into the Royal Exeter Hotel. A few years later—about 1836—another landowner conceived and carried into effect the idea of laying out part of his estate as a watering-place. The experiment proving a success, his example was quickly followed by others, and within the last sixty years a town has grown up by leaps and bounds, the population now exceeding forty thousand. A charter of incorporation was granted in 1890, and the municipal authorities—like their predecessors the Bournemouth Improvement Commissioners—have always been most zealous in seconding the efforts of local landowners to render the town prosperous, without in any degree impairing the natural beauties of its surroundings.

The actual situation of Bournemouth is in the extreme south-west corner of Hampshire, and its western suburbs extend into Dorsetshire. The town is at the mouth of a small stream—the Bourne Brook—which flows through a peculiarly beautiful valley, some two miles of which has been laid out as public gardens which constitute one of the chief beauties of Bournemouth. The stream empties itself into Bournemouth Bay, somewhat to the east of the entrance to Poole Harbour, and near the pier, from which can be distinguished several other "chines" or sheltered valleys, where in rough weather, protection can be obtained from the blasts that sweep the uplands. The general effect of these and other natural advantages of Bournemouth, especially as improved by the inhabitants, is that almost any climate can be found there at any time of the year, the autumn and winter being mild in a marked degree as compared with other parts of England. The sandy shore here extends for several miles, and is eminently suited for bathing purposes, whilst the cliffs to east and west form a fine background when viewed from the sea. The visitor, standing on the shore, has Poole Head and Harbour immediately to the right, bordered to the south by the peninsula—the so-called "Isle" of Purbeck—on which are situated Swanage and Corfe Castle. To the left the Bay gradually merges into Christchurch Bay, and beyond is the Isle of Wight, separated from the mainland by the Solent, the waters of the English Channel forming a background to the whole.

On the landward side the town is equally fortunate in its surroundings. Christchurch, in Hampshire, and Poole, in Dorsetshire, are each but five miles distant, the New Forest and innumerable places of interest are within easy reach, and Bournemouth itself affords a very great contrast to the usual type of English sea-side holiday resorts.* It is practically embowered in pine woods: parks and commons surround it and, for the most part, the houses stand in their own grounds. There is also a great variety of

* The most handy guide to Bournemouth and its vicinity is Ward and Startup's 'Bournemouth and the New Forest' (London: W. J. Adams and Sons. Price 1s.). There are also several local guides, but these are less portable and not so well or concisely written.

architectural style: Nature and Art appear to have been happily blended on every hand. The pleasure grounds form the chief centre of attraction in the town and they may be described as its most characteristic feature. The landscape gardener's skill has skilfully supplemented the natural beauties of this favoured spot with shrubberies, lawns, flower-beds, and fountains. On the east side of the lower gardens is found the famous Invalids' Walk, where a grateful shade is afforded by lofty firs. At the south extremity of the valley there is a sudden change from country to sea-shore, the exit being opposite the pier; the sands and bathing-places are also close at hand. The pier is not only a landing-stage for the numerous steamers, yachts, and rowing-boats that abound, but it serves as a fine promenade, sheltered seats forming pleasant resting-places for those desirous of listening to the music discoursed daily by well-trained bands. On the East Cliff there is a promenade extending to Boscombe Chine, affording one of the most delightful walks in the neighbourhood. The view point is, of course, higher than on the pier, the breezes are stronger and fresher, while the Boscombe Gardens and Pier will well repay the time and exertion spent in visiting them. Similarly, along the West Cliff and across the heath-clad Maze, Durley Chine is reached, or the journey in either direction may be undertaken by way of the beach with its golden sand. On account of the proximity of the Isle of Wight there are double tides, the ebb and flow of which are insignificant in amount and there is an absence of strong currents. The bathing and swimming accommodation are therefore first-class. Other means of recreation and amusement being plentiful, both on sea and land, visitors to the Conference meeting may therefore safely anticipate the pleasures of a real holiday, accompanied possibly by renewed health and vigour.

THE PAVILION IN THE WINTER GARDENS, BOURNEMOUTH. *From a Photograph by Messrs. Debenham and Gould.*

The Hotel Mont Dore, the headquarters of the Conference, is a fine building in the Italian style, the foundation stone of which was laid by King Oscar II. of Sweden and Norway, in 1881. The building overlooks the public gardens and commands some of the finest views in Bournemouth. A large and complete bathing establishment is connected with the hotel by a large conservatory, There is also a large hall, used for public lectures, balls, etc., and four acres of beautiful grounds in which the Conference garden party will be held. The reception by the President of the Conference and Mrs. Martin and the subsequent conversazione will be held in the Winter Gardens belonging to the hotel, as will also the smoking concert. The Shaftesbury Hall, where the opening meeting and sessions of Conference will be held, is situated in St. Peter's Road, near the post office. It accommodates about a thousand persons, and is most conveniently constructed for public meetings. Other places of interest in the town are the National Sanatorium for consumptive patients, the theatre and opera house, the Cairns' Memorial House, the Pavilion and Winter Gardens, the public library, and the arcades.

As a centre for excursions Bournemouth is unsurpassed. Branksome and Alum Chines are within easy reach to the westward, as are also Talbot woods and village, Canford Cliffs, Parkstone ("the Mentone of England"), and Constitution Hill, from which there is a fine view over Poole Harbour; whilst, on the east are Holdenhurst, Southbourne, and Hengistbury Head. The ancient town of Christchurch, with its famous Priory and a fine monument to the poet Shelley, is about five miles to the eastward; Poole, as far to the west, is a quaint old town, once a flourishing port, which furnished four ships for the siege of Calais, in the reign of Edward III., and then did a thriving trade with Spain. It was also formerly the seat of a trade with Newfoundland which has now died out. On the north-east, in turn, is Wimborne, with its ancient Minster. Swanage, which will be specially visited during the Conference week, is some seven and a half miles by water from Bournemouth, the journey constituting a pleasant sea trip, during which the Old Harry Rocks attract attention. Swanage Bay also possesses a great charm. Purbeck stone is chipped and shipped at Swanage, the quarries being not far distant, and a walk along the coast by Peveril Point and Durlestone Head enables visitors to see the huge Stone Globe, which is over twenty feet in circumference, and has the various continents and oceans delineated upon it. If time permits, Corfe

Castle may also be visited. It is only six miles from Swanage, and its ruins are particularly worthy of inspection. A Saxon royal fortress originally stood here, which was the scene of the murder of Edward the Martyr. Later, the castle was defended for the Empress Matilda against Stephen, and Edward II. and Richard II. are understood to have been imprisoned within its walls. Finally, after being defended against the Parliament by the wife of Lord Chief Justice Bankes, it was demolished in 1646.

But the most attractive excursion of the week will doubtless be that to the New Forest, at the close of the business proceedings of the Conference. Leaving Bournemouth by the Sanatorium Road, near the Hotel Mont Dore, the carriages will proceed by way of Christchurch Road through Boscombe, over Iford Bridge across the river Stour, to Christchurch, in passing through which a fine view of the Old Priory Church and the ruins of the Norman Castle will be obtained. The journey will then be continued to Hinton Admiral, where is the "Cat and Fiddle" Inn reputed to be six hundred years old. The Forest will be entered, after passing through Sir George Meyrick's estate, by the New Forest Lodge, Holmesley and Wilverley Post being next passed, and a view obtained of Boldre Wood and Markash. A further drive of a few miles through most romantic scenery will bring the visitors to the marquee where luncheon is to be provided, rather more than a mile from Lyndhurst, the "capital" of the New Forest. At Lyndhurst the chief places of interest are the church and the old Court Room, where the verderers still hold the Forest Court. The most noteworthy feature of the church is the fresco by Sir Frederick Leighton, representing the parable of the ten virgins. Though outside the limits of the Conference excursion, it may be of interest to mention that the village of Minstead not far from Lyndhurst, is near to Castle Malwood, and here there is a fine view of mile upon mile of trees. At Stoney Cross, a little further north, n addition to magnificent forest views, there is a distant glimpse of Hythe and Southampton Water. The Rufus Stone, indicating the spot where William Rufus is supposed to have been slain by Walter Tyrell, is close by Stoney Cross. The return journey to Bournemouth will be through Boldre Wood to Ringwood, where tea will be provided. Ringwood is a quiet little country town about fourteen miles from Bournemouth, prettily situated on the Avon just outside the present bounds of the New Forest. The final drive will be through Kingston and Bistern Park, past Avon Ford, then through Sopley, Winkton, Burton, Staplecross, and Purewell, and so by Christchurch to Bournemouth. The journey ended and the visitors departed, the Conference of the year will be added to the long roll of past meetings, but its memories will be not the least pleasant among those, and many who shall have attended on this occasion may be expected some day, later if not sooner, to renew and enlarge their experiences of this only too brief holiday in the pleasant land of South Wessex.

The Pier, Bournemouth. *From a Photograph by Messrs. Debenham and Gould.*

NATURAL HISTORY OF THE BOURNEMOUTH DISTRICT.

The neighbourhood of Bournemouth and the district to be covered by the Conference excursions are remarkably rich from a botanical point of view. On the damp heaths that stretch in every direction the cart ruts are tinged bright red, in many places, with the leaves of the sundew, of which two or three species are met with here and there, whilst the beautiful blue flowers of the *Gentiana pneumonanthe* are found in abundance. The visitor from the north will be delighted to see the tiny butterwort with its pale lilac flowers, *Pinguicula lusitanica*. The pretty pink flowers of the bog pimpernel brighten the damp, grassy hollows, where, too, *Lycopodium inundatum* is of frequent occurrence. The wide stretch of heath that extends from Poole Harbour to Studland will afford a botanical treat to those who can spare the time to visit it. The rare heath, *Erica ciliaris*, occurs in tolerable abundance, and will now be in flower, as well as *Polypogon monspeliense*, *Scirpus parvulus*, *Carex punctatus*, *Cynodon dactylon*, *Eriophorum gracile*, and on the chalk downs near Corfe Castle, *Ophrys apifera*, etc. The *Cyperus longus* also occurs, but will probably not yet be in flower. On the limestone hills near Swanage, however, *Thesium humifusum* and *Spiranthes autumnalis* will probably be found in blossom, although the latter is often eaten off by the sheep, and *Thesium* requires a practised eye to detect it in the short herbage.

In the ride through the New Forest the cart-ruts are in some

places almost brown with the little capsules of the curious pillwort, *Pilularia globulifera*, and such rarities as *Gladiolus illyricus*, *Isnardia palustris*, and *Spiranthes æstivalis* may be seen by the initiated who know where to find them, but these, like the *Simethis bicolor* at Bournemouth, are too nearly extinct to allow of their hiding-places to be revealed to collectors, as distinguished from lovers of plants. The geologist may also find much to interest him, *e.g.* the deposits of pipe-clay near Hamworthy; the remains of tropical plants in the Bournemouth cliffs; the abundant fossils in the Barton beds beyond Mudeford and in the Purbeck limestone at Swanage; the small outcrop of the Hastings sand in the cove between Swanage and the chalk cliffs of Ballard Down; the Kimmeridge clay beyond St. Albans Head; these are well worth examination by those who can prolong their visit to this charming neighbourhood. The conchologist, too, will find the beach at Studland afford several rare marine shells not found in the north of England, especially *Pandora inæquivalvis*, *Solen marginatus*, and *Trochita chinensis*.

INVALIDS' WALK, BOURNEMOUTH. *From a Photograph by Messrs. Debenham and Gould.*

BOURNEMOUTH CONFERENCE PROGRAMME, 1895.

MONDAY, JULY 29.

8.30 p.m.—Reception by the President and Mrs. Martin, and Conversazione in the Winter Gardens, Hotel Mont Dore.
Exhibition of Microscopes, etc.
Music and Light Refreshments.

TUESDAY, JULY 30.

10.0 a.m.—Sessions of Conference in the Shaftesbury Hall, St. Peter's Road.
Welcome by the Mayor (Merton Russell Cotes, Esq., F.R.G.S.).
Presidential Address.
Reading and Discussion of papers.
1.10 p.m.—Luncheon at the Hotel Mont Dore.
2.0 p.m.—Sessions of Conference resumed.
4.15 p.m.—Excursion to Swanage in the s.s. "Lord Elgin." Tea on board the vessel.
6.30 p.m.—The "Lord Elgin" leaves Swanage Pier to return.

WEDNESDAY, JULY 31.

10.0 a.m.—Sessions of Conference resumed.
1.10 a.m.—Luncheon at the Hotel Mont Dore.
2.0 p.m.—Sessions of Conference finally resumed.
4.30 p.m.—Garden Party in the grounds of the Hotel Mont Dore.
8.30 p.m.—Smoking Concert in the Winter Gardens, Hotel Mont Dore.
Drawing Room Concert in the Hotel Mont Dore.

THURSDAY, AUGUST 1.

9.15 a.m.—Coaches leave the Sanatorium Road, near the Hotel Mont Dore, for the New Forest.
12.30 p.m.—Luncheon in the New Forest, near Lyndhurst.
2.30 p.m.—Coaches leave Lyndhurst for Ringwood.
5.0 p.m.—Tea at Ringwood.
7.30 p.m.—Arrival at Bournemouth.

PREPARATION OF FLUID EXTRACT OF ERGOT WITH SOLUTION OF SODIUM CHLORIDE.

Mix 200 parts of coarsely ground fresh ergot with 10 parts of pure salt, and moisten with a mixture of 2 parts of spirit of wine and 8 parts of water. Pack the moist powder firmly in a percolator and pour the above menstruum over it till it is covered. Macerate for twenty-four hours, and then percolate slowly at the rate of 15 drops a minute. The first percolate, amounting to 170 parts, is reserved. The extraction is then continued until the percolate is no longer coloured. The second percolate is now evaporated to 30 parts, and mixed with the reserve, so that the whole amounts to 200 parts, when 1 part of the finished extract equals 1 part of fresh ergot.

The extract is of a dark colour, bright and clear, and has a powerful odour. The 5 per cent. of salt contained in the finished product is immaterial. Some therapeutists assert that, from a physiological standpoint, it has no influence on the injection, since a syringe of 1 C.c. capacity contains only 0·05 of sodium chloride (*Apoth. Zeit.*, 10, 335).

POTATO STARCH is found by Rouvier (*Comp. rend.*, cxx., 1179), to behave differently in the presence of iodine, to the starches of wheat and rice, which act alike. The maximum of iodine fixed by potato starch, when the former was in excess, was 18·6 per cent., wheat and rice starch fixing 19·6 per cent. The exact quantity of iodine necessary to transform into iodide all the starch contained in a solution of definite strength, was 13·5 per cent. in the case of potato starch, and only about 8·9 per cent. in that of wheat and rice.

FURTHER OBSERVATIONS ON ANTIVENENE.

At the meeting of the Royal Society of Edinburgh, on Monday, July 15, Professor T. R. Fraser communicated further observations on antivenene, and the production of immunity against serpents' venom. He remarked that in all experiments hitherto made in the new department of serum therapeutics, the condition of immunity had been produced by the method of subcutaneous injection. This method was attended by inconveniences which would be avoided were the toxic substance introduced into the system by the stomach. Working on these lines, he had found that even large doses of serpents' venom were altogether inert or nearly so when introduced into the stomach or any other part of the al mentary canal. It was found, however, that a certain degree of immunity was established against the toxio effects of subsequent lethal doses of venom introduced hypodermically. These results probably afforded an explanation of the immunity enjoyed by certain snake charmers in India; for subcutaneous injection was unlikely to be the method employed by them for the introduction of the protection-producing venom. The experiments also, perhaps, explained the immunity possessed by venomous serpents. Professor Fraser detailed an extensive series of experiments, proving the antidotal properties of the blood serum of venomous serpents. As yet he had found that the natural antivenene obtained from the serpent was not so effective as the artificial antivenene reported on in a previous communication. It was probable, however, that the value of the natural antivenene might be increased and a sufficiently powerful antivenene obtained very rapidly by injecting successive doses of venom into the serpents themselves.

BOTANICAL NOTES.

Fungus Growing in a Solution of Copper.—M. L. Trabut has found, flourishing in a 9·5 per cent. solution of cupric sulphate, a mould-fungus nearly related to *Penicillium glaucum*, to which he gives the name *P. cupricum*. This fact may have an important bearing on the use of solutions of copper for destroying the fungus parasites of cultivated crops (*Bull. Soc. Bot. de France*, 1895, p. 33).

Algæ and Fungi of Drinking Water.—Dr. G. V. Istvanffi has investigated the organic life of the water supplied to Buda-Pesth for drinking purposes. He finds germs of algæ to be present during the whole year, especially during the spring and autumn, and when the rainfall is exceptionally high. The forms are chiefly unicellular; diatoms and *Scenedesmus acutus* are especially mentioned. Of fungus-germs by far the most abundant are those of the *Saprolegniaceæ* which were found invariably at all seasons, especially the swarmspores. All the various organisms observed occur also in the waters of the Danube (*Bot. Centralblatt*, vol. lxi., 1895, p. 7).

Cross-Pollination.—J. McLeod describes the phenomena of pollination in 667 species of flowering plants, natives of Flanders. Among these, 215, or 31·8 per cent., are anemophilous; this very large proportion being due to the great extent of water and the heavy rainfall. These conditions are especially favourable to the hygrophilous and anemophilous Gramineæ, Cyperaceæ, and Juncaceæ, but unfavourable to insects. The author makes the observation that in the enormous majority of anemophilous and hygrophilous plants the fruit contains only one or a very small number of seeds, corresponding to the very small number of pollen-grains deposited on the stigma by the wind in comparison to the number carried by insects (*Bot. Jaarb.*, Gent, 1894, pp. 119-511; from *Botan. Centralblatt*, lxi., 1895, p. 331).

REVIEWS AND NOTICES OF BOOKS.

A Manual of Botany. By J. Reynolds Green, F.R.S., Sc.D., F.L.S. Based upon the Manual of the late Professor Bentley. Vol. I. Morphology and Anatomy. Pp. 398, with 778 illustrations. Price 7*s.* 6*d.* (J. and A. Churchill, London. 1895)

Though the first glance at the opening pages of this book brings a strong recollection of the old Bentley's 'Manual,' the effect is soon dissipated, and the reader finds that the subject is treated in a markedly different manner. Instead of merely stirring the dry bones in the arid desert through which so many generations of pharmaceutical students have been unappreciative wanderers, Professor Green has wisely dealt with botany as an up-to-date science, so that the product is virtually an entirely new work. Many of the old illustrations remain unfortunately, since they are often mere caricatures, but the greater part of the matter is totally re-cast. The present volume treats of morphology and anatomy only, and, at the outset, the whole of the members of the Vegetable Kingdom are regarded as constituting a single vast series, though varying greatly in external shape, dimensions, and peculiarities of internal structure. This necessitates an early explanation of what is meant by the "alternation of generations," and the student gains a clear conception of the relations between flowering and flowerless plants at the very commencement of his studies. The system by which attention was at first exclusively confined to flowering plants in courses of botanical lectures was a most unsatisfactory one, causing great confusion in the minds of students when they came to study Cryptogams, which they were taught to regard as essentially different organisms. As a result, pharmaceutical students and others who devoted but a brief space of time to the subject either gained a totally inadequate knowledge of the lower plants or neglected that branch of botany altogether. The present tendency, however, as will be gathered from the arrangement followed in Professor Green's book, is to treat the world of plants as an organic whole. Nature knows no arbitrary distinctions, and the trend of modern botany is in the direction of a truly natural system.

In Book I., on the general morphology of the plant, the thallus is first described, then the root and shoots (including the different classes of stems and leaves). The alterations in this part of the work are not great, being mainly such as have doubtless been suggested by experience in teaching. But the treatment of the morphology of the reproductive organs will be quite novel to many pharmacists, the spore being taken as the basis upon which the superstructure is built up. The inflorescence of the so-called flowering plant is regarded as a "sporophore," and the term "flower" is applied to "any shoot which is specifically modified in connection with spore-production," whilst the androecium and gynœcium are naturally classed as "sporophylls." Phanerogams are thus at once brought into line with Cryptogams. A special section is devoted to the reproductive organs of gametophytes, or plants such as Algæ, Fungi, and Liverworts, which bear sexual cells—"gametes"—capable of giving rise to a new individual after coalescence in pairs. Then follows a chapter on the morphology of the fruit and seed.

The anatomy of plants is considered in Book II., cells, cell-contents, and the formation of cells and tissue systems being treated in the light of the most recent knowledge. It is distinctly advantageous for the study of the internal structure of plants to be thus deferred until a proper grasp has been obtained of morphological details. Students will also benefit by the newer illustrations here embodied in the work. The arrangement of tissues is explained in

accordance with the "stele theory," and students will be able to form a clearer idea of this theory than has formerly been possible from works published in English.

Some objection may here be taken to the restriction of the term "bark" to "all the layers of cork or periderm, with varying quantities of cortical tissue, pericycle, and bast," since the word has so long been employed in the sense of including all the tissues external to the cambium layer, when these are separated in a mass. The more limited and technical meaning of the term would appear to be due to a mistranslation of the German word "borke," which is not always used as the equivalent of "bark" in the English sense of that word, but more frequently corresponds to the collection of tissues described by French botanists as "rhytidome." The Germans are careful to distinguish between bark (*rinde*), as generally understood, and the mass of tissues (*borke*) cut off by the layers of cork. It must prove inconvenient to all engaged in British pharmacy if that distinction be not observed in this country in some similar way. It would be much better to invent a new term than to distort the meaning of an old-established one to such an extent as is visible in the writings of modern English botanists. Americans have boldly faced the difficulty by literally adopting the German term as "bork," but that plan may be objected to as likely to lead to a confusion with "bark." Rhytidome, again, is an awkward word, but the use of either that term or bork would prevent the grave inconvenience likely to be caused by misuse of the word bark. The only reason for dwelling on this point at length is that the book under consideration specially appeals to pharmacy students, and that, so far as they are concerned, the present position is peculiarly inconvenient, for they must needs alter their conception of what is bark, according as they are for the time being studying botany or pharmacognosy.

The general verdict on Professor Green's book, however, must be that it is eminently suitable for the pharmaceutical student. During late years Bentley's 'Manual' has gradually drifted more and more out of date, and no other book has exactly filled the place it used to occupy. Whatever objection may be taken by purists to the term "pharmaceutical botany," it is an undeniable fact that there is always room for a work on botany especially written for pharmaceutical students. To this was due the success of the older work in its palmiest days, and Professor Green may now look forward to a similar success, whilst the second volume of his book will be eagerly looked for.

GENERAL SURGERY AND PATHOLOGY FOR DENTISTS. By EDMUND W. ROUGHTON, B.S., M.D. (Lond.), F.R.C.S. (Eng.). Pp. 134 with twenty-six illustrations. (J. P. Segg and Co., Regent Street, London, W. 1895.)

The purpose of this book is, according to the author's preface, "to supply the student of dentistry with an account of general surgery and pathology sufficiently comprehensive to enable him to practise his profession intelligently, yet concise enough to be easily mastered whilst preparing for his examination." The little that the book does contain is certainly up to date, the matter being well arranged, and there are some original and descriptive illustrations, but it is very doubtful if the information contained will even enable a student to squeeze through his examination in the subjects dealt with, let alone make him an intelligent practitioner. Here are a few instances of how much the matter is condensed :—The important subject of "shock," the pathology of which every dental surgeon should have at his fingers' ends, is in this book disposed of in two loosely written pages. Again, "ulceration" is allowed one page; two pages suffice to express all the author has to teach about septicæmia and pyæmia, and so on, right through the book, if we except two short chapters on "Bacteria in Relation to Disease" and "Tumours." How can a student acquire sufficient knowledge by such a system of cram? An extensive knowledge of both surgical and medical pathology is of the utmost importance to the dental surgeon—quite as much so as it is to any other specialist in the various branches of surgery.

CORRESPONDENCE.

[*Letters to the Editor should be written as concisely as possible, on one side of the paper only, and preferably with name and address for publication.*]

THE TEACHING OF PHARMACY IN NORTH AMERICA.

Sir,—As you are probably aware, there is an effort being made to harmonise the requirements for graduation among the institutions teaching pharmacy in North America. For the present the question resolves itself into two important propositions :—

1. Shall practical experience in a pharmacy be required in order to obtain a degree?
2. Shall the course of instruction extend over two years of two semesters of from six to nine months each, as a minimum requirement, or may the instruction be crowded into two consecutive semesters of twenty weeks each, so as to render a candidate eligible for graduation within one year from the time he, as a rule, first began the study of pharmacy?

There are also other propositions, *i.e.*, the age of candidate, the degree, and, if advanced courses, the distinction between the degrees. A Committee has been adopted to consider these questions and to report at this year's meeting of the American Pharmaceutical Association, in Denver, Colo., commencing August 14, next. The Committee would be pleased to have an expression of views by your journal, if possible, during the middle of July. Kindly advise me when such notice is published.

Chicago, Ills., U.S.A. C. S. N. HALLBERG,
Sec., American Pharmaceutical Association, Section on Pharmaceutical Education and Legislation.

DISPENSERS IN PRISONS' SERVICE.

Sir,—Allow me to correct an error which occurs in a letter signed "Poor Law Dispensers," in your issue of July 13—which reads as follows :—

"The Prison Commissioners accept none but qualified chemists and druggists"—this is not correct. The prison compounders, as they are termed, labour under much the same grievances as the poor law dispensers; whilst there are sixty-one prisons in England and Wales, only eight qualified compounders are employed, the work in the remainder being done by warders or assistants who have picked up a slight knowledge of drugs either in the Army or Navy.

To give a slight insight into the way prison compounders are treated, I will give one instance :—

Some four years ago a new scale of pay was instituted; at that time there were four qualified compounders. One had been in receipt of his maximum salary for fifteen, and the others for two or three years (it takes ten years to reach the maximum pay). This new scale purported, according to the statement made by the late chairman, to give these men a rise of £20, but in point of fact it takes ten years to obtain this increment, which is doled out in instalments of £2 annually. To make things worse, at the same time three compounders were appointed, beginning at the same pay as the above-mentioned old servants were then receiving. Is there much justice or recognition of past services in this?

So long as unqualified dispensers are allowed to be employed, whether in prisons or workhouses, the pay will be kept at the absurdly low figures prevalent.

The prison compounders have petitioned the Home Secretary time after time, with no result. No doubt if the Pharmaceutical Council took the affairs of dispensers up, something might be done to improve the status and pay, and I think the prison compounders ought to have a little of the Council's consideration with their brethren employed under the Poor Law, who have the sympathy and wishes for better things from—

A PRISON COMPOUNDER.

THE SOCIETY AND THE TRADE.

Sir,—I take the opportunity of congratulating you upon the decided improvement you have made in the publication of the Journal, and of expressing my views on the policy of your continuing and still extending its improvement, in order to make the paper what it ought to be, a useful and interesting trade journal. By so doing I am convinced you would arouse in the minds of a large number of qualified, but unattached, chemists and assistants, an interest in the Pharmaceutical Society, and, as a result, in their own personal welfare, which would induce them to readily pay their subscription to the Society, in order to possess a weekly copy of the Journal. This they could look forward to receiving and reading with pleasure and satisfaction, instead of doing as many subscribers, in the past, put the Journal on one side, week after week, without even taking off the wrapper, unless wanting an assistant or a situation, or to sell or purchase a business, in which case they look through the advertisement column and nothing more.

I have subscribed to the Pharmaceutical Society for nearly twenty years, and must say what I often think, *i.e.*, that I have had very little satisfaction in return for my money. I have been repeatedly struck during the last twelve years by the large proportion of qualified assistants who are not, never have been, and declare most emphatically they never will become, supporters of the Society unless most decided improvement takes place in its method of administration, but will continue contented to remain what I consider interlopers of the Society, and therefore a disgrace to themselves and the class of which they are individually inactive constituents; whilst they are ever ready to condemn it, instead of encouraging it by their support. I have always endeavoured to induce these men to join the Society, and so strengthen its hands to enable it to do what they maintain it ought to do. I invariably find they are quite willing to do so, providing they could see the prospect of any return for their subscription, and as I feel there is much weight in their argument I find it useless to pursue the matter, for I cannot help feeling how much better off I should be to-day had I never subscribed to the Society. It is this argument, I feel sure, which has prompted so many who have during the past few years severed their connection with the Society, after being associated with it for many years, as they find that with the reduced profits of the present day it is necessary to curtail their expenses, and as they attribute this reduction of profits in a measure to indifference and inactivity on the part of the Society, they consider themselves quite justified in so doing.

I have also been astonished during the last few years by the number of unqualified assistants—with whom the labour market is glutted—open to undertake any position, either as managers in charge, senior dispensers, countermen, or, in fact, any position in a chemist's shop; and I maintain if those who are qualified would combine and strengthen the hands of the Society this state of things would soon cease to exist, and qualified registered chemists would become wiser and happier men.

Cheltenham. J. A. THOMAS.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

EXAMINATIONS IN LONDON.

July, 1895.

MAJOR EXAMINATION—PASS LIST.

Candidates examined	49
,, failed	26
,, passed	23

Armbrecht, Ernest L. N.
Armitage, Thomas.
Bastow, Sidney.
Blissett, Francis Homan.
Breese, John Soley.
Brown, Harold.
Burn, James Robert.
Daniels, Frederic Wm.
Dawson, Henry Gray W.
Forster, Horace R. W.
Fraser, Henry.
Innes, James.
Jones, Wm. Miall.
Lilly, Arthur.
Marsh, Albert.
Marshall, Gervas G.
Maunder, William Hy.
Morgan, Henry Brunt.
Nall, Walter.
Read, Harold M.
Tully, Fred Herman.
Welsh, John.
Young, James C.

MINOR EXAMINATION—PASS LIST.

Candidates examined	229
,, failed	176
,, passed	53

Ayre, Harry.
Bamford, Thomas.
Barlow, Samuel.
Bowness, Samuel Wesley.
Broad, Herbert Charles.
Brooks, Charles.
Burgess, Fredk. Wm.
Cherry, Frederick.
Coppock, Bernard.
Curtis, Joseph Levi.
Cuthbertson, Thomas M.
Davies, William.
Davis, Sidney.
Dexter, Bertie.
Dyson, Thomas Hatfield.
Edwards, Wm. Howard.
Exon, Frank Herbert.
Fisher, John Little.
Fletcher, John G.
Fletcher, Samuel T.
Francis, Thomas.
Fuge, Dingley P.
Gould, Charles N.
Hall, Howard E.
James, Clarence H.
James, Frederick.
Jealous, Bernard.
Jones, David Pryce.
Jones, Francis C.
Jones, John Daniel.
Lee, Harry Lancelot.
Lloyd, John Ambrose.
Marsh, Frederick Wm.
Martin, Henry Arthur.
Metcalfe, William Edwd.
Morris, Bertram Locker.
Nicol, James.
Palmer, Ernest.
Racine, Frank Gerald.
Roberts, Joseph.
Rowe, John Westaway.
Savill, William Arthur.
Scurlock, David.
Stedman, Charles Richard.
Towan, Fredk. William.
Tunbridge, Fras. Fredk. A.
Walker, Albert Storrs.
Walker, John Robert.
Warren, Evan Mayo.
Weight, Saml. Thos. Ford.
Wild, George Herbert.
Williams, John.
Woolman, Thomas.

FIRST EXAMINATION.

Certificates by approved examining bodies were received from the under-mentioned in lieu of the Society's Examination:—

Bain, James	Glasgow.
Barrie, Thomas Stewart	Paisley.
Biscomb, Tom Hewison	Kennington.
Blunt, Walter Arthur	Shrewsbury.
Clegg, Harry Brook	London.
Cole, William Parmiter	Weymouth.
Delves, Charles Broughton	Exeter.
Evans, William Henry	London.
Hall, Louis Clarence	Southport.
Huss, Eduard	Künzelsan.
Osborne, William Harrison	Lincoln.

Reynolds, Herbert J.....Plymouth.
Smith, Stanley Gordon.....Sydenham.
Smith, Thomas M..... .....Sydenham.
Stather, William Booth.....Sheffield.
Tugwell, Percival Thomas.....Brighton.
White, Arthur Edward.....Weymouth.

EXAMINATIONS IN EDINBURGH.

July, 1895.

MAJOR EXAMINATION—PASS LIST.

Candidates examined	4
,, failed	2
,, passed.....	2

Braddock, William. | McKellar, Arthur.

MINOR EXAMINATION—PASS LIST.

Candidates examined	141
,, failed	81
,, passed.....	60

Aitken, Robert.
Bagnall, Percy.
Barker, John Faulkner.
Beanland, Sam Percival G.
Bell, Robert Armstrong.
Buckley, James Arthur.
Burch, Libbis Napier.
Caldwell, John.
Carr, James Augustus.
Chamberlain, Mary H.
Clitherow, Herbert G.
Crosdale, Robert M.
Davies, Daniel.
Denwood, George D.
Dickins, Frederick.
Dodge, Morten.
Dorran, James Wm.
Fletcher, Charles S.
Forrester, Thomas.
Fuge, Walter Thomas.
Gray, Matthew.
Hammond, William H.
Hirst, Thomas.
Howard, Alfred.
Hubard, George Thomas.
Jones, Thomas.
Judge, Joe.
Laidlaw, Daniel M.
Lucas, Harry.
Mackenzie, John M.
McNaughton, David E. F.
Main, Alexander.
Mitchell, George Alex.
Moat, Henry.
Murray, William.
Nicolson, David W.
Paton, Robert Alex.
Pearson, Benjamin.
Pigg, Joseph.
Powell, Wm. Geo.
Priestley, John A.
Rattray, David Smith.
Reid, John Kerr.
Reid, John Loudon.
Riddell, William.
Roberts, William.
Round, Wm. Henry.
Sawyer, Robert B.
Shand, Alexander.
Shaw, Fredk. Bertram.
Sinclair, Jas. Donald.
Stephen, George.
Tatler, Albert Edwd.
Thomas, John Austin.
Wade, John.
Wilson, Thomas.
Wilson, Wm. Donald.
Woodruff, Herbert.
Wren, John.
Wright, Frederick.

COUNCIL PRIZES EXAMINATION.

July 15, 1895.

BOTANY.

Time—10 *a.m. to* 11.30 *a.m.*

1. What are the essential constituents of the food of a green plant, and in what form and by what means are they absorbed? How would you determine by experiment the necessary elements in the food of a green plant?

2. Describe clearly the structure of a typical Angio-spermous ovule, and give an account of the changes which take place in such an ovule after fertilisation has been effected.

3. How would you distinguish between the following Natural Orders:—*Ranunculaceæ*, *Rosaceæ*, *Solanaceæ*, and *Scrophulariaceæ*? Mention two examples of each Order.

4. Describe the structure of a typical root. Give examples of roots illustrating the various forms and functions of such organs.

MATERIA MEDICA.

Time—11.30 *a.m. to* 1 *p.m.*

1. How would you distinguish the official and other varieties of Aloes that are met with in commerce? Name the botanical and geographical sources, and compare the methods of preparation and constituents of each.

2. Describe the alkaloidal constituents of Belladonna, and say how they may be distinguished. What is Homatropine, and how may it be prepared?

3. What tests would you apply to determine the purity of Oil of Lemon? Describe its chief constituents; to which does it owe its aroma?

4. Describe the official and other varieties of Jaborandi, and give their botanical and geographical sources. What are the characters of Pilocarpine, and how may it be isolated?

CHEMISTRY.

Time: 2 to 5 *p.m.*

1. How can solid carbonic anhydride be prepared? Explain fully the principles involved in its production, and contrast its physical properties with those of snow.

2. Give the graphic formula of citric acid, and indicate how this body has been synthetically prepared.

3. What are quinoline and iso-quinoline, and how are they related to some of the natural alkaloids?

4. What are the chemical and physical differences between wrought iron, cast iron, and steel? How would you propose to determine the iron and manganese in a specimen of ferro-manganese?

5. Indicate how ethyl alcohol could be obtained from methyl alcohol.

6. What are the various substances which can be obtained by the action of chlorine on toluene (methyl benzene)? Indicate under what conditions they are respectively formed. How can benzaldehyde be obtained from toluene?

THE HANBURY MEMORIAL.

AWARD OF THE HANBURY GOLD MEDAL.

The Hanbury Gold Medal, which constitutes the memorial to the late Daniel Hanbury, is awarded biennally for high excellence in the prosecution or promotion of original work in the chemistry and natural history of drugs. It will be remembered that on the last occasion, in 1893, the medal was awarded to the late Johann Michael Maisch, who received it just before his death. On the present occasion it has been unanimously awarded to Dr. August Vogl, who is probably the most distinguished living pharmacognosist.

The full text of the report of the adjudicators is as follows:—

REPORT OF ADJUDICATORS.

We, the undersigned adjudicators appointed under the provisions of the deed of settlement of the Daniel Hanbury Memorial Fund, award the eighth Hanbury Gold Medal to

AUGUST VOGL, M.D.,

Professor of Pharmacology and Pharmacognosy in the University o Vienna.

(Signed)

CHARLES BARON CLARKE, President of the Linnean Society.
A. VERNON HARCOURT, President of the Chemical Society.
M. CARTEIGHE, President of the Pharmaceutical Society.
N. H. MARTIN, President of the British Pharmaceutical Conference.
WALTER HILLS, Pharmaceutical Chemist, nominated by the President of the Pharmaceutical Society and the President of the British Pharmaceutical Conference.

July 10, 1895.

PHARMACEUTICAL JOURNAL.

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FIFTY-FIFTH YEAR OF PUBLICATION.

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LONDON: SATURDAY, JULY 20, 1895.

THE CONDITIONS OF PHARMACEUTICAL QUALIFICATION IN THE UNITED STATES.

IF multiplicity of educational establishments in connection with pharmaceutical qualification could be accepted as evidence that necessary requirements in that respect were well provided for, there might be some reason for the belief, not unfrequently prevailing, that America is better off than we are at home. There are in the United States no less than forty institutions professing to teach pharmacy, and in Canada there are another three. These have been classified as follows:—

1. Colleges of Pharmacy that are organised and conducted by Pharmaceutical Associations located chiefly in the larger cities. Of such Colleges, numbering some seventeen, the Philadelphia College may be taken as a type. They all require their graduates to have had from three to four years' practical experience, and they have two terms of from six to nine months each.

2. Colleges which are departments of state universities and are conducted under the direction of Pharmaceutical Associations in the respective states. The oldest of these is that of Michigan, and similar colleges exist in Iowa, Kansas, Minnesota, Ohio, Wisconsin, and Texas. With the exception of Michigan, they all require their graduates to have had practical experience, but in the Kansas College only for two years. The courses at colleges of this class are two semesters, each varying from twenty-four to thirty-six weeks in two separate years.

3. Colleges which are either departments of Sectarian Universities, like the North-Western of Chicago, or of Medical Colleges, or else institutions carried on by private enterprise, sometimes appendages of what are termed "business colleges." These are conducted independently of any pharmaceutical association and as a source of profit. There are upwards of fifteen such colleges in various parts of the United States; they graduate students all the year round in from twenty-five to forty weeks and without requiring any practical experience. They also give all kinds of degrees.

Up to a comparatively recent period the only title conferred by Colleges was that of "Graduate in Pharmacy," then the National College at Washington introduced the "Phar.D.," the University of Michigan "Pharmaceutical Chemist," and two of the colleges in Canada give the title of "Licentiate." The Illinois College of the North-Western University gives two distinct titles, Graduate in Pharmacy, obtainable after two consecutive courses of twenty weeks each, and Pharmaceutical Chemist, obtainable after courses extending over two years.

That the results of these diverse educational arrangements should be incompatible, from the point of view of pharmaceutical qualification, will scarcely need demonstration. The most remarkable fact, however, is that the diplomas granted by any of the colleges above described, purport to be certificates of qualification to carry on business and, in many instances, such diplomas are so recognised by the Pharmacy Boards, whose business it is to see to the qualification of persons desiring to practise. There are only five states where these diplomas are not accepted as sufficient evidence. In the states of New York, Massachusetts, Pennsylvania, Ohio, and Illinois, every college graduate is required to pass an examination in order to obtain legal qualification and registration. In those states the Pharmacy Boards also require, in addition to examination, a proof that the candidate has had of from three to four years' practical experience in a drug store. Among the other states there are some where proof of practical experience is required, but the majority accept attendance at a pharmaceutical school as a sufficient equivalent. The result is that many young men and women aim at no better qualification and, to obtain it, they go to those schools where they can get through in the shortest time and obtain diplomas with the least work.

Obviously the toleration of such a defective practice is inconsistent with proper regard for public safety, and at the same time it indicates neglect of the educational measures which pharmacists are justified in taking for their own protection against incompetent competitors. But the crowning absurdity consists in the acceptance of school diplomas as a basis of qualification to carry on business without also requiring a test examination and evidence of practical experience in a pharmacy.

That persons thus obtaining the right to carry on business should, under such conditions, suppose they have become qualified pharmacists is not surprising, nor can it be wondered at that some of the best schools are being deserted in favour of those which are termed "quick and easy diploma mills." The facts of the case were brought before the American Pharmaceutical Association at the Chicago meeting by Professor HALLBERG, and the paper he read was referred to a Committee, which reported that the subject, though requiring long consideration, was of such importance as to demand attention from pharmacists generally.

No further report appears to have been made, but it may be gathered from the letter from Professor HALLBERG, which appears in this number of the Journal, that an effort is being made to establish a better system of pharmaceutical qualification in the United States. With that effort the readers of this Journal may be expected to sympathise most heartily and, at the same time, some feeling of satisfaction may be experienced that much as our own educational arrangements fall short of what is desirable, the provision for testing the qualification of persons desirous of entering the business of pharmacy is uniform for the whole kingdom and better adapted to the object in view than that above described.

It will not be out of place to point out that in those circumstances British pharmacists have a great advantage,

and the additional fact that the function of conferring legal qualification is entrusted to the Pharmaceutical Society offers them an exceptional opportunity for protecting their interests, as well as for advancing their professional position. In a recent number of the *American Druggist and Pharmaceutical Record*, there is an article descriptive of the condition of pharmacy in England, in which the great advantage of having that power and the general administration of the laws relating to the sale of poison, centred in the Pharmaceutical Society is spoken of as a valuable privilege that is too little appreciated. "It is difficult," writes our contemporary, "to understand how a society possessed of such powers fails to command the support of the majority of English pharmacists." Without pretending to explain that difficulty, it may be hoped that a comparison of the different conditions under which legal qualification is obtainable in the two countries, may lead to a clearer perception of the fact that there cannot be any more effectual protection against the evils experienced in both of them, than that afforded by thorough educational training as the only proper basis of qualification.

AWARD OF THE HANBURY MEDAL.

For the eighth time the Hanbury Gold Medal, "for high excellence in the prosecution or promotion of original research in the natural history of drugs," has been awarded. This year the recipient of the medal is Dr. August Vogl, Professor of Pharmacology and Pharmacognosy in the University of Vienna. For the first time since its foundation the medal passes into the hands of an Austrian, and also for the first time into the hands of a pharmacognosist who has made the anatomy of drugs his special study. By unremitting labour for many years Professor Vogl has been instrumental in raising that branch of the natural history of drugs to the position it now occupies. He is best known in this country by his literary productions in that field, although in his own [he enjoys an equally high reputation as a pharmacologist and botanist. The 'Commentary to the Austrian Pharmacopœia' and the 'Anatomical Atlas' stand out as conspicuous monuments of Professor Vogl's ability and industry; the school of anatomists that he has created bears witness to the success of his work. The adjudicators of the medal are to be congratulated on their selection. No more worthy recipient of the Hanbury Medal could have been found than Professor August Vogl.

POISONING IN INDIA.

According to the *Times of India*, the latest annual report of the Chemical Analyst to the Government of Bombay seems to indicate that there is a steady increase in wilful poisoning for purposes of revenge, and the proportion of fatal cases is also increasing. One hundred and seventy-five cases were recorded during 1894, and some fifteen hundred articles were chemically examined in connection therewith. There were fifty instances of poisoning by arsenic, the proportion of deaths from this cause rising to 50 per cent. Cases of datura-poisoning were double the number of the previous year, and opium-poisoning is also largely on the increase.

A curious point is that many poisoning cases reported were quite wanton and motiveless. In others, again, the poison, generally arsenic, was administered to men by, or at the instigation of, their wives. A singular case is that of the Subordinate Judge of Bijapur, who died five hours after calling in a native "quack-doctor." That worthy treated him with scrapings from a "matras," a piece of stone-like substance, which on analysis was found to contain arsenic and sulphur. Another "matras" possessed by the same individual contained mercury and sulphur, with some particles of gold, which the owner declared to be a specific in cases of fever. These mysterious medicinal preparations are crudely made and as crudely administered, and the chances of patients treated with them vary according to the proportions in which the different ingredients are scraped off.

Mercury, copper sulphate, the seeds of yellow oleander (*Cerbera thevetia*), strychnine, and phosphorus were other poisonous materials employed by would-be murderers, though arsenic appears to have been the general favourite, and two attempts were made to destroy life by administering powdered glass. It is observed, curiously enough, that the use of the latter substance almost always leads to the detection of the offender, whilst it is not found to be dangerous to the life of those to whom it is administered.

INDEX TO THE JOURNAL.

The publication of the index to the recently completed volume of the Journal was indirectly a cause of some little delay in the delivery of last week's issue, the postal authorities having taken objection to the insertion of a printed slip headed "Instructions to Binder," which was prepared for the convenience of our readers (*see below*). With respect to the index itself, which will be found to be on a much more extensive scale than former indexes, the extra time taken for its preparation barely sufficed for the purpose, and it may be that errors have crept in unavoidably, owing to the pressure of other business preventing that thorough revision which is desirable in such cases. Readers noting any inaccuracies will therefore confer a favour by communicating the particulars to the Editor, in order that they may be generally notified.

INSTRUCTIONS TO BINDER.

The text of the slip referred to above, which readers may find it useful to communicate to their bookbinders, was as follows: "Replace pages 25 and 26 in number for July 14, 1894, by corrected pages published at end of number for July 21, 1894. The weekly supplements, published from January 5 to February 9, inclusive, and the Epitomes of Current Events, from February 16 to March 30, inclusive, form a consecutive series, and it will therefore be found convenient, for the sake of ready reference, to detach them and place them together at the end of the volume. The matter in the latter supplements is not indexed, and whether they are included in the bound volume or not must depend upon the inclination of subscribers."

READING COVERS FOR THE JOURNAL.

As a result of the enlargement of the Journal page, it will be found that the old reading cases are now too small. Arrangements have therefore been made for the supply of covers suitable for the enlarged paper. Plain cloth covers with strings for twenty-six numbers of the Journal, and stamped in gold letters on the cover "Pharmaceutical Journal," will be supplied by Mr. W. I. Richardson, 4 and 5, Great Queen Street, Lincoln's Inn Fields, W.C., at 2*s.* each, or post free for 2*s.* 3*d.* Stouter cloth cases, of better quality and with Slade's patent arrangement of straps and copper wires instead of strings, can be supplied at 3*s.* 3*d.* each, or post free for 3*s.* 6*d.*

NOTES AND NEWS.

British Pharmaceutical Conference.—Referring to the list of papers published last week (see p. 44), Mr. E. H. Farr, of Uckfield, writes to say that he is not a Fellow of the Chemical Society, as indicated in the paragraph in the Journal. The particulars in the paragraph referred to were copied from the official intimation received from the Honorary Secretaries to the British Pharmaceutical Conference, and it appears that a certificate in favour of Mr. Farr was read before the Chemical Society on June 20, for the first time.

Hospital Sunday Fund.—Up to Monday last a total of £42,000 had been received at the Mansion House in aid of this fund, the persistent efforts to swell which should be far from encouraging to medical practitioners and pharmacists. For it is well known that probably the larger proportion of those who benefit by the public hospital system of free treatment and medicine are well able to pay for both.

Tree Trunks as Filters.—A well-known Austrian engineer, M. Pfister, says the *Railway Review*, is stated to have discovered a remarkable property of the trunks of trees, namely, that of retaining the salt of sea-water that has filtered through the trunk in the direction of the fibres, and he has constructed an apparatus designed to utilise this property in obtaining potable water for the use of ships' crews. It consists of a pump, which sucks up the sea-water into a reservoir and then forces it into the filter. As soon as the pressure reaches 1·5 to 2·5 atmospheres the water makes its exit from the other extremity of the trunk, at first in drops and then in fine streams, the water being described as free from every trace of its original saline constituents.

Strychnine for Phenacetine.—The adjourned inquiry into the circumstances attending the death of Mr. Charles Harrop, of Edgbaston, was held by the Birmingham coroner on Monday, and a report of the proceedings appears at page 67 of this week's Journal. It will be remembered that the deceased was shown (see p. 21) to have died from the effects of strychnine, administered in mistake for phenacetine as a remedy for headache. It now appeared that the death of a Miss Elizabeth Banfield was due to powders supplied by the same chemist from the same bottle, though the medical man in attendance certified that cancer and syncope were the cause of death. Mr. Brown, pharmaceutical chemist, by whom the poison was supplied, said that the bottle supposed to contain phenacetine was supplied by Messrs. Wyleys (Limited), of Coventry. He had ordered some strychnine at the same time as he ordered the phenacetine, and it would appear that in executing the order a bottle of phenacetine was accidentally labelled strychnine, and one containing a mixture of phenacetine and strychnine was labelled phenacetine. The jury returned a verdict of "Death by misadventure," but considered there was negligence on the part of the wholesale dealer's assistant, and that the retail chemist, when he discovered there had been a mistake, should have supplied deceased with an antidote. It may also be pointed out that, since every pharmacist is expected to guarantee the nature and quality of all drugs and chemicals he supplies to the public for medicinal purposes, this case affords a striking proof of the necessity of testing all articles before distributing them. An obvious moral to be derived from the unfortunate affair is that strychnine should never be kept in the pharmacy in the state of powder.

'The Natural History of Plants.'—The study of the Thallophyta, Bryophyta, and Pteridophyta concludes the section devoted to Cryptogams in Kerner and Oliver's 'Natural history of Plants,' and the latter portion of Part 14 is devoted to flowering plants, the Gymnospermæ, Monocotyledones, and part of the Dicotyledones being considered. The frontispiece is a beautifully coloured representation of frondose and fruticose lichens.

The Pasteur Institute.—According to the *Annales de l'Institut Pasteur* for June, 345 persons were treated for the prevention of hydrophobia during the first quarter of the year, and only one died. During the whole of last year only 12 persons died out of 1392 treated, *i.e.*, less than 1 per cent. In five of the cases, too, death occurred within the first fortnight of treatment, thus reducing what may fairly be considered as the preventable mortality to ½ per cent.

Communication of Sound by Light Rays.—Professor A. Graham Bell seems increasingly confident of being able to effect the communication of sound by means of a beam of light. His recent statements on the subject are inspired by the results of a long course of experiments with selenium, which, he finds, is marvellously sensitive to the influence of light, exposure to which induces in it vibrations that can be electrically transmitted.

Award of the Barnard Medal.—The first award of the Barnard Gold Medal of the Columbian College has now been made to Prof. Ramsay and Lord Rayleigh jointly, for the discovery of argon. The medal will next be awarded to such person as shall within five years from now make such discovery in physical or astronomical science, or such novel application of science to a purpose beneficial to the human race, as in the judgment of the American Academy of Science should be esteemed worthy of such honour.

University Degrees for Women.—Professor Howden calls our attention to the fact that a supplementary charter has been granted to the University of Durham by warrant, under the Queen's Sign Manual. This charter enables Convocation to grant to women any degrees which it now has the power to grant to men, excepting only degrees in Divinity. The degrees of the University of Durham in Medicine, Science, Arts, Literature, and Music are, therefore, now obtainable by women. The medical and science faculties are, as is well known, located in Newcastle-upon-Tyne, in the College of Medicine and the College of Science respectively, and in those institutions women students can receive instruction in the various subjects of these two faculties. The first woman graduate—Miss Ella Bryant—received her degree of Bachelor in Science at the meeting of Convocation, held in Durham, on the 24th of last month.

How to Reach Bournemouth.—In view of the Conference assembling at Bournemouth in a few days, it may be useful to explain how that town may best be reached from different parts of the country. Londoners and persons passing through London will, of course, travel from Waterloo to Bournemouth East. Passengers from the Midlands and the West of England book to Bournemouth West. There are through carriages by certain trains from Gloucester, Cheltenham, Worcester, Birmingham, Burton, Derby, Nottingham, Sheffield, York, Leeds, and Bradford. Passengers from Scotland and the North of England generally join the through carriages at York, Leeds, or Sheffield, as most convenient; and those travelling from or through Buxton and the Peak district change at Derby. By way of Templecombe Junction there is direct communication with Exeter, Plymouth, and Ilfracombe, while Liverpool and that district are put in communication with Bournemouth by the Great Western Railway, *via* Reading and Southampton.

THE ADULTERATION LAWS.—The Select Committee appointed to inquire into the working of the Sale of Food and Drugs Act, reports that it has not had sufficient time to conclude its investigation, but it has been agreed to report to the House of Commons the evidence already taken, and to recommend that a similar committee should be appointed in the next Parliament. Mr. Edmund Gosse, of the Board of Trade, is specially thanked for preparing a translation and *précis* of the adulteration laws of foreign countries.

THE PROPOSED HUXLEY MEMORIAL. — Sir Joseph Fayrer, K.C.S.I., F.R.S., presided over a well-attended meeting of medical men and students attached to the Charing Cross Hospital Medical School, on Tuesday last, the object of the meeting being to consider the establishment of a memorial to commemorate the connection of the late Professor Huxley with the school, within whose walls he received his medical training. The following resolution was proposed by the Chairman:—"That it is desirable, by means of a suitable memorial in connection with the Charing Cross Hospital Medical School, to permanently record the fact that the late Professor Huxley received his early scientific and the whole of his medical education at the Charing Cross School, and thus to keep the example of his life and work constantly before succeeding generations of Charing Cross students." Sir Joseph Fayrer recalled his lifelong friendship with Professor Huxley, and said that in some degree he might claim to have been the prime instigator of Professor Huxley's life work, because it was at his instance that the great philosopher first applied to the naval authorities for employment, the application resulting in his appointment to the "Victory," Nelson's ship, for duty at Haslar Hospital. Huxley was a most charming companion, though a keen controversialist, and was generally right in his views. He hoped that those present would always have Huxley's example before them, and that a successor to him might arise amongst them. The resolution was unanimously agreed to, and it was further decided that the memorial should take the form of a Huxley Scholarship and Medal, to be awarded annually at the Charing Cross Hospital Medical School, and that, if funds permitted, an annual public lecture should be instituted at the Charing Cross Hospital Medical School, dealing with recent advances in science, in their bearings upon medicine. The following committee was appointed to make the necessary arrangements: Sir Joseph Fayrer, Sir Guyer Hunter, Dr. Henry Huxley, Dr. Watt Black (Hon. Treasurer), Mr. Stanley Boyd, Mr. J. H. Morgan, Dr. M. Murray, and Mr. H. Waterhouse (Hon. Sec.).

SOCIETY OF INSPECTORS OF WEIGHTS AND MEASURES.—At the annual meeting of this Society last week, Sir Arthur Arnold, the President of the Society, and the Chairman of the London County Council, delivered an address in which he specially dwelt upon the need for establishing uniformity in the weights and measures used throughout the kingdom. As an instance of the existing state of things, he mentioned that there are about twenty different kinds of "bushels" in use. Uniformity can only be brought about by the central authority, and the most important question of all is whether a total change of the whole system of weights and measures would not be advisable in order to bring this country into accord with other nations. In connection with a paper by Mr. Ridgway on the "Mechanics of Weighing," a resolution was passed that the Society should prepare and sanction a systematic code of regulations for the guidance of its members in testing weighing instruments and machines. At the dinner held at the Holborn Restaurant, Sir Arthur Arnold occupied the chair, and in proposing the principal toast he referred to the great public service done by the London County Council in the matter of proper adjustment of weights and measures.

ENGLISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

PHOSPHORUS POISONING.—An inquest was held in the Bootle Police Court by Mr. S. Brighouse, the county coroner, on Monday, July 8, to inquire into the cause of death of Mary Ann Myers, aged fourteen months, who had been suddenly taken ill on the previous Wednesday, and had died in the Borough Hospital on the Saturday. In her evidence the mother stated that she had discovered some lucifer matches on the floor near where the child had been playing, and she believed that it was through sucking their heads that her baby had been poisoned. This was borne out by the results of a post-mortem made by the police surgeon, Dr. Sprakeling, who found the stomach inflamed, the intestines slightly ulcerated and inflamed, particularly about "Peyer's patches," the blood fluid and dark coloured, and the liver large, pale yellow, and affected with fatty degeneration to a marked degree. About 6 drachms of a thick yellow fluid with a strong garlic odour obtained from the intestines gave no phosphorescence in the dark, but on the application of Hager's modification of Scherer's test, revealed unmistakably the presence of phosphorus in small amount. The medical and chemical evidence confirmed the mother's story and a verdict in accordance was returned.

PLYMOUTH, DEVONPORT, STONEHOUSE AND DISTRICT CHEMISTS' ASSOCIATION.—The annual outing of the above Association took place at Lidford, on Wednesday last. Two first-class saloon carriages left Plymouth at 2.30 p.m., calling at Devonport fifteen minutes later, arriving at Lidford Station about 4 p.m., where the party immediately made for the renowned "Gorge" at the base of the waterfalls; they were photographed after enjoying the romantic scenery. The Manor Hotel was reached at 6.15 p.m., when full justice was done to a high tea, served in the best style, after which a vote of thanks was proposed and unanimously carried to the Secretary of the Outing Committee, Mr. A. D. Breeze; Mr. G. T. Netting proposed a vote of congratulation to Mr. Geo. Breeze on his recent appointment as Justice of the Peace. The party was again photographed on the lawn. The remainder of the time was amusingly spent in various tugs of war; home was reached at 10 p.m., when a most enjoyable and happy day was brought to an end.

SUNDERLAND CHEMISTS' ASSOCIATION.—This Association had its second annual picnic on the 10th inst. The place chosen for the trip was Castle Eden Dene, a place rich in foliage of different kinds and divided by many delightful walks. The party, consisting of Mr., Mrs., and Miss Fairman, Mr., Mrs., and Miss Robinson, Mr. and Mrs. Todd, Mr. and Mrs. Hodgson, Mr. and Mrs. Nasbet, Mr. and Mrs. Bell, Mrs. and Miss Mitchinson, Messrs. Milligan, Ritson, Kerse, Jepps, and Walker, left Sunderland about 2 p.m., and on arriving at the Dene divided into parties, visiting the most noted places of interest, and finally meeting at the "Garden of Eden," where tea was served. After having done justice to a capital meal, further pleasurable scenes were sought; and after a splendid day's outing the party reached home at 10 p.m. thoroughly satisfied with the excursion.

ROYAL BOTANIC SOCIETY OF LONDON.—At a meeting of this Society, held last Saturday, Mr. John Birkett in the chair, it was announced that arrangements had been made in association with the Medical and Geographical Congresses to hold an evening fête in the gardens on Wednesday, July 31. There will be exhibitions of medicinal plants, of plants geographically arranged, and of artificial flowers.

REMOVAL OF BUSINESS.—For the past two years Mr. Martin K. Johnson, chemist and druggist, has carried on the business of the late firm of Rowe and Co., at 97, Fore Street, Devonport, but of late his business has grown to such an extent that he has found the premises inadequate. Consequently he has sought a more commodious building, and removed to seven doors above. The shop has been fitted up in the latest style.

Midland Pharmaceutical Association.—A meeting of the Midland Pharmaceutical Association was held on Friday, July 12, at Mason College, Birmingham, the President, Mr. R. Gibbs, in the chair. There were present Messrs. Alcock, Thompson, Prosser, Poole, Wakefield, Winfield, Mackenzie, and others.

The President remarked that the present General Election should not be allowed to pass by without an effort being made by the Association of impressing upon Parliamentary candidates the injustices and anomalies pharmacy is at present suffering under. He thought that the Federation of Local Pharmaceutical Associations was the body to move in the matter. He suggested that a circular be drawn up and sent to members of the Association, asking them to wait upon candidates in their districts and give the views of the Association.

Mr. Thompson said that the Federation was moving in the matter.

Mr. Alcock thought that the Parliamentary candidates should be appealed to upon the ground work of a higher education, legal responsibility, and a monied interest in our pharmacies; he should like a pharmacist to be granted a licence to practise pharmacy.

Mr. Thompson moved that Messrs. Gibbs, Jarvis, and Prosser be instructed to draw up a circular letter to all Parliamentary candidates in the Midland district; this being seconded by Mr. McKenzie closed the meeting.

The following circular has since been issued by the Association:—

Birmingham,
July, 1895.

Dear Sir,—The Midland Pharmaceutical Association desires to call your attention to an evil which is rapidly extending, and calls for the immediate attention of the Legislature, in the hope that you will see your way, as one of the representatives of the district, to give attention to the subject.

Twenty-five years ago, owing to the number of poisoning cases, an Act of Parliament was passed to restrict the sale of certain poisons other than by those who had made themselves familiar and responsible by apprenticeship, study, examination, and registration, and from that time till now the public have been protected by its beneficial effects.

The results produced by this Act are much greater than the reading of the Act would suggest, or the mere scheduling of a few poisons. It has localised to a great extent the materials used in medicine, whether of a dangerous character or otherwise, from articles of food; it has also raised up a body of men who have been compelled to submit themselves to scientific study and examination, which has had the effect of destroying to a great extent the commercial or trading instinct, and substituting therefor, wisely as we think, the characteristics of a profession.

This professional instinct in regard to the powerful materials taken or used for the purposes of medicine we say is both necessary and wise, and it is because a change is rapidly taking place which is calculated to destroy the valuable protection to the public which this Act of 1868 conferred that we wish to point out that, owing to a defect in its construction, it appears that whereas an individual may not conduct the business and calling of a druggist or pharmacist, unless qualified by examination and registration, seven unqualified men under cover of the Limited Companies Act can, and unfortunately do an undoubted injustice to qualified men.

Another point we wish to press is that these seven or more unqualified persons have bought, and are rapidly buying up or opening drug stores all over the country, conducted by managers, probably qualified, but with no public guarantee of the same. These managers are men of straw, they lose only their position or get moved to any branch through any faults or mistakes they may make.

Do you consider this an equal or satisfactory protection to the public?

If this principle is a failure in the beer trade, if it tends to lower the character of the house and the quality of the goods to the disadvantage of the public, how much more, how many times more, does it tend to the disadvantage and danger of the public when it is carried out in a calling where the public are less able to take care of themselves, and where the highest quality of work is not good enough, and the greatest safe-guards barely sufficient for the purposes in view?

In the hopes of your giving these matters your careful consideration,

We are,

Yours respectfully,

R. Darton Gibbs, *President.*
F. H. Prosser, *Treasurer.*
C. F. Jarvis, *Secretary.*

Freedom of the Apothecaries' Company.—The Apothecaries' Company has given notice that it is proposed to admit ten licentiates to the freedom of the Society on payment of the sum of twenty-eight pounds each. Those desirous of availing themselves of the privilege are requested to communicate with Mr. James R. Upton, clerk, Apothecaries' Hall, Blackfriars, London.

Photographic Convention at Shrewsbury.—The annual Photographic Convention of the United Kingdom commenced its sittings at Shrewsbury on Monday last, under the presidency of Mr. A. Haddon, of the Royal Naval College, Greenwich. A large number of delegates from all parts of the Kingdom attended. The object of the Convention, which was founded in 1886, is the advancement of photography and the interests of amateur and professional photographers alike. During the day the Mayor, Alderman W. Gowen Cross, pharmaceutical chemist, held a reception of the delegates and officials at the Guildhall, and in the evening Mr. Haddon delivered his presidential address at the Music-hall, where there was an exhibition of photographic appliances.

Firth College, Sheffield.—An effort is being made to affiliate this college to the Victoria University, and to that end the Sheffield Town Trustees have voted a sum of £10,000, whilst a further sum of £5000 has been conditionally promised by Sir Henry Stephenson. A public appeal is contemplated to raise £12,000 more which will be required.

Messrs. Potter and Clarke's Annual Excursion.—Messrs. Potter and Clarke's employés had their annual excursion of Saturday last, when to the number of forty they went down to South-end-on-Sea. Dinner was provided at the Granville Restaurant, and Mr. Potter, who presided, responded to the toast of the Firm, proposed by Mr. R. C. Wren. An extremely pleasant afternoon and evening were spent in driving, boating, etc. Owing to the selection of Mr. Goddard Clarke as Liberal candidate for Dulwich he was unable to be present.

A Mysterious Poisoning Case.—The adjourned inquest into the circumstances connected with the death of Mr. Charles Harrop (see *ante*, p. 21), was resumed on Monday by Mr. Pemberton, at Birmingham.

On June 24, deceased, who was in the habit of taking phenacetine for the relief of headache, called at the shop of Mr. Brown, pharmaceutical chemist, 168, Hockley Hill, Birmingham, and purchased a powder supposed to contain ten grains of phenacetine. Immediately after taking the powder he remarked that it was not phenacetine, and Mr. Brown on tasting a portion of the powder remaining agreed that it was not. Deceased proceeded to his office, where he became ill, exhibiting signs of strychnine poisoning, and although the assistance of two medical men was obtained death took place. The post-mortem revealed the presence of strychnine in the stomach, and death was certified to have been caused by strychnine poisoning. The bottle from which deceased was served at Mr. Brown's shop was labelled "Phenacetine. Dose from four to fifteen grains."

At the resumed inquiry Emily Pearce and Mary Ann Banfield deposed that on June 20 their relative, Miss Elizabeth Banfield, of 46, Brougham Street, returned home from Llandudno, and in the course of the evening took a phenacetine powder which had been purchased at Mr. Brown's. Shortly after taking the powder she became very ill, and the services of Dr. Parkes were procured. She became worse, however, and died within an hour. Deceased had suffered from cancer, and Dr. Parkes certified that death was due to cancer and syncope. There was no suspicion of poison, and Dr Parkes opened one of the cachets containing the phenacetine, because the witnesses at the time could not find Dr. Malins's prescription from which the powders were made up. Dr. Parkes gave the certificate after examining the powder.

James Brown, chemist, said that he made up half a dozen phenacetine powders for Miss Banfield, who was an old customer, on the day named. He purchased the phenacetine from Wyleys towards the end of December last. At the same time he ordered other goods, amongst them being one ounce of strychnine. When the goods arrived the strychnine was placed in the poisons cupboard, and the phenacetine in the cellar. He had used the strychnine for vermin killer, and had received numerous complaints that it would neither kill rats nor mice. This bottle, containing what he supposed was strychnine, but was really phenacetine, and another bottle, were handed over to the police. He was sure the bottle from which he made up the phenacetine powder was the one he had from Messrs. Wyleys. He had no shop bottle for phenacetine. All poisons were kept in a cupboard under lock and key.

Miss Catherine Brown, daughter of the last witness, deposed to fetching the phenacetine bottle from the cellar, and to assisting her father to make up twelve powders on the day Miss Banfield

was supplied. During the time the cachets were being made witness and her father were not out of each other's sight.

Dr. A. Bostock Hill, professor of public health and lecturer on toxicology at Masons College, public analyst for the county of Warwick, said that he had analysed the several things handed to him. In the bottle labelled "Phenacetine," and numbered one, the contents gave the reactions for phenacetine as well as strychnine, but the mixture appeared to be unequal, the most strychnine being at the bottom. He also analysed bottle number two, labelled strychnine, and bearing Messrs. Southall Bros. and Barclay's label, and found it gave the reaction for strychnine. It was powdered strychnine. He also received a bottle labelled strychnina, and bearing the name of Messrs. Wyleys. It gave the reaction for phenacetine, and contained no strychnine whatever. Bottle four was labelled phenacetine, and contained pure phenacetine. Witness said that he also received a box containing three powders which had been returned from Miss Banfield's to Mr. Brown's, and on analysis he found the powders to give the reaction for strychnine and phenacetine, the same as the contents of bottle one. He found small quantities of strychnine in the contents of deceased's stomach. The contents of bottle number one he examined twice. He mixed them thoroughly and then found 29·7 per cent. of strychnine. Supposing Mr. Harrop took a ten-grain dose of this average mixture he would practically take three grains of strychnine, about four times the minimum (*sic!*) fatal dose. Witness had no doubt he could detect less than a thousandth part of a grain of strychnine—probably a good deal less. In Southall's bottle the strychnine was practically pure. The analyses were made in the presence of Mr. F. H. Alcock, F.I.C., on behalf of Mr. Brown, and of Dr. Percy Frankland, on behalf of Messrs. Wyleys.

Joseph Alldis Palmer, manager of the Birmingham branch of Messrs. Wyleys' establishment, said that he had had experience as a dispenser, but he was not a qualified chemist in the sense of holding a diploma. It was his duty to receive orders and give instructions for them to be executed. The drugs were stored at Coventry and forwarded to Birmingham, where they were distributed under the direction of Mr. Law. Witness received the order of Mr. Brown on Dec. 22. It contained ten articles, one being 1 oz. of strychnine, and another 4 ozs. of phenacetine. Poisons such as strychnine and morphine were kept in a lock-up cupboard. Witness produced the account of the sales of phenacetine in 1894, and he produced an extract from the books showing the sales between Dec. 1 and Dec. 22. Other phenacetine had been sold, but he had had no complaint excepting the one from Mr. Brown. The phenacetine supplied to Mr. Brown would be taken from the same bulk as that supplied to other chemists the same day. They had no qualified assistant at Messrs. Wyleys, and the individual who made up the drugs was not qualified. Mr. Law had entire charge of the poisons.

Witness had checked the amount of strychnine sold by the stock, and found that no more than one ounce could have been sold to Mr. Brown.

Henry Arthur Law, 113, Anderton Road, Sparkbrook, said that for three years he was an apprentice to Messrs. Cook and Taylor, druggists, Birmingham, and afterwards for one year to Messrs. Wyleys. He had passed the Preliminary examination of the Pharmaceutical Society. For the last fifteen months he had had charge of the "wet department" at Messrs. Wyleys, in Birmingham, where all poisons such as strychnine were kept in a cupboard to which no one except himself had any right to go. His assistants were not allowed to go to the cupboard. It was his duty to "put up" all poisonous drugs. On December 22 last he received ten orders from the manager, amongst them being that of Mr. Brown. In Mr. Brown's order one ounce of strychnine was followed by four ounces of phenacetine. He was sure he put up the strychnine in the usual way, but was not certain about the phenacetine.

Mary Bubb, 2, back 95, Greenway Street, assistant to the last witness, said she was employed to put up non-poisonous drugs, and had put up the phenacetine. Mr. Law always weighed poisons, and was the only person supposed to go to the cupboard in which they were kept. She had, however, been to the cupboard at Mr. Law's request and fetched poisons, but she had never weighed them.

The jury returned a verdict that the deceased died from strychnine poisoning caused by the negligence of Mr. Law in making up the drugs supplied to Mr. Brown. They expressed their feeling that Mr. Brown might have taken some immediate steps to counteract the effects of the drug.

The Coroner: Simply negligence, and not manslaughter?

A Juryman: We do not mean criminal negligence.

THE PERIL OF POISON.—Commenting on the Birmingham cases reported above, the *Globe* observes that if any evidence were wanted in favour of the proposition that stupidity and carelessness are deadlier than malice, these two cases would crown the vast mass of testimony already afforded by the records of deaths by poison administered in error. Whenever a fatality of this kind occurs, a flood of suggestions is poured out for the benefit of the drug-consuming public. That these are not always efficient, even where careful and intelligent people are concerned, the sad case of the late Professor Tyndall abundantly proves. The Birmingham cases point to a danger from which no regulation will protect the public in the absence of the strictest care and attention on the part of everyone concerned in the putting up of toxic drugs. It is to comparatively little purpose that the law, with the tenderest and most conscientious solicitude for the public safety, provides that the gentlemen who dispense drugs behind a chemist's counter shall have previously been submitted to a test which ensures a competent knowledge on their part of the materials they mingle and purvey, if a daily familiarity on the part of the wholesale druggist, not necessarily a qualified man at all, with the most deadly drugs is allowed to breed the naturally consequent carelessness and contempt which leads to a light-hearted labelling of strychnine as phenacetine, and *vice versâ*. The fact that a retail chemist deals with "wholesale chemists of repute" is a small consolation to the customer who, discovering that on asking for a beneficent pharmaceutical discovery to relieve the pangs of a racking head he is supplied with a powder which leaves him struggling in the agonies of death in about twenty minutes. While there are such people as wholesale druggists and their assistants daily handling powerful poisons, an infinitesimal dose of some of which would be sufficient to put an abrupt end to a human life, in great bulk as though they were so much coffee or curry powder, the most watchful and incessant vigilance is necessary to avoid mistakes of a fatal nature, and even that at times may prove ineffectual.

SCOTTISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

COMMISSION OF THE PEACE.—Mr. John Rodger, chemist and druggist, Inverary, has been appointed a Justice of the Peace for the county of Argyll.

EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.—The second summer meeting of the Association was held on Monday, July 15, at 8.30 p.m., in the Pharmaceutical Society's House, 36, York Place, Mr. Alexander Sutherland, President, in the chair. Notwithstanding the absence on holiday of a number of the office-bearers and members there was a good attendance. Plants had been sent from Kyles-of-Bute; St. Mary's Loch, Eddleston, Blackford Hill; Craigcrook; and Inveresk, and there was a large quantity of interesting material for the demonstration at 9.15 p.m., when Mr. W. B. Cowie spoke on "How to Name a Plant," "Inflorescences," etc., and Mr. Hill pointed out a number of the more interesting specimens, which included a peculiar fasciated inflorescence of *Matricaria inodora* and a fine example of the Robin Redbreast's pincushion, produced by the puncture of *rhoditis roseæ* on *Rosa canina*. Among plants of special interest to pharmaceutical students were *Aconitum paniculatum*, *Papaver rhœas*, *Brassica oleracea*, *Viola tricolor*, *Malva sylvestris*, *Rosa canina*, *Spiræa ulmaria*, *Æthusa cynapium*, *Cicuta virosa*, *Conium maculatum*, *Valeriana officinalis*, *Solanum dulcamara*, *Digitalis purpurea*, *Tussilago farfara*, *Salix alba*, *S. caprea*, *S. phylicifolia*, etc. On the motion of the Chairman a vote of thanks was awarded to Messrs. Cowie and Hill and those who had sent specimens.

INTERESTING PLANTS AT THE ROYAL BOTANIC GARDEN.—The extensive changes at present being carried out at the garden, which include the erection of a new series of greatly improved glass houses, have resulted already in making accessible to all visitors many interesting plants which formerly were only to be seen in the private enclosure.

Aloe Perryi, the usually accepted source of socotrine aloes, may at present be seen in flower in the western portion of the new hothouses, near the cactuses, and on the same stage, near it, are also plants of the *Aloe socotrina* and *Aloe vulgaris*.

Strophanthus dichotomus, a Chinese species, is also in flower at the opposite side of the same house, and gives a good idea of the peculiar caudate petals; while near it a larger plant exhibits the climbing habit of the genus. On the same stage is a plant of *Strophanthus hispidus*, which has not yet flowered in the garden.

Akocanthera venenata, an allied arrow-poison plant from East Central Africa, yielding the highly toxic akocantherin at present under investigation by Professor T. R. Fraser, may also be seen in the same house.

Andira araroba, the goa powder plant, from the old stove house, has also been placed in this house. Originally sent to the garden by Dr. Paterson of Bahia, it is now a fairly large, vigorous, and showy tree, with long, elegant, pinnate leaves.

Pilocarpus pennatifolius, or perhaps more correctly *P. jaborandi*, has been placed near the *Strophanthus*, and is now producing a long raceme of flowers. This plant was raised from seed supplied by Dr. William Craig of Surgeon's Hall.

Cephäelis ipecacuanha, of which there are at least two varieties, may now be seen in flower standing beside the jaborandi plant.

In the new stove house behind the palm house, and at the south-west corner of the house, there is at present in splendid bloom a plant of *Physostigma venenosum*, which is well worth seeing.

On the rock garden *Astragalus tragacantha* and *Gentiana lutea* may now be seen in flower.

IRISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

A familiar face has disappeared from Messrs. Hayes and Co.'s establishment, Grafton Street, Dublin, Mr. J. R. Middleton, associate druggist, for many years managing clerk to Messrs. Hayes, having gone back to his old quarters at Messrs. McMaster, Hodgson and Co.'s, not now as an assistant, but in full partnership with the old members of this long-established and respected firm, which is to be congratulated on securing a man of so high business qualifications, whilst Mr. Middleton is equally to be congratulated on his future bright prospects.

Government Appointment.—Sir William Kaye, Q.C., C.B., LL.D., lately Clerk of the Privy Council of Ireland, has been appointed Private Secretary to the Viceroy. Sir William's duties for many years brought him into frequent communication with the Irish Pharmaceutical Society, and it is known that he has always evinced a kindly interest in pharmacy; certainly his unvarying courtesy and his long experience of Irish affairs must combine to qualify him in a high degree for the oftentimes delicate duties of his new position.

Pharmaceutical Society of Ireland.—At examinations for the qualification of registered druggist, held at Dublin and Belfast, seven candidates presented themselves, of whom the following five passed:—Messrs. R. B. Alexander, F. Gilmore, J. Gray, W. J. McKinney, and J. Mortimer.

Pharmaceutical Society of Ireland.—At the examinations for the licence to act as a pharmaceutical chemist, held on the 10th, 11th, 12th, and 13th inst., the following passed:—Messrs. W. J. Dunwoody, J. Johnston, J. E. Levis, G. B. Graham, J. Beatty, J. Ewing, D. L. Kirkpatrick, J. A. Stewart (D. S. Bennett, J. T. Chamberlain, equal), H. C. Meyrick, W. J. Healy, A. J. O'Shea, S. Bredin, J. F. Jessop, H. F. L. Wilson and G. Robinson. Nine candidates were rejected.

Silica has been reduced by Vigoroux (*Comp. rend.*, cxx., 1161) by heating it with aluminium until, at 800° C., a vivid incandescence manifested itself. The alumina formed was then removed by prolonged boiling with sulphuric acid, and the unaltered salica by treatment with hydrofluoric and sulphuric acids successively, and the silicon then remained as an amorphous maroon-coloured powder.

FOREIGN NEWS.

[*From our Special Correspondents.*]

Strychnine Poisoning.—A case of poisoning is reported in the *Revue Medicale*, which is noteworthy on account of the peculiarity of the circumstances attending it. A pharmacist, having occasion to poison a dog, placed for that purpose two capsules containing strychnine in a pocket in which were some cigarettes. The latter were smoked in the course of an hour or so, when, beginning to feel unwell, he sought for the strychnine capsules and discovered that one of them had been broken and its contents probably had been distributed over the cigarettes. His sufferings increasing, he obtained medical aid, and it was found that strong symptoms of strychnia poisoning were manifest. Suitable antidotes were administered, but it was only after three days that he was able to resume his usual occupations. The *bonâ fides* of this report is doubtless satisfactory, but one naturally asks what kind of palate a man must have to absorb in smoking a characteristic poison like strychnine without observing the abnormal taste of the tobacco?

Spirits of Wine at a Shilling per Gallon.—Considerable interest has been shown lately in the scientific world by the announcement of an inexpensive process for manufacturing alcohol from acetylene. We are indebted to M. Moissan, the eminent scientist (whose success in transforming ordinary carbon into diamond is probably still in the knowledge of our readers) for this discovery, which, if the results bear out what is anticipated, will, doubtless cause a revolution in that very important industry, viz., the distillation of alcohol. The following is a brief *résumé* of the process:—By subjecting a given quantity of coke and quicklime to the enormous heat of the electric furnace, a direct union of their elements takes place, and carbide of calcium is formed. This body, thrown into water, possesses the property of decomposing it, at the ordinary temperature, when acetylene is evolved. Ammonio-chromous sulphate absorbs this gas, and by the aid of heat transforms it into ethylene. The ethylene is passed into hot sulphuric acid, and sulphovinic acid is obtained, which, by the addition of boiling water, produces the alcohol that then only demands rectification. It is claimed for this process that best quality alcohol free from any impurities can be manufactured at a cost of $2\frac{1}{2}d.$ to $3d.$ per quart.

Permanganate of Lime, an Excellent Water Steriliser.—M. Bordas, at the Academy of Medicine, called attention to the advantages of permanganate of lime for the purification of water on account of the readiness with which it decomposes in the presence of organic matter, splitting up into oxygen, oxide of manganese, and lime. He found that the salt possesses very great oxidising power and considerable destructive action on micro-organisms. He asserted that the antiseptic properties of this salt are much superior to those of bichloride of mercury, and moreover it has the distinct advantage of being neither poisonous nor caustic. M. Bordas estimates that the addition of ten milligrammes of permanganate of lime to a litre of water is sufficient to effect complete sterilisation in five minutes, and from comparative experiments with various antiseptics, more especially permanganate of potash, he comes to the conclusion that the sterilising power of the latter salt is about a hundredth part of that of the permanganate of lime.

The French Degree of M.D.—With a view of assisting foreign students aspiring to the French degree of M.D. of the Faculty of Medicine, the Minister of Public Instruction has authorised the formation of a Commission charged to examine certificates of qualifications already awarded to students in their respective countries. This Commission is empowered to grant dispensations of examinations at the French School of Medicine, which they consider to be equivalent to those already obtained elsewhere.

Formula for a Skin Lotion.—According to *El Memorandum*, a skin lotion made by the following formula is used very largely in England (*sic!*), where it is held in high repute for removing roughness and freckles, and is called Buchell's Cutaneous Regenerator:—Glycerin, 40 Gm.; tincture of amber, 10 Gm.; tincture of cloves, 12 Gm.; tincture of musk, 10 Gm.; tincture of benzoin, 20 Gm.; onion juice, 100 Gm.; oil of bergamot, 10 Gm.; lavender water, 50 Gm.; macerate eight days, and rub the skin with the lotion once in twenty-four hours.

EXHIBITION AT THE HAGUE.—The exhibition of medicinal and useful plants at the Hague was inaugurated on the 8th of July by the Chairman, Dr. Ruysch, medical adviser to the Minister of the Interior, who pointed out that the chief purpose of the exhibition was to assign, after the important medical discoverics of Pasteur and Koch, a worthy place to plants among the other medicaments. Recent experience had taught that the appreciation of the medical virtue of plants was decreasing. It is true that there have of late been discovered in various laboratories for chemical and pharmacological research numerous vegetal substances which may perhaps play an important part as medicaments; but the medicine of the present day chiefly occupies itself with the products of chemical industry, and in recent times with toxines and antitoxines. If it be possible, by pointing to the usefulness of vegetal medicaments, to change in some measure this exclusive tendency of medical science, the present exhibition may largely contribute to that effect. After an inspection of all the various specimens of medically and technically interesting plants, the exhibition might be declared to be a thorough success. The difficulties in assembling such a collection of plants, drugs, and other vegetal substances were not to be undervalued. The common place exhibits did not answer the purpose, and the Committee was often obliged to solicit the aid of private collectors and museums, which in many instances put precious specimens at its disposal.

The exhibits are divided into five sections:—

1st. Medicinal plants in the living state.

2nd. Useful plants in the living state. Under this head are included: Tropical cultivated plants, yielding spices, stimulants, indiarubber, etc.; oleaginous plants, aromatic plants, fibrin-furnishing plants, cork-producing plants, and tannin-furnishing plants.

3rd. Medicinal and useful plants and their products in dry state or in the form in which they are ready for use. Under this head are included: Drugs, specimens of vegetal substances for wholesale trade, seeds and fruits, kinds of wood, cork, and fibrous substances; Indian medicaments, pharmacognostic collections, collections for botanical knowledge of wares, collections destined for teaching, herbaria of inland and foreign plants.

4th. Products gathered from vegetal substances, viz., chemical products, pharmaceutical products, fat oils, products of the grease industry, ethereal oils, essences, tanning substances, dyeing materials, and different kinds of fecula.

5th. Objects used in extraction and preparation, for investigation and study of medicinal and useful plants, such as books, pictures, original representations, instruments, and apparatus; implements for laboratories, apparatus for factories, microscopes and microscopical preparations, apparatus for distilling and extracting (to which has been added afterwards a section of photography applied to botany). In describing the objects exhibited, later, attention will be chiefly confined to those articles which are pharmaceutically interesting.

PROFESSORSHIP OF CHEMISTRY AT TÜBINGEN.—Prof. Curtius, of the University at Kiel, succeeds Prof. Lothar von Meyer as Professor of Chemistry at Tübingen.

A CAREFUL examination of statistics relating to the treatment of diphtheria with serum, lately made at the Argusta Hospital in Cologne, shows that the mortality decreased from 30·9 per cent. (without serum) to 20·3 per cent. (serum treatment).

PUBLICATIONS RECEIVED.

KERNER AND OLIVER'S NATURAL HISTORY OF PLANTS. Part 14. Price 2*s.* 6*d.* net. (Blackie and Son, London.) From the Publishers.

ANNUAL ANNOUNCEMENT OF THE ONTARIO COLLEGE OF PHARMACY, 1895-96. Pp. 65. (Ontario College of Pharmacy, St. James' Square, Gerrard Street, Toronto.) From the College.

BRAIN: A JOURNAL OF NEUROLOGY. Edited for the Neurological Society of London. By A. DE WATTEVILLE. (Macmillan and Co., London.) From the Publishers.

DISINFECTION AND DISINFECTANTS (An Introduction to the Study of). By SAMUEL RIDEAL, D.Sc. (Lond.), pp. 328. Price 12*s.* 6*d.* (Charles Griffin and Co., Limited, London.) From the Publishers.

AMERICAN NEWS.

BACHELORS OF SCIENCE (IN PHARMACY).—The School of Pharmacy of the University of Michigan has established a course of four years of study leading to the degree of Bachelor of Science (in Pharmacy). The course of two years of study leading to the degree of Pharmaceutical Chemist is retained. In both courses the college year is of nine months, as it has been at Ann Arbor from the first. The degree of Bachelor of Science is given under the faculty of the School of Pharmacy, and is placed strictly upon the same educational plane held by the degrees of science given under the Faculty of Literature, Science, and the Arts in the same university. It is stipulated that the new degree in pharmacy shall have the same requirements for admission to college that are in force for the degree of B.S. in general science, and the same obligatory college studies in English, German, French, mathematics, and physics that are in force in the biological course for the degree of B.S. The college studies will also include all the work of the two years' course, with extended work in organic chemistry, botany, and in pharmacognosy. In addition, the elective branches will include work in the laboratories of pharmacology, physiological chemistry, and bacteriology, or in manufacturing pharmacy and industrial chemistry, or in sanitary analysis, food analysis, and drug assaying according to the purposes of the student. It is not expected that a majority of pharmaceutical students will enter upon so extended a course. But it has been found that certain students of pharmacy want a college course as long as that of the best medical colleges, and in fact remain in university study four years and even five years. Furthermore, observes the *American Druggist*, there is a distinct demand for graduates of the training here specified.

NEW ILLINOIS PHARMACY LAW.—The Senate Bill amending the Illinois Pharmacy Law passed the House June 13, and when it receives the Governor's signature the State will have what to all intents and purposes will be a new law, and will contain many features not possessed by the laws of any other State. Briefly summarised, the provisions of the new law not contained in the old one or modifying those of the old, are as follows (*Pharm. Era*): By the new law no one but registered pharmacists can open or conduct a drug store. No drugs, medicines or poisons can be sold, except in a store conducted by a registered pharmacist. The old law had a provision stating that nothing in it should be construed to prevent any person from selling proprietary or domestic remedies. The provision left the field wide open for grocery and department stores. The new law not containing such provision, closes it. The name of the registered pharmacist in charge must be over the door of the place where drugs or medicines are compounded or sold. By this law, a druggist can recommend a medicine without being liable to prosecution for so doing. This by no means gives him the privilege of diagnosing a case or usurping the functions of a doctor. By the new law the annual registration fee is made $1.50, instead of $1. This gives the State Board more money to carry on its work, a much-needed piece of legislation, as it has often been obliged to cease prosecuting for weeks and months at a time on account of lack of funds.

DULL TRADE AT BALTIMORE.—The drug business in this city is again very dull, writes a correspondent of the *Era*. During April and the first half of May it was very satisfactory, but after that fell off and is now far from remunerative. One of the causes which have contributed to this result is a low death rate and little sickness, which is also affecting seriously the physicians. But druggists also suffer from diversion of the patent medicine trade by department stores, and more than all from the increasing use of tablet triturates which some houses make a specialty of supplying to physicians at almost less than cost. This makes it unnecessary to have prescriptions compounded, to the detriment of the apothecary. Some persons who have made a study of the situation are inclined to think that the consequence will be a considerable reduction in the number of pharmacies and the adoption of a higher graduation standard by colleges of pharmacy. Baltimore has over 300 drug stores.

BOCCONINE is a new alkaloid extracted by Battandier (*Comp. rend.*, cxx., 1276) from *Bocconia frutescens*, along with fumarine, chelerythrine, and a fourth base resembling chelidonine in its reactions.

LEGAL REPORTS.

PROCEEDINGS UNDER THE PHARMACY ACT.

Illegally Trading as a Chemist at Plymouth.

At the East Stonehouse County Court on Monday, before his Honour Judge Edge, the Pharmaceutical Society of Great Britain brought an action against G. A. Billing, carrying on business at 128, Exeter Street, Plymouth, for two penalties for dispensing poisons and taking the name and title of "chemist," he being unqualified.

Mr. Vaughan Williams (instructed by Messrs. Flux, Son, and Co., of London) appeared on behalf of the Pharmaceutical Society. He said that outside the defendant's premises was displayed "Nicholls, Chemist." On May 4 last a man named Giles went to the shop and purchased of the defendant a pennyworth of oxalic acid. The packet was sent to the Pharmaceutical Society, whose analyst, Mr. E. J. Eastes, subsequently found it contained 160 grains of oxalic acid. This was one of the poisons mentioned in the Pharmacy Act. The learned counsel pointed out to the court that the defendant could not plead ignorance, as he was before the court four years ago and mulcted in penalties for a similar offence.

Mr. Moon, clerk in the office of the Registrar of the Pharmaceutical Society, and Mr. E. J. Eastes, the analyst, gave formal evidence bearing out Mr. Williams's statement, and Mr. Giles proved going to the defendant's shop and purchasing the acid of him. He paid a penny for the acid.

Mrs. Ellis, landlady of the King's Arms Hotel, Exeter Street, stated that she sent Giles to purchase the acid. She kept the packet which was obtained from the defendant for the inspection of the analyst.

It was set up in defence that the oxalic acid was not paid for by Giles, but that it was given to him.

His Honour said there did not appear to him to be any defence. The cases were clearly proved, and as Billing admitted he was not a certified chemist, and had previously paid the Pharmaceutical Society a penalty of £20, judgment would be given for the plaintiff Society for £10 (£5 for each offence) with costs.

POISONING CASES AND INQUESTS.

Opium.—Isaac Pocock, aged 56, died on Sunday, July 7, in the Queen's Hospital, Birmingham, from the effects of opium, self-administered. Verdict: "Suicide whilst temporarily insane."

Oxalic Acid.—Sarah Ann Chatterton, aged 50, died on Tuesday, July 2, at 6, Dunham Street, Shaw Heath, Stockport, from the effects of oxalic acid, self-administered. Verdict: "Suicide while in a state of unsound mind."

Salt of Lemon.—Elizabeth Huntley, aged 23, died on Saturday, July 6, at Cockburn Street, Toxteth, from the effects of salt of lemon. Verdict: "Suicide while temporarily insane."

Carbolic Acid.—A young woman committed suicide on Wednesday, July 10, by taking carbolic acid in the waiting-room at Wood Street Railway Station, Walthamstow, death taking place immediately.

Prussic Acid.—Harry Pibworth Foster, chemist and druggist, died on Friday, July 12, at 153, Queen Street, Portsmouth, from the effects of prussic acid, self-administered.

Hydrochloric Acid.—Charles A. S. Torrens, aged 62, died on Saturday, July 13, at the Spencer Hotel, Roehampton, from the effects of hydrochloric acid, self-administered. Verdict: "Suicide whilst of unsound mind."

Rat Poison.—John Benjamin, of Aberaman, died on Friday, July 12, at Merthyr, from the effects of rat poison, self-administered. Verdiot: "Suicide."

Prussic Acid.—John Batchelor, aged 42, of Bessborough Gardens, Westminster, died on Wednesday, July 10, on the way to St. Mary's Hospital, from the effects of prussic acid, self-administered. Verdiot: "Suicide whilst temporarily insane."

NEW REMEDIES.

[*The notes given under this heading embody recent suggestions in therapeutics. They cover both new drugs and preparations, and old ones under new aspects. The word "parts" is used to represent parts by weight, both for solids and liquids.*]

The Administration of Glycerophosphates.—In exhibiting the various glycerophosphates in the many morbid affections in which their use is indicated, Dr. Robin employs the salts of calcium, iron, sodium, magnesium, and potassium. These are given either subcutaneously or by the mouth. For hypodermic use he recommends specially the salts of calcium, sodium, and magnesium. The lime salt is prepared in a 5 per cent. aqueous solution, that of sodium in 20 per cent. From 1 to 10 cubic centimetres of either of these solutions may be injected daily, representing a daily dose of from 5 to 50 centigrammes of glycerophosphate of calcium, or from 20 centigrammes to 120 centigrammes of the sodium salt. The solutions should be prepared in a perfectly aseptic manner in small quantities at a time, and preserved in small bulbs of 2 C.c. capacity or in small sterilised flasks, each containing sufficient for one injection. These precautions are absolutely necessary, since solutions of glycerophosphates are excellent culture media for most micro-organisms. Internally the glycerophosphates are given in the form of cachets, pills, syrups, etc, the dose for the salts of calcium, sodium, potassium, and magnesium being from 30 centigrammes to 1 gramme daily, preferably in the middle of a meal; for glycerophosphate of iron from 10 to 30 centigrammes a day. The addition of pepsin, kola, or nux vomica is specially useful (*Bull. gén. de Therap.*, cxxviii., 441).

Salol-Antipyrine Mixture as Uterine Hæmostatic.—Bralent employs antipyrine liquefied by means of salol, by heating equal quantities of the two bodies in a test tube over a spirit lamp, moistening a pledget of absorbent cotton with the resulting liquid, which solidifies on cooling, and introducing this into the uterus. The application is painless and free from danger, and is rapidly and completely efficacious in its hæmostatic action, and is moreover appreciable to all forms of uterine hemorrhage (*Therap. Gaz.* [3], xi., 332, after *Rev. Int. de Méd. et Chirur.*).

Kerosene, Turpentine, and Peppermint in Diphtheria.—Papkoff recommends the treatment suggested by Ignatovsky, which consists in painting the diphtherical area with a mixture of kerosene, 4 parts; turpentine, 4 parts; oil of peppermint, 1 part; the application being repeated every thirty minutes to two hours. As adjuvants, gargles of borax, with a few drops of mint tincture, and sometimes steam inhalations of the same mixture are used (*B. M. J.*, 95, i, Epit. 23, after *Vratch*).

Pilocarpine Ointment in Nephritis.—Mollière employs an ointment of pilocarpine nitrate, 1½ grain; vaselin, 3 ounces; for external application to the skin; it increases the action of the skin and of the kidneys, followed by rapid amelioration of the symptoms. It is contra-indicated in uræmia (*Therap. Gaz.* [3], xi., 322, after *Rev. Int. de Méd. et Chirur.*).

Baths of Hot Sand in Chronic Rheumatism.—Grawitza has experimented with this ancient method of treatment, which is mentioned by Herodotus, but has been neglected in modern practice. The sand is heated and then turned into a suitable box or vessel, when it should have a temperature of about 144° F., in it the limb or any portion of the body may be immersed. It has succeeded admirably in many cases of chronic rheumatic deformity. The baths may be administered without fear, even patients with cardiac affections bear them well. For hospital practice a special apparatus has been designed (*Rev. de Thérap. Med. Chirur.*, lxii., 321).

The Therapeutic Action of Piperazine.—Noehmkoff reviews the various published results of previous experimenters and summarises his own observations as follows. Piperazine diminishes the amount of uric acid and of urea in urine; it diminishes acidity and augments diuresis; if the kidneys are healthy large doses of piperazine do not cause albuminuria, but if they are only slightly morbid small doses of the drug provoke and increase albuminuria. Urinary deposits are not modified by piperazine. According to the author, piperazine is not a powerful medicine, but on the other hand cannot be regarded as inactive, since it is very useful in arthritic cases (*Rev. de Thérap. Med. Chirur.*, lxii., 320).

NOTES AND QUERIES.

[The information given in this column includes both notes of practical interest to pharmacists, and replies to queries which seem to possess sufficient interest to readers generally.]

PREPARATION OF OLEATE OF MERCURY.

There are two methods of preparing this oleate, according to the plan recommended by Shoemaker (*Ph. J.* [3], xv., 32). In the first (Wolff, *Amer. Journ. Pharm.*, 1881, p. 545), one part of Castile soap is dissolved in eight parts of water, and the solution allowed to cool and stand for twenty-four hours. A considerable deposit of sodium palmitate occurs, and the supernatant solution of sodium oleate is then decanted and decomposed by a solution of mercuric chloride. The milky mixture is boiled until the oleate of mercury separates as a yellow mass, which is then washed with water and heated on a water bath until all the water is driven off. The continued boiling tends to decompose the oleate, however, and A. P. Brown (*Amer. Journ. Pharm.*, 1889, p. 168) recommended, as an alternative process, to carefully mix in a mortar white Castile soap in fine powder, ʒviii., and mercuric chloride, ʒiii., ʒii., and add distilled water sufficient to form a pasty mass. Throw this immediately into boiling water, and boil until a yellow oily liquid is formed. Then cool, pour off the water, and wash the oleate with distilled water until tasteless, after which heat it on a water bath until all the water is driven off. The product should resemble recently-prepared citrine ointment. [*Reply to J. Austen.*]

PHOTOGRAPHIC CRYSTAL VARNISH.

The simplest varnish for rendering photographic prints transparent is prepared by dissolving Canada balsam in rectified turpentine to the desired consistency. This will serve as a mountant also. A formula given in the 'Dictionary of Photography' for crystal varnish is as follows :—Gum dammar, 25 grs.; benzole, 1 oz.; or, again, Canada balsam, 5 parts; orange shellac, 160 parts; and sandarac, 170 parts, should be dissolved in strong alcohol, 1,000, parts. [*Reply to Xtal.*]

PETROLEUM EMULSIONS.

It is said that 20 grains of powdered acacia gum will suffice to emulsify 1 oz. of liquid petrolatum. The oil should be poured into a perfectly dry bottle, the gum added, and the bottle well shaken, then ½ to 1 oz. of water should be added all at once and well incorporated by shaking. In the American formula next given (*Era Formulary*) the proportion of gum is excessive:—Mix thoroughly in a large mortar powdered acacia, 2 ozs.; and liquid petrolatum, 4 ozs.; then add all at once distilled water 5 ozs., and rub briskly until the emulsion is formed. Next dissolve calcium and sodium hypophosphites, 72 grs. each, in water, 2½ ozs. and add glycerin, 1 oz.; then add the solution to the emulsion, rub well together and make up product to 15 fl. ozs. with water. An alternative formula from the same source is as follows:—Liquid petrolatum, 4 ozs.; oil of almonds, 2 ozs.; powdered acacia, 1½ oz.; glycerin, 1½ oz.; sodium and calcium hypophosphites, each 128 grs.; and lime-water, enough to make 1 pint. [*Reply to A. R. B.*]

NICKEL PLATING.

For nickeling small articles Desmur's solution is recommended :—Nickel and ammonium double sulphate, 7 kilos.; sodium bicarbonate, 800 Gm.; water, 100 litres. Add bicarbonate to warm nickel solution, and work bath up to near boiling point. Four cells of a 3-gallon Bunsen battery are required for a 100-gallon bath, but only two should be connected with the conducting rods until the bath is half full of work. Then connect the others by uniting them for intensity. It is particularly necessary that articles to be nickel-plated should be chemically clean. Use nickel anodes, of course. [*Reply to E. C. Cripps.*]

PYROLIGNEOUS ACID AS A BACTERICIDE.

Goriansky finds that pyroligneous acid acts as an energetic bactericide in the case of the bacillus of tuberculosis, which is notoriously resistant to many bactericides (*Journ. de Pharm.* [6], ii. 67, after *Sem. Méd.*). It is sufficient to add to the sputa an equal volume of pyroligneous acid, and, after thoroughly agitating, leaving the mixture at rest for five or six hours. Vessels used to collect the expectoration of tuberculous patients should contain a fair quantity of the acid.

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

COMMUNICATIONS FOR THE CURRENT WEEK'S JOURNAL SHOULD REACH THE OFFICE NOT LATER THAN WEDNESDAY MORNING. TELEGRAMS CAN BE RECEIVED ON THURSDAY MORNING. ALL COMMUNICATIONS RESPECTING EDITORIAL MATTERS MUST BE ADDRESSED "EDITOR, 17, BLOOMSBURY SQUARE, LONDON," AND NOT IN ANY CASE TO INDIVIDUALS SUPPOSED TO BE CONNECTED WITH THE EDITORIAL STAFF OF THE JOURNAL.

ALL INSTRUCTIONS from Members, Associates, and Students of the Pharmaceutical Society, respecting the transmission of the Journal, must be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London, W.C.

BUSINESS communications—including advertisements, orders for copies of the JOURNAL, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Cheques and money orders should be made payable to "Street Brothers."

CORRESPONDENTS who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names—of course not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS for illustrations should be done with pen and Chinese ink, and consist of clean, sharp lines, without shading by washes. They should also be prepared twice the desired size, so as to allow for reduction.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

QUERIES addressed to the "Editor" will be replied to as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries."

REPRINTS of articles cannot be supplied unless authors communicate with the Editor before publication.

LETTERS.

PRACTICAL OPTICS FOR CHEMISTS.

A CORRESPONDENT points out a misprint in the article on "The Spectacle Trade," published in the *Ph. J. Supplement* for July 6. On page iii., column 2, the work "it" in line 19 should follow the word "glass," whilst the comma after "it" is superfluous.

THE METRIC SYSTEM.

MR. JOHN LAURIE, of Blackpool, thinks that "When the metric system of weights and measures is taught in schools and made compulsory in trade, the public will be able to 'add the water myself,' and thus dispense their prescriptions. The mysteries of symbols for weights and measures, and of Roman notation for quantities being gone, will the art and science of pharmacy keep life in the professional, as distinguished from the trading, dispenser of medicines, or will he be starved for the public good? Comparisons of the free pharmacy of Britain with the protected pharmacy of the Continent will not teach us much."

ANSWERS.

"SECUNDUS."—1, *Epilobium montanum;* 2, *Carex arenaria;* 3. *Juncus acutiflorus;* 4, *Spergula arvensis;* 5, *Agrostis vulgaris;* 6, *Galium verum;* 7, *Jasione montana;* 8, *Juncus conglomeratus.* Please note that plants sent to be named should be enclosed in a box not liable to be crushed in the post.

W. L. MARTIN.—The stigma is 4-partite in all three plants, and they are apparently forms of *Epilobium parviflorum*, but the opinion of an expert in this genus will be taken and notified to you later.

J. V. MONTAGUE.—In the absence of flowers it is impossible to say exactly what the plant is. The enlarged portion is a gall.

"ENQUIRENS."—The result of cases which have been reported in the Journal during the past eighteen months seems to justify the supposition that patents for preparations containing scheduled poisons are void, and in any case the sale of such preparations by others than registered chemists and druggists is distinctly illegal.

COMMUNICATIONS, LETTERS, ETC., have been received from Messrs. Allen, Bell, Bennett, Card, Cocks, Cripps, Curry, Downes, Farr, Greasley, Guyer, Hardwick, Harrison, Howden, Jarvis, Martin, Pare, Thomas, Thompson, Windmill.

[Owing to pressure on our space several communications are unavoidably held over.]

"THE MONTH."

Synthetic Production of Alcohol. The possibility of preparing acetylene on a manufacturing scale from calcium carbide has given additional importance to the production of alcohol from acetylene. Kruger has tested several of the methods which have been proposed with that object, and found that most of them gave negative results. Caro has since confirmed his observations, and has, at the same time, devised a method of producing alcohol from acetylene, which may perhaps eventually lead to the desired result. By passing acetylene through concentrated hydriodic acid he obtained the compound CH_3CHI_2 to the extent of from 55 to 58 per cent. By boiling this product with concentrated potash solution it is partly reconverted into acetylene and partly into alcohol and potassium acetate, according to the following equations—

$$\left.\begin{matrix} CH_3CHI_2 \\ 2KOH \end{matrix}\right\} = \left\{\begin{matrix} 2KI + 2H_2O \\ CH \equiv CH \end{matrix}\right.$$

$$\left.\begin{matrix} CH_3CHI_2 \\ 2KOH \end{matrix}\right\} = \left\{\begin{matrix} 2KI \\ CH_3CH(OH)_2 \end{matrix}\right.$$

$$CH_3CH(OH)_2 = CH_3COH + H_2O$$

$$\left.\begin{matrix} 2CH_3COH \\ KOH \end{matrix}\right\} = \left\{\begin{matrix} CH_3COOK \\ CH_3CH_2OH \end{matrix}\right.$$

By saponifying the diiodide with moist argentic oxide the reproduction of acetylene is very small, and on boiling with caustic potash the alcohol and potassium acetate formed amount together to nearly 90 per cent.

The diiodide is also saponified when heated with water to 140° or 150° C., a mixture of aldehyde, ethyl iodide, hydriodic acid, and unaltered diiodide being formed. The formation of aldehyde takes place according to the equation—

$$\left.\begin{matrix} CH_3CHI_2 \\ H_2O \end{matrix}\right\} = \left\{\begin{matrix} 2HI \\ CH_3CHO \end{matrix}\right.$$

By reduction of the aldehyde, alcohol would be obtained. In Caro's experiments, 40 per cent. of aldehyde was obtained, and if the hydriodic acid formed were continuously removed the yield of aldehyde would probably be increased, as the reproduction of diiodide according to the following equation would then be prevented.

$$\left.\begin{matrix} CH_3CHI_2 \\ 2HI \end{matrix}\right\} = \left\{\begin{matrix} CH_3CHI_2 \\ H_2O \end{matrix}\right.$$

On a small scale that has been effected by heating the diiodide with an equivalent quantity of zinc oxide, twice as much zinc dust, and water. After this mixture had been heated to 130° or 150° C. there was not much pressure in the tube, and after twice distilling the contents alcohol was obtained almost pure (*Pharm. Centrh.*, xxxvi., 411).

Properties of Helium. Ramsay, Collie, and Travers, having investigated about thirty minerals, mainly those containing uranium, found fifteen of them contained helium in greater or less amount. Many also gave off hydrogen, a hydrocarbon, and carbon dioxide. After purification, the value 2·2 was obtained for the density of three samples of helium from cleveite and bröggerite. The wave-length of sound in the gas corresponds accurately to the ratio $1:1\frac{2}{3}$, implying monatomicity, and the atomic weight would therefore be 4·4. The solubility of helium in water is 0·007 at 18°, and it is, therefore, the least soluble of gases. It is also insoluble in alcohol and in benzene (*Proc. Chem. Soc.*, No. 154, p. 142).

Determination of Globulin in Urine. Daiber finds that the methods hitherto adopted are not to be relied upon, and he suggests that for this reason globulin has seldom been found together with serum albumin by treating urine directly with solution of ammonium sulphate or magnesium sulphate. By the method described below, Daiber has found globulin almost invariably associated with serum albumin in the albuminous urine of cystitis, nephritis, etc., sometimes in greater proportion than serum albumin, showing that globulinuria occurs more frequently than has been supposed. The urine is mixed with absolute alcohol sufficient to precipitate the albuminous substances, and preferably after considerable concentration in vacuo at 35° to 37° C. After some hours the precipitated albumin is collected on a filter and washed with warm distilled water; it is then mixed with warm water (30° C.) and dissolved by gradually adding dilute acetic acid. Any mucin present will by this means be separated. If the solution be coloured or turbid, it is clarified with some animal charcoal, and after filtration sodic carbonate solution (1 to 4) is carefully added until the liquid has a very faint alkaline reaction. The liquid is next covered with a layer of one and a half or twice as much ammonium sulphate solution (1 to 2) at a temperature of 30° C. The globulin then separates as a snow-white flocculent deposit; it can be collected on a filter, washed, and the quantity determined in the usual manner. The serum albumin is then obtained by boiling the residual ammonium sulphate liquor. Sometimes globulin separates on neutralising the acetic acid solution and also when a minute excess of sodic carbonate is added, a circumstance which suggests the probable existence of different kinds of globulin. In such instances the serum albumin may be separated from the filtered alkaline liquor by boiling it after acidulating (*Schweit. wochensch. f. Chem. u. Pharm.*)

Amygdonitril Glucoside. E. Fischer has observed that by the action of yeast enzyme upon amygdalin one-half of its sugar is separated in the form of glucose without any alteration of the nitrogenised group of the molecule. In that way there is formed a glucoside similar to amygdalin, having the composition $C_{14}H_{17}NO_6$, corresponding to the more simple formula—

$$C_6H_5 \cdot CH \cdot CN$$
$$O \cdot C_6H_{11}O_5$$

Fischer infers that amygdalin is a derivative of maltose or a similarly constituted diglucose and not as Hugo Schiff suggested, a compound of a disaccharide. Amygdonitril-glucoside is readily soluble in water, alcohol, or acetone. Under the influence of emulsin it yields the same products as amygdalin, but in different proportions (*Berichte*, 28, 1508).

Occlusion of Gases. Mond, Ramsay, and Shields have performed some preliminary experiments on the occlusion of oxygen and hydrogen by platinum sponge and foil, which in the main confirm Graham's results. Only a few volumes are occluded by the more coherent forms of platinum. Dried at 100°, platinum black has a density of 19·4, and retains 0·5 per cent. of water, which can only be removed in vacuo at about 400°, when the black is partly converted into sponge. Platinum black contains about 100 volumes of oxygen, which comes off in quantity at 300°, but a red heat is necessary for

its entire removal. Small quantities of carbon dioxide came off between 100° and 200°. Altogether, about 310 volumes of hydrogen are absorbed per unit volume of platinum black, but of this only 110 volumes are really occluded, the rest being converted into water. Most of the gas comes off at 250° to 300°, but here again a red heat is necessary to complete the extraction (*Chem. News*, cxxi., 5).

Action of Nitric Oxide upon Metallic Chlorides. V. Thomas finds that by acting upon anhydrous ferric chloride with nitric oxide, at a very high temperature, the lower chloride is first formed, and later a reddish substance in powder, the composition of which corresponds to the formula $5Fe_2Cl_4 \cdot NO$. It is very hygroscopic, and by heating it strongly in a current of inert gas pure ferrous chloride can be obtained. Besides this compound there is also a yellowish-brown powder formed, which greatly resembles the oxychlorides of iron, but appears to be a new compound of nitric oxide and ferrous chloride, $Fe_2Cl_4 \cdot NO$. In contact with moist air it becomes transformed into hydrated oxide, bubbles of gas being evolved at the same time. Bismuth chloride acted upon by nitric oxide forms $BiCl_3 \cdot NO$, a fine yellow compound, and aluminium chloride forms $Al_2Cl_6 \cdot NO$, which is pale yellow. Both are very hygroscopic and become decomposed in the presence of water like the iron compound, and they melt without decomposition in a sealed tube (*Comp. rend.*, cxxi., 128).

Action of the Halogens on Methyl Alcohol. P. Schützenberger finds that chlorine attacks methyl alcohol in the cold more powerfully in proportion as it is more diluted with water. Formic aldehyde is formed chiefly, or rather chloro-methylic alcohol, which under the influence of hydrochloric acid is converted into an oxide of dichlor-methyl, $CH_2ClO \cdot CH_2Cl$. In contact with water this ether is decomposed, with formation of hydrochloric acid and formic aldehyde. When heat is employed in the reaction no ether is formed, methylal being produced, together with large quantities of methyl chloride, whilst the oxides of carbon are given off. Bromine has practically no action upon methyl alcohol, except at high temperatures, 130° to 150°. Methyl bromide is formed chiefly, together with carbon dioxide, whilst if the bromine is not in excess formic acid and carbonic oxide may also be detected. Iodine requires a still higher temperature, 180° to 200°, to act upon the alcohol, but then forms carbon dioxide and hydriodic acid, together with a little methyl iodide. But the most curious effect is the production of some methyl oxide. Large quantities of this compound can be thus produced, the quantity of iodine required being about 5 per cent. of the weight of the alcohol. The methyl oxide formed contains traces of iodide (*Comp. rend.*, cxxi., 130).

Delicate Test for Arsenic. A. Carnot describes a delicate test for arsenic, which consists in precipitating it as sulphide, then converting the precipitate—by means of ammonia, silver nitrate, and hydrogen peroxide—into arsenic acid, and finally determining that as bismuth arseniate, which is very insoluble in dilute nitric acid, and of which the weight is about five times that of the arsenic it contains. The formula of the precipitate is $As_2O_5 \cdot Bi_2O_3 + H_2O$, and the compound contains 21·067 per cent. of arsenic, equal to 32·303 of arsenic acid. The precipitate should be simply dried and not calcined before weighing. As a result of a series of experiments it was found that the method is both certain and exact. The mean of twenty determinations gave 0·00299 Gm. of arsenic for 10 C.c. of a solution known to contain 0·002976 Gm. in that volume (*Comp. rend.*, cxxi., 20).

Tincture of Iodine. Observations made by Popiel with different samples, (*a*) prepared with chemically pure alcohol, (*b*) ordinary commercial tincture, (*c*) the same mixed with 2 per cent. amyl alcohol, have shown that, on keeping, decomposition took place first with the sample *c*, and that it did not commence in the other two samples until after the lapse of two weeks. The alteration proceeds very slowly, and after three weeks it was scarcely appreciable. Even after three months the several tinctures had the degree of purity required by the Russian Pharmacopœia. Contrary to the general opinion, Popiel found, like Sapin (see *Ph. J.*, liv., 1091), that alteration takes place more rapidly in the dark (*Wiedomosci farmaceut.*, through *Pharm. Centr.*, xxxvi., 404).

Citric Acid from Cane Sugar. Doubt is thrown upon Dr. T. L. Phipson's results (see *Ph. J.*, June 29, p. 1193) by A. B. Searle and A. R. Tankard, who have failed to obtain citric acid from cane sugar by the method described by him. The precipitate they obtained contained no calcium citrate but sulphate only, and the crystals separated later consisted entirely of hydrated calcium sulphate (*Chem. News*, cxxi., 32).

Decomposition Products of Resorcin. E. Grimaux has prepared two colourless crystalline bodies, melting at 225° and 261° respectively, by heating together on an oil bath equal parts of resorcin and zinc chloride. The substance with the lower melting point occurs in needles which are soluble in alcohol, acetone, ether (slightly), and in one hundred parts of boiling water. The aqueous solution presents a bluish fluorescence, which is more marked, however, when alkalies are used as solvents, and also occurs when the crystals are dissolved in concentrated sulphuric acid. The addition of bromine water to a boiling aqueous solution causes a precipitate which, when purified by recrystallisation from alcohol, melts at 194° and dissolves in alkalies with a green fluorescence. The result of analysis, added to the above facts, indicates that the body is identical with umbelliferone or methoxycoumarin, $C_9H_6O_3$. It is only formed from about 1 per cent. of the resorcin engaged in the reaction. The substance melting at 261° also occurs in needles, which are insoluble in water, soluble in alcohol, ether, acetone, and toluene. They sublime with partial decomposition into long needles resembling those of phthalic anhydride, slightly soluble in ammonia, but more so in potash, and not forming fluorescent solutions. About 5 or 6 per cent. of the resorcin is concerned in the formation of this body, the composition of which is indicated as $C_{24}H_{18}O_5$, which represents the union of four molecules of resorcin with the elimination of three molecules of water. It is described as constituting a resorcinic ether analogous to the poly-ethylenic alcohols, but its constitution remains to be determined, the quantity so far obtained being too small for investigation (*Comp. rend*, cxxi., 88).

An Alcohol from Lanolin. Marchetti has extracted from commercial lanolin an alcohol which he has named lanolinic alcohol. It is present to the extent of about 1 per cent. The lanolin is saponified by means of an alcoholic solution of sodium ethylate, by heating for five or six hours on a water bath. The alcohol is then evapo-

rated off, and the residual soap decomposed with dilute sulphuric acid, and extracted with ether. Fatty acids, cholesterin, and isocholesterin, and cerylic alcohol are thus removed, but the lanolinic alcohol remains insoluble. Crystallised from chloroform it occurs as a white odourless amorphous powder, soluble in hot alcohol, in benzol, and chloroform, insoluble in ether. It melts between 102°-104° C. Ultimate analysis gives the formula $C_{12}H_{24}O$. It gives no acetylised derivative; pentachloride of phosphorus and hydrobromic acid resinify it. The action of benzoic anhydride in a sealed tube, heated to 200° C., gives a benzoyl derivative $C_{12}H_{25}OC_6H_5CO$, a white waxy mass, soluble in alcohol, insoluble in ether. On oxidising lanolinic alcohol with chromic acid in acetic acid solution, lanolinic acid is obtained, a white crystalline powder, insoluble in water and in petroleum ether, soluble in ether, alcohol, chloroform, and benzol, melting at between 75°-77° C., and possessing the formula $C_{12}H_{22}O_3$. Its barium salt contains one molecule of water of crystallisation. This is a white powder, which decomposes on melting (*L'Union Pharm.*, xxxvi., 295, after *Gazz. Chim. Ital.*).

Analysis of Opium for Smoking.

Moissan publishes the results of the examination of three samples of "chandoo" or smoking opium. The first sample represented the Indian product, being derived from the Patna factory. This had a somewhat syrupy consistence, and a delicate odour. It had been preserved for ten years, which gave it a very high value. It contained 27·2 per cent. of water and 72·8 per cent. of dry extractive; and yielded 8·97 per cent. of morphine, and was rich in narcotine; it contained no glucose. The total acidity in terms of sulphuric acid was 1·73 per cent. The second sample was manufactured at Shanghai from opium produced from poppies grown at Wenchow. It was more fluid than the Indian specimen, its odour was less agreeable, and its monetary value about one-half of that of the Patna brand. It contained 22·71 per cent. of moisture and 77·29 per cent. of extractive. It gave 6·2 per cent. of morphine and 22·5 per cent. of glucose. The acidity was equivalent to 4·1 per cent. of sulphuric acid. The third sample, obtained from Saigon, was of more recent manufacture, and gave 32·12 per cent. of water and 67·88 of dry extractive. It contained 7·3 per cent. of morphine and 1·2 per cent. of glucose; the acidity in terms of sulphuric acid was 4·87 per cent. (*Journ. de Pharm. et de Chim.* [6], ii., 58).

Formalin as a Milk Preservative.

E. J. Bevan strongly recommends formalin as a preservative of milk samples, four drops serving to keep the residue of an analytical sample, usually about four ounces, for six weeks or longer. A curious fact is that an increase in the total solids of the milk occurs in certain cases after the addition of formalin, which appears to enter into combination. The result of some experiments with albumin, milk sugar, and cane sugar, respectively, showed that a small portion of the increase in those cases was probably due to the formation of a non-volatile polymer, and still more, in the cases of milk and cane sugar, to the formation of galactose and dextrose. But in these experiments relatively considerable quantities of formalin were used, and the most remarkable results were indicated when very small quantities were used to preserve milk. A fresh sample yielding 12·145 per cent. of total solids was preserved with formalin, in the proportion of one drop to the ounce, and after seven days, the total solids had increased to 12·286 (? 12·186) per cent., and in fourteen days to 12·21 per cent. The retention of the whole of the formalin would only account for about one-fourth of the observed increase, so that in all probability there was a considerable conversion of milk sugar into galactose. The matter requires further investigation, however. With regard to the detection of formalin when added as a preservative, Richmond and Boseley distil the milk to be tested into an aqueous solution of diphenylamine, in the preparation of which just sufficient sulphuric acid has been added to effect solution. If formalin be present a white flocculent precipitate is deposited, which is often coloured green if the acid used contained nitrates. Dr. S. Rideal finds Schiff's reagent (magenta bleached by sulphurous acid) useful. A portion of the suspected milk sample is distilled into water, and the distillate gives a pink colour with the reagent if formalin be present (*Analyst*, xx., 154, *et seq.*).

Test for Mercuric Chloride in Calomel.

The calomel (2 to 3 grains) is mixed with a drop of 10 per cent. alcoholic soap solution and a drop of freshly-prepared alcoholic solution of guaiacum resin, and the mixture well stirred with 2 C.c. ether. On evaporating the ether solution the presence of mercuric chloride is indicated by an intense green coloration (*Moniteur*, xlv., 1696).

New Medicinal Agents.

CITROPHEN, $C_{30}H_{35}N_3O_7$—a compound of phenetidin with citric acid—is a white pulverulent substance of agreeable acidulous taste. It melts at 181° C., is soluble in 40 parts of cold water, and is resolved into its constituents by acids and by alkalies. Citrophen is prepared by the firm of Meister, Lucius, and Brüning, by a process patented by J. Roos. As compared with phenacetin and lactophenin, it has the advantage of being very much more soluble in water. According to trials reported in the *Deutsche med. Wochenschr.* by Benario, citrophen is not poisonous; a dose of 30 grains does not cause inconvenience, and it has been administered to the extent of 90 grains in the twenty-four hours without hurtful results. It has been used in doses of 7 to 15 grains in typhus fever, and produced within two hours a reduction of temperature of from 2° to 3° C. EUDOXIN is a preparation made by the Rhenania factory in Aix-la-Chapelle. RESACETIN is a salt of oxyphenylacetic acid. RUBROL is a solution of boric acid, thymol, and some undefined coal-tar product. STYPTICIN is the name given by E. Merck, to cotarnine hydrochloride, recommended by Gottschalk at the Gynecological Congress in Vienna as a remedy for hæmorrhage. It is used as a 10 per cent. solution for injection, and internally in doses of from four to eight tenths of a grain (*Pharm. Cent.*, xxxvi., 409).

Production of low Temperatures.

P. Villard and R. Jarry find that solid carbon dioxide melts at −56°·7, under a pressure of 5·1 atmospheres. The crystals are absolutely without action on polarised light and, in the open air, maintain a constant temperature of −79°, that being the boiling point under atmospheric pressure. Ether mixed with carbonic snow has been proved not to lower the temperature, but methyl chloride does, reducing it about 20° (from −65° to −85°) when the snow is dissolved in the liquid to saturation. In the presence of a current of dry air, in addition, the temperature of the mixture was reduced to −90°. In a vacuum, again, the thermometer indicated −125°, with a pressure of 5 Mm., of mercury, when

120 Gm., of carbonic snow had been left in the apparatus for some little time. The authors suggest therefore, that it ought to be possible to liquefy oxygen by means of carbonic snow alone, and with the ordinary resources of a laboratory (*Comp. rend.*, cxx., 1413).

An Oxyhydrogen Accumulator. H. N. Warren takes advantage of the peculiar surface action that palladium exerts when exposed to an atmosphere of hydrogen in constructing gas batteries. Two glass tubes, into which are fused platinum wires, are inserted into an ordinary Woulff's bottle containing acidulated water. The wire in the oxygen tube terminates in a platinum plate, and that in the hydrogen tube in a palladium plate. The tubes being filled with the respective gases, several cells arranged in series are stated to produce a mean voltage of 0·45, and a series of five is capable of decomposing water (*Chem. News*, lxxi., 309).

New Form of Balance. H. J. Phillips describes a new form of chemical balance, based on the use of hydrometers. A glass cylinder carries on the top a portable brass ring on which are fixed two upright brass guide rods, 6 inches high and 1/8 inch in diameter. The balance consists of gilded brass bulbs into which is screwed an aluminium stem bearing aluminium arms at the top, which are perforated so as to slide over the guide rods. Between the arms there is a receptacle for a small aluminium scoop or pan to hold the substance to be weighed, and under the arms there are projecting needle-points. There is also a movable point upon one of the guide rods. The cylinder being filled with cold, recently boiled water, the bulbs and attachments are dropped in so that the guide rods pass through the perforations in the arms, and the balance sinks in the water until the bulbs are just covered. Supposing 0·2 Gm. of a substance is to be weighed, a two decigramme weight is dropped into the pan, and, when the bulbs sink to a definite depth, the movable point on the guide rod is fixed opposite one of the fixed points on the balance. The weight is then taken off, and the substance to be weighed gradually introduced into the empty pan until the points are again in a line. Any friction is removed by gently tapping the instrument (*Chem. News*, cxxi., 16).

Gurgun Balsam in Copaiba. Dodge and Olcott determine the presence of gurgun balsam in copaiba by dissolving four drops of the suspected oleo-resin in sufficient glacial acetic acid (about half an ounce) and adding to the solution four to six drops of fresh nitric acid. The solution will remain clear and colourless if the copaiba be pure, but the presence of gurgun balsam will cause a purple coloration, varying in depth according to the proportion in which it exists in the mixture. It is stated that as little as 2 per cent. of gurgun balsam in copaiba may be detected by this simple test (*Amer. Druggist*, xxvii., 5).

False Ipecacuanha. Ranwez and Campion conclude their paper on the false ipecacuanha, the source of which is probably *Cryptocoryne spiralis*. It presents all the characteristics of a monocotyledonous rhizome, does not possess the odour of true ipecacuanha, contains no emetine, and by its external appearance, microscopical characteristics, and chemical reactions is quite readily distinguished from the genuine drug, whether it be entire or in the state of powder (*Ann. de pharm.*, i., 238).

ACOKANTHERA SCHIMPERI.*

Its Natural History, Chemistry, and Pharmacology.

BY THOMAS R. FRASER, M.D., LL.D., F.R.S., AND JOSEPH TILLIE, M.D., F.R.S.E.

Several years ago an opportunity was given to one of us to examine poisoned arrows and the poison used in smearing them, of the Wa Nyika tribe of East Africa. While the pharmacological action of this poison was found to have a close resemblance to that of *Strophanthus* seeds, its physical and chemical properties enabled the conclusions to be drawn that the poison was not made from these seeds, but was chiefly composed of an extract prepared from a wood. These conclusions have been confirmed by the examination of further specimens of the Wa Nyika arrow-poison, and of the wood from which it is prepared.

Specimens of the Wa Gyriama and of the Wa Kamba arrow-poisons, and of the wood from which they are prepared, have also been examined.

We have been enabled to refer all these specimens of wood to the genus *Acokanthera*, which therefore supplies the arrow-poison used over an extensive area in East Africa.

Leaves, flowers, and fruit, each taken from the same individual tree, having also been sent to us, we have been enabled to determine that a species used by the Wa Nyika and the Wa Gyriama and other tribes is *Acokanthera schimperi*, Benth and Hook (*Carissa schimperi*, A.D.C.).

The tribes inhabiting the coast regions near Mombasa have long been known to use an arrow-poison, but the botanical specimens received by us are apparently the first that have been completely identified.

The arrow-poison of these tribes usually contains a crystalline glucosidal active principle, which, in its chemical properties and pharmacological action, is identical with the active principle present in the wood of *Acokanthera schimperi*.

The active principle crystallises from water in the form of colourless, transparent, quadrangular plates, and from alcohol in colourless, thin, needle-shaped crystals, which usually group themselves in tufts and rosettes. At a temperature of 13°–15° C. it is soluble to the extent of 0·93 per cent. in distilled water, and of 2·4 per cent. in diluted alcohol of specific gravity 0·920. At higher temperatures much larger quantities are dissolved by water and by alcohol. It is altogether insoluble in ethylic ether and in chloroform. A saturated solution in cold water is tasteless and neutral in reaction, and is affected, in an obvious manner, by very few chemical reagents. Strong sulphuric acid produces immediately a red colour, and subsequently a green colour is developed. The melting point is about 186° C. When treated with dilute sulphuric acid, it gives the reaction of a glucoside.

Concordant combustions made for us by Dr. Dobbin, of the Chemical Laboratory of the University, show that dried at 100° C. it contains C 58·46 per cent., H 7·71 per cent., which corresponds with a formula $C_{30}H_{48}O_{13}$.

In 1882, MM. Rochebraune and Arnaud separated an amorphous glucoside from the root of an unknown species of tree used in North Somaliland to prepare an arrow-poison. This glucoside, dried at 120° C., on combustion yielded C 48·3 per cent., H 6·5 per cent., and to it the name ouabaïn was given.

In 1882, Arnaud obtained from the wood of an unidentified species of *Acokanthera*, provisionally named *Acokanthera ouabaio* Cathelineau (*Carissa ouabaio*, Franchet and Poisson), used in North Somaliland to prepare an arrow-poison, a crystalline glucosidal active principle, which, dried at 140° C., on combustion yielded

* Abstract of a paper read before the Royal Society of Edinburgh.

C 58·14 per cent., H 7·67 per cent., corresponding with the formula $C_{30}H_{46}O_{12}$, and, dried at 100° C., with the formula $C_{30}H_{46}O_{12}H_2O$; and to it the name ouabaïn was also given.

In 1893, Lewin, and also Merck, separated from the wood of another *Acokanthera*, named *Acokanthera deflersii*, Schweinfurth, an amorphous glucosidal active principle, which, dried at 100° C., on combustion yielded C 58·32 per cent., H 8·01 per cent.; and this is also named by Lewin ouabaïn, and erroneously stated to be the active principle of *Acokanthera schimperi*.

The complete recognition of the species of *Acokanthera* is of primary importance, because several supplies of the wood of unidentified species of *Acokanthera* sent to us from East Equatorial Africa yielded only a glucosidal active principle, which was amorphous.

The characters of the crystalline active principle which we have separated from the wood of the fully identified species, *Acokanthera schimperi*, Benth and Hook, agree with those of the crystalline active principle separated by Arnaud from the wood of the unidentified species of *Acokanthera*, provisionally named *ouabaïo;* and also from the seeds of an unidentified species of *Strophanthus*, obtained from West Africa.

As, therefore, the name ouabaïn is used for three different substances, and is itself derived from merely a vernacular word "wabayo," which is used in a restricted district, we would suggest that, in accordance with a usual custom, the crystalline active principle of *Acokanthera schimperi* should be named acokantherin and not ouabaïn.

In the preliminary notice of this paper there was appended a note, making brief mention of some of the most important general observations made by several investigators upon the pharmacological action of those arrow-poisons which, at the time when the investigations were made, were not known to be derived from the *Acokanthera* species, and upon several non-crystalline and crystalline glucosidal substances to which the arrow-poisons owe their action In the present paper the work accomplished by Arnott and Haines in 1853, by Ringer in 1880, by Rochebraune and Arnaud in 1881, by Laberde in 1887, by Langlois and Varigny, by Gley and Rondeau, and by Gley in 1888, by Sailer in 1891, and by Lewin in 1893, has been more fully described.

The group of arrow-poisons which owes its activity to extracts of *Acokanthera* plants has been found to possess a qualitative identity of action with *Strophanthus*, but some of the authors mentioned emphasise an action upon the cardio-respiratory centres in the medulla, and others a direct action upon the heart.

A detailed examination of the pharmacological action of acokantherin has not led to the discovery of any important qualitative differences between its action and that of *Strophanthus hispidus* and of its active principle strophanthin, which was described by one of us in 1870, in 1872, and in 1890.

As, however a special interest must be attached to the effects upon the circulation, the experiments upon the heart, blood-vessels, and blood-pressure are described with more detail than those upon other systems. Our experiments show that small and carefully-regulated doses can produce a great slowing of the rate of the heart, even when the vagi nerves are divided, or when atropine is administered; and that a great increase in the extent of the diastolic and systolic movements of the heart can be obtained without the average blood-pressure being at all affected, or affected only to a very small extent. Any rise of blood-pressure which follows the administration of such doses is accompanied by so great a slowing of the rate and by so great an increase of the extent of the pulse movement that constriction of blood-vessels seems contra-indicated; and the rise of blood-pressure must therefore be attributed to the increase in the amplitude and vigour of the heart movements and the greater quantity of blood propelled into the arteries. Large doses produce a rise of blood-pressure, which is probably due to an action upon the vaso-motor centres or peripheral ganglia, and probably not upon the muscle of the blood-vessels, because perfusion experiments in frogs show that dilute solutions of acokantherin of 1 in 100,000 to 1 in 10,000 in normal saline do not produce contraction of blood vessels, and with even so strong a solution of acokantherin as 1 in 5000 the contraction is very slight; whereas a solution of digitalin of 1 in 100,000 to 1 in 20,000 in normal saline rapidly reduces and arrests the flow through the blood-vessels.

The predominant action of acokantherin is that exerted upon striped muscle, and, because of this action, with possibly an action upon the intrinsic cardio-motor ganglia, the chief effect is produced upon the heart, while the influence exerted upon the cardio-respiratory centres in the medulla is relatively slight or secondary.

PROGRESS OF PHARMACY IN AMERICA.

NEW YORK STATE PHARMACEUTICAL ASSOCIATION.

REPORT OF THE COMMITTEE ON PHARMACY AND QUERIES.*

One of the duties of this Committee being the preparation of a set of queries to serve as subjects for papers for the annual meeting, our Chairman, early in the year, addressed a few experienced members of the Association, inviting suggestions and recommendations as to the selection of subjects, and a few of the queries accompanying this report have been framed in accordance with the replies received.

In this way it was hoped that in addition to securing expressions of opinion as to the character and scope of proposed papers, such direct appeals might result in a much needed stimulation of interest in the work of this Committee, for it must be admitted that while the pharmacists of more than one sister State have been active in recent years in conducting original researches into the pharmacy and chemistry of drugs, a certain lack of interest in these subjects has distinguished our body. With the prominent and praiseworthy exception of the splendid work accomplished year after year, by our distinguished Committee on Adulteration, we are unable to point to any conspicuous recent achievement in pharmaceutical research which can be credited to this Association. This apparent indifference to technical application may be accounted for as the inevitable result of modern business competition which, in large communities, disposes the pharmacist with other professional men to pay increased attention to the commercial aspects of his calling, and corresponding loss to work involving a close attention to matters which promise no immediate pecuniary gain. This tendency is to be greatly deprecated, and it is hoped that some members of the Association may be prevailed upon to come forward this year and participate in the work of this Committee by devoting at least some portion of their time to the investigatition of the subjects proposed in the list of queries submitted with this report

THE PROGRESS OF PHARMACY.

It being customary to take a retrospect of the pharmacy of the year in connection with the report of the Committee on Pharmacy and Queries, an effort has been made to enumerate events of

* Sent by the Chairman, Mr. Thos. J. Keenan, Saratoga Meeting, June 25, 26, and 27, 1895.

importance, and to present a brief summary of progress in diffcrent departments during the period since our last meeting.

In studying the progress of pharmacy your Committee has not failed to become impressed with the striking characteristic of our time—the demand for the new and novel without question whether it be great or good. In common with other professions, pharmacy has been forced to respond to this demand, which differs with the class affected, and with us takes the form of new remedies and new forms of old remedies, represented by the synthetic products of German chemical factories, the animal extracts, compressed medicaments, new combinations of simple substances, *et in genus omne*, and the demand, it may be noted, seems in no danger of diminishing from lack of stimulation by enterprising manufacturers. The pharmaceutical journals are faithful reflexes of this characteristic, and it is seen in the amount of space which they devote to new introductions to materia medica. In this respect, indeed, the journals march at the head of pharmaceutical progress.

The Trend of Modern Pharmacy.

Taking a survey of the condition of pharmacy in its trade and professional relations, it is impossible to avoid the conviction that a change of some kind is in progress. In common with the drift of the intellectual and technical progress in science, arts, and trades, pharmacy is wont to raise the status of its professional aspect, and this it seeks to accomplish through more commensurate educational standards; in its trade relation, however, pharmacy is evidently on an inclined plane in all countries. Specialisation in medicine, sanitary science and its application, and an increasing general intelligence in all matters relating to health and sanitation, are constantly curtailing the once ready and comprehensive resorting to remedial agents. Medical as well as popular scepticism in the infallibility and omnipotence of medicines are progressing slowly but surely in accord with higher civilisation everywhere. The inroads of this progress upon the realms of medicine and pharmacy are becoming more and more evident throughout our own land, whilst in the old world they have much reduced the prosperity, and in many cases, even imperilled the *raison d'être* of the apothecary's shop.

In consequence of this gradual metamorphosis we see that in countries highest and leading in education and culture, the drift of the educated pharmacist is toward congenial additional or modern application. The study and the application of the future pharmacist tend, then, more and more in the direction of the public analyst and bacteriologist, and it is in this capacity, as well as in that of the medicine dispenser, that he is likely to serve the community, and preserve as much as may be left of the "lost art" of the apothecary.

This subject might be pursued farther, but it is questionable whether the results would be sufficiently interesting or useful to compensate the tax on your patience. In leaving it we can but point out how necessary it is for our colleges and schools of pharmacy to take the altered and changing conditions into consideration, and so construct their courses of instruction as to meet the requirements of modern knowledge and methods. The genius of American pharmacy so aptly referred to by one who recently occupied the elevated position of President of the American Pharmaceutical Association, can, perhaps be safely trusted to meet the demands and exigencies of our time and its universal progress, but care should be taken not to occupy ourselves too much with the undeveloped things of the future, nor to drive the chariot of progress too furiously.

Events of the Year.

No reference to the events of the year would be complete without some mention of the work transacted by the American Pharmaceutical Association at the meeting following that of our own Association in 1894. The thoroughness and painstaking care which characterised the bulk of the papers contributed to the scientific section at the Ashville meeting give evidence of an active scientific spirit, and this elevation of standard must be specially reassuring to those who have complained in the past that undue prominence was given to subjects of minor importance, causing science to be neglected in its own temple and encouraging mediocrity. The conditions are now reversed, and complaint has been made regarding the paucity of practical papers. In estimating the value of scientific papers regard should be had for their discussion-provoking qualities. The interesting and far-reaching discussions of several of the papers read at the last meeting of the American Pharmaceutical Association took a valuable and practical direction.

Another event of importance occurring during the interval since our last meeting was the convention of the Deutscher Naturforscher und Aerzte, an organisation which resembles in many respects the American Association for the Advancement of Science, but which includes a section on pharmacy. The convention began its meeting in Vienna on September 23, and adjourned six days later. The fact that Germany is the only country where pharmacy has a recognised standing among the professions shows that the German pharmacist has in the drift of scientific and professional progress and changes maintained his particular position, and is branching out in the direction where the future application of the educated pharmacist will largely go. Last year's convention of the German Association is worthy of mention from other considerations beside that of the splendid contributions to professional knowledge which it produced. It was here that the first formal announcement of the successful application of antitoxin germs in the treatment of diphtheria was made by the discoverer, Dr. Behring, though not in the section on pharmacy. Valuable papers on subjects pertaining to pharmacy presented at this meeting included the following, viz. :—"The Relations of Hyoscyamine, Scopolamine, and Hyoscine to Each Other," by Dr. E. Schmidt; "Plant Secretions and their Formation," by Professor A. Tschirch; "The Future of Pharmacy as Affected by the Advance of Bacteriology," by Dr. Joseph Schrenk; and "The Valuation of Drugs and their Preparations," by Professor H. Beckurts. The section of pharmacy was represented by about 150 of the most renowned pharmaceutical scholars in Germany, including as guests some of the noted pharmacists of Russia, England, and one representative of the United States, the last-mentioned being Dr. Fr. Hoffman, the distinguished Editor of the *Pharmaceutische Rundschau* of New York.

Lack of time renders it impossible to give a complete summary of the pharmacy of the year, and we can only touch in passing on incidents which are writ large. Thus reference should be made to the discovery of a new constituent of the atmosphere in argon, which derives its name from two Greek words signifying no work. This interesting addition to the number of known elements has, with one exception, baffled the efforts of the chemists to make it enter into combination with other bodies, and it may be said to fairly earn its name. Its combination with benzene, which was effected recently by the French chemist Berthelot is the exception alluded to. It was in the course of some experiments made by an English chemist to discover argon that the latest of all elements was isolated. We refer to helium, which was obtained by Professor Ramsay in conjunction with argon from the rare mineral cleveite by merely acting upon the latter with sulphuric acid.

Research in the domain of synthetical chemistry has resulted in the discovery of many new compounds, and the day would seem to be not far distant when the practical application of these discoveries

to economic purposes will be felt by even the cultivator of the soil. The only comfort left to the agriculturist in these end-of-the-age times is the reflection that it is impossible to construct a synthetic fibre or a synthetic fruit. The production of true artificial sugar and amorphous starch cannot be long delayed, and the synthesis of other ingredients of our daily food should quickly follow.

We should have liked in this report to have been able to make extended reference to recent progress in the direction of standardising drugs for their alkaloidal value, but time and space forbids. The literature of the subject has been enriched during the past year by several notable contributions from American workers. Dr. Alfred R. L. Dohme has studied the titration of alkaloids. Lyman F. Kebler, in a paper presented at the Asheville meeting of the American Pharmaceutical Association, compared the various methods for standardising drugs, and warmly recommended titration with volumetric acid solutions. In a second paper the profitableness of standardising the fluid extract of the drugs was set forth and the value of titration fully demonstrated. Following the same line of work, Mr. Kebler has made a study of the method of opium assay and the results have been described in detail in a paper read this year before the New York Section of the Society of Chemical Industry. The analytical methods for assaying opium have also been investigated by M. X. Moerk and J. H. Wainwright, and their researches, being on this subject, are especially valuable. Pharmacy is also indebted to Professor J. B. Naglevoort for important contributions relating to the standardisation of drugs. His work on belladonna preparations and treating of the use of economical apparatus merits praise, not less on account of its practical character than its thoroughness. Notable contributions to the advancement of our knowledge of standardisation have always been made by Keller in Germany, and Paul and Cownley in England.

In conclusion it seems fitting that record should be made of recent additions to the literature of pharmacy as represented by new pharmacopœias. Of these the supplement to the French Pharmacopœia is the earliest. In this work many articles not heretofore official in any pharmacopœia are recognised for the first time. Notable among the new additions are diastase and the compounds of sulphoricinic acid.

The publication of the supplement to the French Pharmacopœia was closely followed by an appendix to the German Pharmacopœia. The appendix contains many additions and alterations, and is also noteworthy from the number of novelties included among the additions.

The latest among the new pharmacopœias is the *Pharmacopœa Norvegica*. This publication has come in for considerable criticism both on account of the inaccuracy and vagueness of the definitions which figure in it as well as the laxity of the taste prescribed. The nomenclature of the work is objected to as not being in consonance with modern ideas, and the pharmacopœia on the whole fails in many respects of meeting the expectations of the pharmacy of to-day.

Gold Sulphide, precipitated by H_2S, may vary in aspect from the soluble matter produced in a neutral solution to the dense black sulphide insoluble in water. According to A. Ditte (*Comp. rend.*, cxx., 320), the addition of a few drops of dilute hydrochloric acid to the dark solution of the former, or to the solution holding a gelatinous precipitate of gold chloride in suspension, causes the rapid deposition of a black powder, and leaves the liquid colourless.

CORRESPONDENCE.

[*Letters to the Editor should be written as concisely as possible, on one side of the paper only, and preferably with name and address for publication.*]

THE REVISION OF THE PHARMACOPŒIA.

Sir,—The letter of Dr. Sainsbury in a recent issue of your Journal touches on many interesting points. A vast majority of medical practitioners will doubtless agree that it would be inadvisable to graft a work on therapeutics on the Pharmacopœia. The advisability for co-operation between men of medicine and pharmacists urged by Dr. Sainsbury will also commend itself to all. I may give an instance of the usefulness of such collaboration. At the North-West London Hospital the pharmacopœia has just been revised. The brunt of the work fell upon my colleagues, Dr. Campbell, Dr. Guthrie, and Mr. Gordon Brodie, who availed themselves of the assistance of our able dispenser, Mr. C. W. Peach, M.P.S. Amongst the modifications suggested by Mr. Peach were alterations in the formulæ for ung. acidi carbolici. The pharmacopœia recipe for the former is 1 to 18 of soft and hard paraffin. This ointment was found, however thoroughly mixed, in course of time to deposit large masses of crystallised phenol which would cause unpleasant consequences if applied to the skin. The improved formula:

Acid carbolic cryst.....	gr. xxiv.
Ol. olivæ	♏ xlviii.
Paraffin. molle	ad ℥j.

has been found to give an ointment free from the serious drawback of the Pharmacopœia preparation. Your journal has already drawn attention to the very different strengths in which hypodermic injections of cocaine are employed for producing local anæsthesia. This drug is of the greatest service in minor surgery and sometimes, where a general anæsthetic is contra-indicated, even in graver conditions, such as strangulated hernia. The accidents which attended some of the earlier operations performed under cocaine anæsthesia were due to the solutions being much too strong. Even now a 10 per cent. solution is not infrequently used hypodermically. For several years I employed a 2 per cent. solution for this purpose, but now I use a solution of 1, and sometimes one of ½ per cent., and I find that the weaker solutions answer fully as well as the stronger ones. It would be well, so it seems to me, if the Revision Committee among their manifold labours could find time to fix a standard strength and a standard vehicle for cocaine as used for surgical purposes.

Dr. Sainsbury fears that the revision may not be conducted with sufficiently careful conservatism. On the other hand, it may be pointed out that many useless preparations which only serve to cumber both the Pharmacopœia and pharmacy should be swept ruthlessly away. In one particular I would not hesitate to recommend a change which may justly be termed radical. The *Pharmaceutical Journal* periodically urges the advantages that would accrue from the adoption of the metric system, so that I need not go into detail in recounting the educational and practical gain that would ensue from its use. But I may be allowed to point out that the revision of the Pharmacopœia offers a splendid opportunity for giving effect to the opinion very widely entertained in regard to this matter, and for making a decisive step forwards towards substituting the metric for the barbarous system by which, from an excessive conservatism, we perpetuate the middle ages.

J. Jackson Clarke, M.B., Lond., F.R.C.S.

TINCTURE OF CUSPARIA.

Sir,—The *Lancet* of July 6, contains a note by Sir James Sawyer suggesting the addition of a tincture of cusparia of proof spirit strength to the new Pharmacopœia (*see ante, p.* 44). There is no doubt that, as he states, this drug has to some extent fallen into disrepute on account of the frequent substitutions and adulterations to which it has been subjected, but at the same time it must be admitted that it possesses valuable therapeutic properties, and that the most recent researches with regard to its constitution indicate that an alcoholic menstruum would best remove the active principles which it contains. It must further be added that a tincture of cusparia prepared according to Sir James Sawyer's method is an elegant and palatable preparation, free from much of the superfluous and inert matter present in the aqueous infusion. This being so, it is to be hoped that instead of, as I believe has been suggested, removing it from the Pharmacopœia, the compilers will give to cusparia the position it deserves by including it in the form of proof spirit tincture in the forthcoming edition.

Birmingham. ALFRED SOUTHALL.

CATERPILLAR OPHTHALMIA.

Sir,—The note on this subject in the Journal of June 29, recalls vividly to my mind a very unpleasant experience that befel a schoolfellow and myself some twenty years back. Being inexperienced but ardent entomologists, we were delighted in discovering a fine colony of the attractive caterpillars of the yellow-tailed moth, *Liparis auriflua*, which we promptly secured, under the impression that they were the larvæ of some rarer "fly." In a few hours we were both attacked with a most painful urticaria of the face and neck, my friend's eyes being so badly affected that he was sent to the doctor, who, however, did not suspect the cause of the attack Upon recovery, another visit to our treasures was immediately followed by another outbreak of the rash, and I then discovered, what I afterwards learned was a well-known fact, that our discomfort was due to the irritating, and easily detached, hairs with which the larvæ and pupæ of this moth are covered. Probably some of our country *confrères* may not be aware of the urticating properties of this common insect, which often appears in great numbers on hawthorn bushes, or may have met with cases of urticaria which were due to handling these "grubs."

Twickenham. J. OLDHAM BRAITHWAITE.

THE PATCHOULI PLANT.

Sir,—In your summary of the latest report of the Buitenzorg Botanic Gardens ([3], xxv., p. 1200) the word "dilem" is used in relation to the patchouli plant as if that word applied solely to some new variety belonging exclusively to Java, but it is in reality the ordinary Malay word in common use in the Straits Settlements to signify the patchouli plants generally. The reason of this is, the natives are in the habit of stuffing their beds and pillows with the leaves; the Malay word for a bed is "dilem," and for a pillow "tilem." This information is kindly furnished to me by Mr. John Fisher, the well-known distiller of essential oils at Singapore. He adds that two or three sorts of the plant are used, such as "Dilem outan," the wild uncultivated plant (the word "outan" meaning jungle), and the "Dilem wangi," the cultivated plant (the word "wangi" meaning a plant which is odoriferous), and of this last there are two sorts, one having a sweeter scent than the other. The word "doun" is sometimes prefixed; this word means leaves—the leaves of any plant.

Brighton. J. C. N. SAWER.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

FIRST EXAMINATION RESULTS.

A meeting of the Board of Examiners for England and Wales was held on Thursday, July 25.

A certificate by an approved examining body was received from the under-mentioned in lieu of the Society's examination:—

Blair, Herbert .....South Shields.

The report of the College of Preceptors on the examination held on July 9 was received.

392 candidates had presented themselves for examination, of whom 209 had failed.

The following 183 passed, and the Registrar was authorised to place their names upon the Register of Apprentices and Students.

Allen, Percivale Knight .....Chobham.
Arber, Alfred Preston .....Malvern.
Atkinson, Wilfred Webster .....Southampton.
Bailey, John Herbert ....Nottingham.
Barker, Alfred Percy ... .Barnsley.
Barker, Percival Oldham .. ..Cambridge.
Barr, Annie Millar .....Gourock.
Barstow, Stuart Granville ....Pontefract.
Beeston, Arthur Edward .....Norwich.
Behenna, John Stone Rundle .....Plymouth.
Benham, Reginald Reuben.....Chichester.
Berry, William.....Market Harboro'.
Bill, Albert Thomas.....Jarrow.
Blackburn, Oswald Vincent .....Selby.
Blackburn, Sidney Richard .....Newcastle-on-Tyne.
Booth, James Henry Lawson.....Southport.
Bowen, Thomas Charles..... .....Kilburn.
Browne, Arthur Hubert.....Eastbourne.
Browne, James Leonard..... ..Liverpool.
Challinor, Samuel George .....Stoke-on-Trent.
Chambers, Charles Ward .....Goole.
Child, Grahame Sargent Colin.....Newnham.
Clark, Peter Livingstone .....Dundee.
Clarke, Harry Allanson .....Skipton.
Clarkson, Henry Whitfield .....W. Hartlepool.
Clegg, John Willie .....W. Melton.
Cooke, Cyril J.....Portsmouth.
Copland, John.....Aberdeen.
Cotterill, Alice Beatrice.....Congleton.
Craig, James Christison.....Brechin.
Crooke, Olive Louisa .....Edinburgh.
Cuthbert, James Morgan .....Edinburgh.
David, Griffith Thomas .....Aberdulais.
Davies, Wilfred Sydney.....Paddington.
Davison, Joseph ....Spennymoor.
Dean, Oswald Stuart .....Chesham.
Dell, Walter John Webber.....London.
Donaldson, Robert Muir.....Edinburgh.
Donellan, Frank .....Crewe.
Doughty, Frank William .....Hull.
Downing, Percy .....St. Austell.
Elliott, John .....Wallsend.
Eunson, James .....Kilsyth.
Evans, Harold Nicholls .....Manchester.
Evans, James Leonard .....Coatbridge.
Fisher, William Edward.....Wimblington.
Fletcher, Edward Norman.....Halifax.
Flett, William .....Kirkwall.
Ford, Francis William ..... Birmingham.
Gatenby, Robert Smith .....Bridlington.
Geddes, Charles Smith .....Aberchirder.
Geekie, John McDougall .....Corstorphine.
Gilman, William Robert Altham ...Accrington.
Glen, Arthur Guthrie.....Ardrossan.
Godden, William Henry .....Southampton.
Green, William Edmund .....Swaffham.
Grimwade, Alfred Ernest .. ..Colchester.
Hadfield, Fred ....Holme.
Hall, James Charles..... ....Blackpool.

Hampson, Adam .....Westhoughton.
Harper, John William.....Elgin.
Harries, Joshua H. .....Penybont.
Hartley, Charles Quarmby .....Leeds.
Henry, Oswin Cyril.....Durham.
Hoadley, Arthur James .....Rotherfield.
Hodge, William Henry .....Wolverhampton.
Hogg, George Templeton .....Medomsley.
Holborow, Francis Ernest .....Bristol.
Holland, Frank William Crossley...Tamworth.
Holyoak, Frederick Henry .....Leicester.
Hopkins, Edgar .....Guisborough.
Hopps, William Thomas.....Leamington Spa.
Hough, Ralph .....Wigan.
Hunt, Frederick Edward .....Wellington (Salop).
Hunter, John.....Edinburgh.
Irving, Francis.....Skipton.
Jack, William John.....Lochgilphead.
Johnson, John Ernest.....Ventnor.
Jones, David Charles .....Guilsfield.
Jones, James.....Carmarthen.
Jones, John .....Llanfaglan.
Jones, Rachael Ellen .....Llanybyther.
Kelsall, James .....Bolton.
Kelsey, Harold Machen .....Middlesbrough.
Lacey, Edgar Hiram .....London.
Lamb, Lauchlan Sinclair .....Edinburgh.
Lea, Frederick .....Market Drayton.
Livesey, George Samuel Theodore...Bradford.
Llewellyn, William Morris .....Clydach Vale.
Lloyd, Bertie Taylor .....Aberystwith.
Lloyd, Edward Neville .....Bridgend.
Longley, Richard Samuel .....Wombwell.
Lovegrove, George Elliott.....New Barnet.
Lowes, Frederick .....Richmond (Yorks).
Lunan, Alexander George .....Banchory.
Mackie, Alexander .....Old Meldrum.
Mackie, William Dingwall .....Crieff.
McMillan, George .....West Benhar.
McMillan, Robert Gellatly.....Broughty Ferry.
Main, Alfred.....Gateshead.
Makepeace, Harold Benjamin W....Swanley.
Mallinson, George Arthur .....Heckmondwike.
Mapei, Luigi Enrico .....Golborne.
Marsden, Charles Cecil .....Leeds.
Marsh, Percy Charles Edward .....London.
Martin, Thomas Stewart .....Grangemouth.
Martin, William .....Haslington.
Mattock, William Henry .....London.
Meadley, George Holmes .....Sheffield.
Meredith, Walter Cecil .....Nantmel.
Millar, Alexander .....Crieff.
Moss, Arthur.....Manchester.
Munnoch, Robert Lunan .....Edinburgh.
Munro, Cameron .....Banff.
Newton, Albert.....Stalybridge.
Nichols, Theophilus Henry .....London.
Noble, Alfred Grange.....Stamford.
Noddings, Arthur William .....Boston Spa.
North, Henry Howard .....Grantham.
Oatley, Thomas James .....Chorley.
Oldham, Thomas May .....Nottingham.
Osborne, John Alfred.....Long Eaton.
Park, David Scott .....Sunderland.
Patridge, Ernest William .....Liverpool.
Peasgood, Harry .....Stamford.
Plummer, Richard Kenneth .....Thirsk.
Powell, William Guy .....Egginton.
Pulpher, Arthur Wilberforce.....Raunds.
Raspass, Thomas Healy Waite.....Barnsley.
Rees, Rees .....Pyle.
Richards, Shelley.....Shaftesbury.
Roberts, Arnold .....Moreton-in-Marsh.
Robertson, Charles.....Carnoustie.
Robertson, William.....Edinburgh.
Rogers, William Elford.....Worksop.
Rough, Alfred James.....Camborne.
Sandy, Robert.....Liverpool.
Saunders, Christopher George.....Walthamstow.
Sendall, Charles Edward J.....Preston.
Shaw, John.....Fife Keith.
Shearman, Christopher William...Great Yarmouth.
Shirras, Alexander Wilson .....Newburgh-on-Tay.
Sinca, Reginald Arthur .....Wilton.
Singleton, Robert Andrew Charles.Guernsey.
Smyth, Ethelbert .....Exeter.
Spencer, Edward Scott .....Oldbury.
Stevens, Harold Blythen .....Long Eaton.
Stott, Oswald .....Thirsk.
Stubbs, William Campion.....Easington.
Taylor, Charles Lister .....Liverpool.
Taylor, George Alan .....Brinsley.
Taylor, Samuel.....Bradford.
Teasdale, Harold.....Manchester.
Terry, John Smithson .....Gravesend.
Thomas, Alfred William.....Plymouth.
Tipping, Albert James .....London.
Tozer, Robert Maitland .....Brighton.
Turner, Andrew Harper .....Manchester.
Turner, Arthur Chadderton .....Oldham.
Vickers, William Alfred.....Liverpool.
Walker, George Lister .....Bradford.
Walker, William .....Banff.
Walls, William.....Dundee.
Wannop, Joseph Beaumont .....Carlisle.
Warburton, Frederick Ernest .....Sunderland.
Ward, Edward .....Northampton.
Warren, Richard Bleathman .....Blandford.
Watson, George.....Kirkby Stephen.
Watson, William Alexander .....Inverness.
Watts, John William .....Anerley.
Webb, Harold Edward.....Chislehurst.
White, Percy F.....Liverpool.
Whitley, David Robert.....Rhyl.
Whittaker, Frank .....Burnley.
Wilde, Samuel Thomas .....Bexhill-on-Sea.
Wilkie, William Bennett .....Dundee.
Wilkinson, John Henry .....Leeds.
Williamson, James Anderson .....Burghead.
Wilman, Francis Augustus .....Bradford.
Wixey, Lewis Edward.....Chipping Campden.
Wolseley, Gertrude Isabel.....Kings Norton.
Woodhead, Stanley Hastings .....Liverpool.
Yeomans, Frederick Arthur .....Warrington.

The questions set at this examination were published in the *Pharmaceutical Journal* for July 13, p. 37.

The following is a list of the centres at which the examination was held, showing the number of candidates at each centre and the result.

	Candidates.				Candidates.		
	Examined.	Passed.	Failed.		Examined.	Passed.	Failed.
Aberdeen	13	8	5	Lancaster	4	2	2
Aberystwith	2	2	0	Leeds	26	16	10
Birmingham	15	7	8	Lincoln	1	0	1
Brighton	6	5	1	Liverpool	20	10	10
Bristol	5	1	4	London	46	20	26
Cambridge	2	1	1	Manchester	43	16	27
Cardiff	9	4	5	Newcastle-on-T.	17	8	9
Carlisle	10	1	9	Northampton	3	2	1
Carmarthen	11	3	8	Norwich	5	3	2
Carnarvon	5	2	3	Nottingham	13	7	6
Cheltenham	1	1	0	Oxford	4	0	4
Darlington	6	6	0	Penzance	3	2	1
Dundee	11	7	4	Peterborough	7	3	4
Edinburgh	35	11	24	Plymouth	3	2	1
Exeter	4	2	2	Sheffield	6	5	1
Glasgow	14	6	8	Shrewsbury	3	3	0
Guernsey	1	1	0	Southampton	14	6	8
Hull	8	2	6	Worcester	4	3	1
Inverness	4	2	2	York	7	2	5
Kirkwall	1	1	0				

SCHOOL OF PHARMACY PRIZE EXAMINATION QUESTIONS.

MATERIA MEDICA.

PROFESSOR HENRY G. GREENISH.

Thursday, July 18.

Hours—10 *to* 1.

[*Four Questions only to be attempted.*]

1. What characters should genuine specimens of *Oleum cinnamomi*, *Oleum eucalypti*, and *Oleum pini sylvestris* respectively possess? What adulterants are especially likely to be present, and how may they be detected?

2. Describe the localisation of the resin in jalap. Give a process for its detection in the root, isolation and estimation, and means for its identification.

3. Describe the different varieties of blistering beetles with which you are acquainted; show their relative value by stating the average percentages of cantharidin they respectively yield. By what process can the cantharidin be estimated?

4. In examining leaves with the view of identifying them in the state of powder, to what points would you especially direct your attention? Support each of your assertions by illustrations drawn from official drugs.

5. A knowledge of the anatomy of a drug is said to be of value in determining its identity and distinguishing it from substitutes. Draw from official drugs three illustrations in support of this assertion. Indicate the diagnostic characters of the genuine drug, and describe the variation from these in at least one substitute for each.

6. Write a short account of the alkaloids of ipecacuanha. Give a process for the assay of the root.

MATERIA MEDICA.

PROFESSOR HENRY G. GREENISH.

Thursday, July 18.

Hours—2 *to* 5.

Prepare and describe both transverse and radial sections of the bark supplied. Demonstrate, as far as possible, the nature of the cell-contents, stating the re-agents used, the object of applying each, and the result of the test. Draw attention to any features that you think might be of diagnostic value, and state your reasons for attaching importance to them. Leave a radial and transverse section, mounted in glycerin, for inspection.

PRACTICAL CHEMISTRY.

PROFESSOR ATTFIELD.

Friday, July 19.

Hours—10 *to* 1 *and* 2 *to* 5.

Manipulation as well as results will be scrutinised.

1. Qualitatively analyse the solution marked "A" and state the results.

2. Qualitatively analyse the powder marked "B" and state the results.

PRACTICAL BOTANY.

PROFESSOR REYNOLDS GREEN.

July 20.

Hours—10 *to* 1.

1. Make a microscopic preparation to display the reproductive apparatus of the fungus provided.

Sketch your preparation and explain the points which you think important. To what class of fungi would you assign it?

2. Refer the specimens A B C D to their places in the Natural System, giving your reasons.

3. Identify and briefly describe the microscopic preparations E F G.

BOTANY.

PROFESSOR REYNOLDS GREEN.

July 20.

Hours—2 *to* 5.

[*Only three Questions to be answered.*]

1. Describe in detail the structure of the sporophyte of the Moss. Point out in what respects it differs from that of the Liverworts.

2. What is the *pericycle?* Describe the chief features in which the pericycle of a root differs from that of a stem. What are the functions of the pericycle?

3. Distinguish between the following genera of the Natural Order Solanaceæ — Solanum, Physalis, Atropa, Hyoscyamus, Datura.

4. What are aleurone grains? Describe two types of these structures. How would you ascertain of what materials aleurone grains consist?

PHARMACY AND PRACTICAL PHARMACY.

MR. INCE.

Monday, July 22.

Hours—10 *a.m. to* 1 *p.m.*

1 Give instances in which special temperatures are indicated in official formulæ; state reasons and comment on the same.

2. Describe methods for the preparation of Oleates, pharmacopœial or otherwise.

3. Write full dispensing note on Alkaline Emulsions.

4. Translate: Abrasus, Amianthus, Cera sigillata, Defectio, Dens exesus, Inquietudo, Aqua Florum Naphæ, Œdema, Percolum, Nosocomium Regale.

INORGANIC CHEMISTRY AND PHYSICS.

PROFESSOR DUNSTAN.

Thursday, July 23.

Hours—10 *a.m. to* 1 *p.m.*

1. What are the limitations to Boyle's law? To what extent do hydrogen, ammonia, and carbon dioxide conform to it?

2. How do sulphuric acid (strong and dilute), hydrochloric acid, and nitric acid act on the following substances:—Tin, iron, aluminium, copper, silver, and mercury?

3. Give an account of the principal facts relating to electrolysis. What is the explanation of electrolysis?

4. How would you ascertain the combining proportions of copper and oxygen in black and red oxide of copper?

ORGANIC CHEMISTRY.

PROFESSOR DUNSTAN.

Thursday, July 23.

Hours—2 *to* 5.

1. Write a full account of two methods of preparing salicylic acid. How would you obtain phenol and benzoic acid from this substance?

2. What is the evidence for the statement that urea is the amide of carbonic acid? Explain the chemistry of the principal tests for this compound.

3. What is an organic acid? Which of the following compounds are true acids, and why? carbonic acid, carbolic acid, prussic acid, malic acid, picric acid, citric acid.

4. What is the meaning and use of a structural formula? Why are stereo-chemical formulæ necessary? Give examples.

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INVESTIGATION OF TOXIC AND MEDICINAL PLANTS.

UNDER the influence of an idea similar to that which has led to the exhibition now being held at the Hague, the Pharmaceutical Society of Berlin has decided upon making arrangements for a systematic collection of the published reports upon botanical, chemical, and pharmaceological investigations relating to plants yielding medicinal or poisonous drugs in all parts of the world, and at the last meeting of the Society a long paper on the subject was read by Herr BUSSE. Looking back to the results obtained by the isolation of the active principles of drugs during the past century, and those since achieved by the introduction of synthetic products, it was pointed out that while several substances of great utility for medicinal purposes have thus been made available, the great majority of synthetic products have failed to realise the great expectations at first entertained in regard to them. A certain degree of scepticism has thus been induced, and there has been a tendency to revert to the investigation of medicinal agents of vegetable origin. Within the last few years the study of plants which are in various countries employed by the natives for medicinal purposes has excited considerable interest. Among the vast number of drugs held in popular repute as remedies in the countries where they are indigenous, there are many probably of little value, but others are deserving of investigation both from the chemical and the pharmacological point of view.

Such is the opinion which has induced the Pharmaceutical Society of Berlin to organise a plan for collecting information relating to the indigenous drugs of various parts of the world. Evidence of a similar disposition to stimulate investigations of this nature has been given in the addresses delivered by Dr. GEORGE WATT and Dr. KANNY LOLL DEY in the section of the Indian Medical Congress devoted to pharmacology, and by the establishment in connection with the Imperial Institute of a laboratory for the investigation of Indian and other Oriental plants. The chemical and pharmacological laboratory established by the Dutch Government at Buitenzorg is another indication of the importance attached to such inquiries and to the results which have been attained by them.

Another point referred to by Herr BUSSE is the cultivation of medicinal plants, or plants yielding materials useful for technical purposes in the colonial possessions of different European countries. The German government appears to be particularly active in promoting enterprise of this kind, and with that object botanical gardens, similar to the one at Buitenzorg, are being established in the German East African possessions. In undertaking the work of collecting information, which is now scattered throughout different publications, and by furnishing periodical reports on the botanical, chemical, and pharmacological investigation of vegetable products, the Pharmaceutical Society of Berlin will be in many ways rendering very useful service. In that work it may therefore expect to meet with the assistance of all engaged in such inquiries, and a ready response to the request that copies of any papers on the subject should be forwarded to the Secretary of the Society in Berlin, 132, Leipziger Strasse.

PRESENT POSITION OF PHARMACY.

THE report presented by the Committee on Pharmacy at the recent annual meeting of the New York State Pharmaceutical Association, which will be found at page 77, contains matter that is of general interest, since it relates to an influence felt not only in America, but more or less in all other countries, viz., that exercised by change of social conditions upon the business and position of pharmacists. The growing preponderance of the trade element over that part of the pharmacist's occupation demanding individual professional qualification is an experience not only of our American confrères, and of ourselves, but also of pharmacists in France and Germany, where the professional position has hitherto been highest and most generally maintained. In the report referred to, this change is recognised as an inevitable result of advancing civilisation that must be accepted, but it is not considered necessarily to entail extinction of the pharmacist. Though some duties of the pharmacist may have become to a great extent things of the past, and the necessity for adaptation or addition to the business may be imperative, education and culture may be relied upon to direct the drift of such changes towards congenial objects rather than down the inclined plane on which the practice of pharmacy appears to be placed by its trade relations. By extending activity in the direction of the analyst and bacteriologist, as well as the dispenser of medicine, the trading details of the pharmacist's business may at least be subordinated to the maintenance of a professional position. For that purpose, however, there must be suitable adaptation of educational methods and practice, taking due cognisance of the requirements of pharmaceutical practice under the changing conditions of every-day life. The official expression of opinion to that effect in America will help forward the work to be done, and for that reason the report presented to the New York State Association will be read with satisfaction by all who desire to see pharmaceutical education improved.

REPETITION OF PRESCRIPTIONS.

DR. R. R. RENTOUL has given notice of the following motion, which he will bring forward at the annual meeting of the British Medical Association next week:—"That owing to the unrestricted dispensing by chemists of prescriptions of medical practitioners on more than one occasion which contain poisons and other dangerous drugs, having regard to the evils arising therefrom, and following

the law in other countries, this Association recommends its members to write across the face of such prescriptions the words, 'Not to be repeated,' and 'To be returned by the chemist to the practitioner,' duly stamped and dated. And that if chemists refuse to adopt this rule, the members residing in cities and towns are recommended to establish, own, and manage under their exclusive control depots at which all their prescriptions shall be dispensed." Though the choice of words in the proposed motion is not particularly happy, and the punctuation leaves much to be desired on the score of clearness, it is fairly easy to divine Dr. Rentoul's intention. With this intention few who have the interests of pharmacy at heart will be inclined to quarrel, but a protest must be raised against the unworthy threat embodied in the final sentence of the motion, and for the credit of the medical profession it is to be hoped that Dr. Rentoul will not find a seconder.

CO-OPERATIVE MEDICINE.

The *Fédération des sociétés de secours mutuels* of Brussels is an agglomeration of ninety friendly societies, numbering from twelve to thirteen thousand members in all. This federation possesses nine pharmacies where the general public as well as members are supplied with medicines. The annual turnover of these pharmacies is estimated at about a quarter of a million francs, and the federation also organises charity lotteries (*tombolas*). Further, an arrangement with medical practitioners has been in force by which their services were obtainable at abnormally low rates. Thus, one medical man estimated that he received an average of about four centimes for each visit made under this arrangement. Quite recently, however, the Brussels doctors have constituted a syndicate to protect themselves against this form of competition, each subscribing one hundred francs to a common defence fund, and this body is now in a position to demand that the federation shall exclude its better-class members from the operation of the obnoxious agreement. The federation having objected to this demand, the whole of the doctors who had subscribed to the agreement have formally notified their adherence to the syndicate's terms, and at the present time the agreement is totally suspended.

ILLEGAL SALE OF WEED-KILLER.

On Thursday, Messrs. Spiers and Pond, Limited, appeared at the Mansion House in answer to a summons charging them with infringement of the Pharmacy Act, by the sale of weed-killer containing arsenic. After hearing evidence proving the purchase and the poisonous nature of the article, the Lord Mayor said he should not consider that he was doing his duty if he did not impose a penalty of £5 in this case, with £5 5*s*. costs, adding that the respectability and eminence of the defendant firm was an additional reason for so doing. A full report of the case will appear next week.

READING COVERS FOR THE JOURNAL.

We are requested to announce that in consequence of the number of orders received, there has been some little delay in the execution of orders for Slade's patent covers for the Journal (see *ante* p. 64), but that it is anticipated all demands will be met in the course of a few days.

ADULTERATED OLIVE OIL.

The advice given in a recently published cookery book, to the effect that as little oil as possible should be used in preparing salads, was undoubtedly sound, writes Her Majesty's Consul at Leghorn, for "a good part of what is sold is of very inferior quality and perhaps also adulterated—stuff, in short, fit for soap-making or other industrial purposes, but certainly not for the table." Oil in so-called Florence flasks, according to this authority, should be entirely avoided, either "cotton-seed oil, pure and simple, or some adulterated rubbish" being put into them. When olive oil is mixed with cotton-seed oil it is said to be of the lowest possible quality, so that the mixture is objectionable and unpalatable in the extreme. The only guarantee the public can have is in the name and standing of well-known firms of good repute, who import the oil direct and are thus able to vouch for it.

THE MEDICAL DEFENCE UNION AND DOCTORS' SHOPS.

It is gratifying to find that medical opinion as represented by the Medical Defence Union approves of the action taken by the Pharmaceutical Society in respect of the carrying on of "doctors' shops" in Glasgow by unqualified assistants. Thus, in the latest Annual Report of the Union it is observed that "the convictions obtained by the Pharmaceutical Society against unqualified dispensers employed by registered medical practitioners who sell various poisons to customers at open shops, must in the end, to use the words of the judge who tried one of the cases, make 'doctors understand that their assistants must be qualified.'" Glasgow, it is stated, seems to have earned an unenviable reputation in this class of offence; but there are many "open shops" to be found in London and elsewhere, and it is thought "the Pharmaceutical Society is not likely to confine its prosecutions to places north of the Border." Though the destruction of the unqualified assistant may bear hardly upon many individuals at present, it will undoubtedly have a beneficial effect in the future; and it is suggested that if such assistants are so capable, and have such a thorough knowledge of their "Profession" as is often pleaded by their principals, in defence of their employment, they will surely have no difficulty in passing their medical examinations, and in becoming duly qualified and registered.

BENEVOLENT FUND.

We learn that the Benevolent Fund of the Pharmaceutical Society will be considerably benefited under the will of the late Thomas C. Taylor, of Nottingham, which has just been proved. Mr. Taylor was for many years an Associate in Business of the Society, and has testified his sense of the manner in which the Benevolent Fund is administered by bequeathing a sum of £500 to its coffers.

THE CONFERENCE IN WESSEX.

The matter published under this heading in last week's Journal has been reprinted, with additions, by the Bournemouth Local Executive Committee of the British Pharmaceutical Conference, so as to serve as a guide for the members and their friends next week. The little book is fully illustrated and tastefully finished, and after serving its temporary purpose will be found well worthy of preservation as a pleasing souvenir of the Bournemouth Conference.

NOTES AND NEWS.

THE METRIC SYSTEM.—The *British Medical Journal* observes that, whatever can be said in favour of the duodecimal system of weights and measures on theoretical grounds, it is hopeless to expect the majority of nations to adopt it; and for the British system—"a clumsy mixture of the decimal and the duodecimal"—there is really nothing to be said. It would be a great relief to men of science and schoolboys if it were abolished, and the medical profession is nearly interested in the change.

BRITISH MEDICAL ASSOCIATION.—The sixty-third annual meeting of this Association will be held in London, from July 30 to August 2, inclusive, under the presidency of Sir J. Russell Reynolds, Bart., M.D., F.R.C.P., F.R.S. An address in Medicine will be delivered by Sir William Broadbent, Bart., M.D., F.R.S., on Wednesday at 3 p.m., at Exeter Hall. The address in Surgery will be delivered by Mr. Jonathan Hutchinson, F.R.S., F.R.C.S., on Thursday, and the address in Physiology by Professor Edward Albert Schaefer, F.R.S., on Friday at the same time and place. The Section on Pharmacology and Therapeutics, under the presidency of Sir William Roberts, M.D., F.R.S., will meet in the Conjoint Examination Hall, Thames Embankment, whilst the Annual Museum will occupy the first floor of the same building, together with certain rooms and the terrace at King's College (see *Ph. J.*, last volume, p. 953).

A LEGISLATIVE JOKE.—Under this heading the *Cape Times* refers to a Bill that was down for second reading before the Legislature of Cape Colony on July 19. The Bill proposes that no fees shall be recoverable in courts of law by physicians or surgeons unless they are in accordance with a fixed tariff, and on the occasion of the first reading, was "received with roars of laughter," according to a correspondent of a medical contemporary.

NATIONAL HUXLEY MEMORIAL.—A meeting was held at the Royal Society's rooms on Thursday, July 18, Lord Kelvin, P.R.S., in the chair, to consider what steps should be taken to promote a National Memorial to the late Professor Huxley. A provisional committee was formed, with Sir John Lubbock as treasurer and Professor G. B. Howes as secretary, and it was decided to call a general public meeting after the autumn recess.

PHOSPHORISM IN MATCH FACTORIES.—The Paris corresponden of the *British Medical Journal* quotes a statement by Dr. Magitot a recognised authority on this subject, to the effect that the evil results of using white phosphorus are not so much caused by phosphorus as by the insanitary condition of the factories, and can be avoided by suitable precautions. There are factories where the workpeople are never attacked with phosphorism, while others are perfect hotbeds of the disease, a result which is attributed to the want of due ventilation and other arrangements for maintaining healthy conditions.

AUSTRIAN APOTHEKER VEREIN.—The annual meeting of this Society will take place in Vienna on the 24th and 25th September. Among the subjects on which reports or papers will be read there are several relating to the examination of food and drugs, bacteriology, the sale of poisons, and various other matters connected with pharmaceutical politics. On the 26th there will be an excursion to Melk.

GERMAN APOTHEKER VEREIN.—The annual meeting of the German Apotheker Verein will be held this year at Augsburg on the 20th and 21st of August, under the Presidency of Herr Frölich. In addition to the business proceedings on those days there will be at noon on Monday, the 19th August, a formal opening of the pharmaceutical exhibition, and in the evening a social meeting of the members, on Tuesday evening a concert in the Stadtgarten, and on Wednesday a banquet in the court of the "Drei Mohren" hotel. On Thursday there will be an excursion, by special train, to Füssen to visit the Royal palace of Neuschwanstein.

APOTHEKER VEREIN OF THE NETHERLANDS.—The forty-fourth general meeting of the Apotheker Verein of the Netherlands took place on the 9th and 10th inst. at the Hague. After the opening of the exhibition of medicinal and useful plants on the previous evening, the members attending the meeting were officially received by the local Committee in the garden of the Botanical Society. Among other distinguished visitors, His Excellence S. van Houten, the Minister of the Interior, and Dr. Ruysch, the medical adviser of the Government, were present on this occasion, and Dr. Ankersmit, the President of the Verein, expressed on behalf of the members acknowledgment of the compliment paid to them. At the first session of the Verein it was reported that the Government declines to subsidise a permanent Pharmacopœia Committee, as suggested by the Verein. The number of members now amounts to 427, and there are in all fifteen branches of the Verein. A Committee consisting of Herren C. Guldensteeden-Egeling (Zeist), L. van Italie (Rotterdam), and van Ledden-Hulsebosch (Amsterdam), was appointed for the purpose of establishing a tariff of fees for pathological and hygienic investigations. Another Committee, consisting of G. B. Schmidt (Amsterdam), J. R. Schoepp (Maastricht), and H. M. S. J. Steyns (Helmond), was appointed to examine and report upon the popular specialties. In accord with the Amsterdam branch, it was resolved that pharmacists should supply phenol and phenolum liquefactum only by order of a physician, and, at the same time, that physicians should be requested to restrict their prescriptions of the unscheduled acid on account of the frequent occurrence of accidents. At the second session suggestions were discussed relating to the sale of poisons and of alcoholic beverages, the latter subject being referred to a Committee. Several addresses were delivered, and Dr. de Vry announced that he had discovered another cinchona bark alkaloid. Among the guests were Dr. W. Busse, member of the Sanitary Board of Berlin; Professors Hartwich and Schrotter, from Zurich; Professor Schaer, from Strassburg; Apotheker van Gelder, from Cleve; and Dr. Vogtherr, from Weimar. The meeting concluded with a well-attended dinner held in the Kurhaus, at Schweningen.

HELMHOLTZ MEMORIAL.—The sum collected for the memorial to Helmholtz to be erected in Berlin already amounts to nearly one thousand pounds.

SOCIÉTÉ ROYALE DE PHARMACIE DE BRUXELLES.—This Society will celebrate the fiftieth anniversary of its foundation on the 15th of August, and on that occasion there will be a Congress with an exhibition of pharmaceutical products and apparatus, illustrative of recent progress connected with pharmacy. M. Van Hulst, General Secretary, reports in the Bulletin of the Society that a very successful gathering is anticipated, and that the organising Committee making arrangements for the exhibition is endeavouring to render this feature of the Congress attractive from a business point of view as well as of interest in connection with the celebration of the Society's jubilee.

The Dangers of Cocaine.—In a recent note the *Lancet* called attention to the increasing necessity of teaching caution in the use of cocaine, on account of the danger accompanying its indiscriminate application. A correspondent of the same paper wisely suggests that it is time for cocaine to be scheduled as a poison, and that at least special warning labels should be placed on bottles containing solutions of the alkaloid. There is no doubt that these views are right ones, and it is a moot question whether a number of the new synthetic bases should not be similarly dealt with.

Federation of Local Pharmaceutical Associations.—In notifying the second annual meeting of the Federation to the different local Associations, the Honorary Secretary, Mr. Chas. Thompson, enclosed copies of the circular prepared by the Plymouth, Devonport, Stonehouse, and District Association (see *ante*, p. 42), with a request that the recipients would use their influence with local members of Parliament in respect of the matters referred to therein. Such procedure is particularly worthy of commendation, for one of the most useful services that can be rendered by local associations is to keep candidates for parliamentary honours and sitting members fully informed of the qualifications, present position and disabilities, and needs of chemists and druggists, with especial reference to the safety of the public.

Animal "Materia Medica."—An article in a recent number of the *Spectator* gives interesting particulars of the means employed by animals in the wild state for the preservation of health. Dust and mud comprise the entire pharmacopœia of the elephant, being applied upon the most trivial, as well as the most serious, occasions. Pigs also indulge in the mud-bath, doubtless to the advantage of their skin which is thus kept in health. Salt is a universal remedy among herbivorous animals, the reindeer resorts to seaweed, and also devours the bones and horns of dead deer for the sake of the salt and lime they contain. Pheasants scratch up and eat the roots of the wild arum, and in the Caucasus they eat colchicum root. Carnivorous animals, again, take emetics, grass being employed for the purpose by dogs and cats. Birds and the larger lizards swallow stones, probably to serve as a natural digestive, just as dogs eat ashes when continually fed from platters instead of being given their food on the ground.

British Pharmaceutical Conference.—We understand that arrangements have been made for a much smaller number of papers than usual to be read at the Conference next week. This is in response to the wishes expressed by members who are anxious that, whilst full justice should be done to all papers communicated, as much time as possible should be spared for recreative purposes. The additional papers promised are as follows:—10. "Sterilised Surgical Dressings, a Record of Experience," by Edmund White, B.Sc. 11. "Note on a Spurious Balsam of Tolu," by J. O. Braithwaite. 12. "Question No. 60 on the Blue List," by Dr. C. Symes. 13. "Cod Liver Oil Constants," by Ernest J. Parry and C. E. Sage, Ph.C. 14. "The Recovery of Alcohol from Tincture Marcs,' by F. C. J. Bird. 15. "The Still Alarm," by N. Crossley Jones. A meeting of the Executive Committee will be held at the Hotel Mont Dore, Bournemouth, on Monday, at 6 p.m., to make final arrangements in connection with the Conference.

Compressed Tablet Medication.—Dr. J. V. Shoemaker thinks enthusiastic advocates of the use of compressed tablets seem disposed to trust to them too exclusively because of their portability and the convenience with which they can be dispensed. He points out, however, that the best results follow a skilful adaptation of different forms of medicine in different conditions, according to the exigencies of each individual case.

ENGLISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Institute of Chemistry.—The following is the list of candidates who have passed the examinations for membership of the Institute, July 2 to July 5, 1895:—For the Fellowship: Alexander Frankenbacher Fuerst (Ph.D., Heidelberg), the University of Heidelberg. For the Associateship (under regulations in force prior to October 1, 1893): Ernest Robert Andrews, Finsbury Technical College; Charles Kepler Barnes, University College, Liverpool; Augustus Charles Bodey, University College, Bristol, and Pharmaceutical Society's Research Laboratory; James Girdwood Bowie, Mason College, Birmingham; Horace Edgar Bowles, Finsbury Technical College; John Buchanan, Glasgow and West of Scotland Technical College; James Kerry Burbridge, King's College, London; Cecil Henry Desch, Finsbury Technical College; Frederick Robertson Dodd, Glasgow and West of Scotland Technical College, and Registered Student under A. Smetham, Esq., F.I.C.; Thomas Guthrie, Yorkshire College, Leeds; Charles Alexander Hill, Pharmaceutical Society's Research Laboratory, and King's College, London (Physics); Henry Reginald Hirst, Yorkshire College, Leeds; Herbert King, Yorkshire College, Leeds; Loxley Meggitt, University College, Nottingham; Howard Charles Ridding (Assoc. R.S.M.), Royal College of Science, London; John Blair Warden, Glasgow and West of Scotland Technical College, and School of Mines, Freiburg; Frederick Malcolm Wharton, Mason College, Birmingham; George Henry Woollatt, University College, Nottingham, and Royal College of Science, London. Final Examination for the Associateship (new regulations): Walter Robins (B.Sc., Lond.), Finsbury Technical College.

The Handsworth Poisoning Case.—Miss M. A. Banfield writes to the *Birmingham Post* as follows:—"As some misapprehension seems to exist as to Dr. Parkes's position in the above case, I should like to add to the evidence I gave before the coroner on the 15th inst., to make it more clear why the poisoning of my sister by strychnine was not at the time suspected. Dr. Parkes first saw my sister only a few minutes before her death. He did not see her in one of the attacks of spasm. After her death he made enquiries of me as to the things she had done and taken during the day. I told him she had a great deal of pain from the cancer, and had taken morphine and a powder enclosed in a cachet. He asked if she was accustomed to take these remedies, and I told him she had taken them for more than two years. As the cachets make the powders tasteless, my sister did not notice any difference in them, as she would have done if she had taken them on the tongue. Dr. Parkes knew that my sister had suffered for many years from cancer, and had undergone two operations for that disease. He also knew that she had just returned from a long railway journey, and as she did not exhibit any symptoms of poisoning during the few minutes he saw her, he concluded at the time she died from failure of the heart's action. On the following Friday week I again saw Dr. Parkes, and told him that the cachets had been freshly made on the day of my sister's death, and were prepared by the same chemist who made up Mr. Harrop's prescription. He said he would inform Dr. Pemberton (the coroner) of that fact, as from the further details that had come to his notice he had no doubt that my sister died from strychnine poisoning."

Sale of Impure Olive Oil.—At the North Holland Petty Sessions, held at the Boston Sessions House on Wednesday, July 17, before Col. Moore, C.B. (Chairman), and other magistrates, Henry Mells, chemist, Kirton, was charged with unlawfully selling to Supt. Crawford, the purchaser and prosecutor, on June 10, olive oil containing not less than 20 per cent. of cotton seed oil.

Mr. John S. Lindford, of Hull, of the firm from which the oil was purchased, said he analysed samples of all oil sent out. The sample of this oil received by his firm was found to be pure, but when the bulk was received they omitted to submit a sample to him for analysis, and it was not until the defendant had received what he had ordered that they found it was adulterated. The oil must have been adulterated in Italy. The defendant would have a remedy against his firm. They discovered the oil was impure before this case arose, but did not notify the fact to the defendant, as the oil.

had been supplied to a good many customers, and they could not pick them out.

The Chairman said he thought it was very unfair to the defendant to bring him there through that neglect, and it was very hard on him as a respectable tradesman that he should be placed under the stigma of having sold an inferior article through no warning being given to him when the oil was found to be adulterated.

Other evidence having been given, the Chairman, after consulting with his brother magistrates, said that unfortunately the defendant was the only person they could deal with, as the oil was found on his premises. That oil was admitted to be impure, and as olive oil was sold for medicinal purposes, it was expected to be a pure article, and its impurity might be a serious matter. To warn other people against selling an impure article it was necessary they should inflict a fine on the defendant, but that fine, he need hardly say, he hoped would not be paid by the defendant, because he was as innocent of any intention to commit a legal offence as any member of that Bench, and he would leave that court without any stain on his respectability as a tradesman. At the same time he was the only person the Bench could deal with, and they must show their disapprobation by fining him £1 and costs.

The Federation of Grocers' Associations and the General Election.—Chemists should note that the Secretary to this Federation has issued the following series of questions to local Grocers' Associations, with the request that they be brought before Parliamentary candidates:—

1. Will you support an amendment of the Sale of Food and Drugs Acts and Margarine Act, so as to make them more fair to the honest t ader?
2. Will you support a Parliamentary inquiry into the working of the Weights and Measures Acts, with a view to the correction of the injustices now inflicted upon the shopkeeper?
3. Will you oppose any undue prominence being given by the Government to systems of retail trading under the guise of social or philanthropic schemes, where such systems are nothing more than mere profit-making concerns?
4. Will you support legislative reform which will place all trading concerns on the same level, so far as the payment of income-tax is concerned?
5. Will you support any well-considered legislative proposals for the enfranchisement of the leaseholder?
6. Will you support the tendency of recent legislation to make railway rates more equitable to the trading classes?
7. Do you consider it desirable to support legislation for shortening the hours of labour in shops?
8. Will you support legislation for the promotion of the interests of the retail traders?

Death of Professor Babington.—Professor Charles Cardale Babington died on July 22, at Cambridge, at the age of 86. He was appointed Professor of Botany at Cambridge University and was elected to a Professorial Fellowship at St. John's College in October, 1882. He was a Fellow of the Royal Society of Antiquaries, and also of many other societies. Professor Babington was a well-known naturalist, and among his works were 'Flora Bathoniensis,' 'The Flora of the Channel Islands,' 'Flora of Cambridgeshire,' a 'Manual of British Botany,' etc. He also contributed a number of articles to the publications of the Cambridge Antiquarian and other societies.

Museum Extension at Exeter.—The Duke of Devonshire, K.G., Chancellor of the University of Cambridge, on Friday, July 19, opened an additional wing of the Albert Memorial Museum, Free Library, and School of Science and Art, in which the work of the Technical and University Extension College is carried on. Prior to the ceremony, his Grace was admitted to the honorary freedom of the city. The Mayor (Alderman A. S. Perkins) in asking the Duke to open the building, gave an interesting history of the institution, and pointed out that in 1891 the Committee of the Jubilee Memorial devoted the funds at their disposal to the erection of a chemical laboratory. The whole building from first to last had cost £26,000. The Duke of Devonshire, in performing the ceremony, enumerated the progressive changes that had taken place in the education schemes of the University of Cambridge. He stated that the University was constantly endeavouring to adapt its teaching more and more to the wants of the masses of the community rather than to any select body of students. It had greatly enlarged the sphere of the subjects which it endeavoured to teach; it devoted its efforts not only to the education and training of students who desired to pursue knowledge for the sake of knowledge, but it was attempting to adapt itself to the wants of students who intended to enter upon various occupations and professions—the medical profession, the engineering profession, or those who were going to enter into commercial and industrial pursuits. By means of its University extension lectures it had endeavoured to make the knowledge which it possessed valuable to the public generally. In the evening the Duke was entertained to a dinner.

South London School of Pharmacy.—There is a vacancy for an additional Junior Demonstrator in the Chemical and Physical Laboratories of this Institution. Particulars may be obtained from the Secretary.

SCOTTISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Edinburgh Chemists', Assistants', and Apprentices' Association.—The third and last botanical excursion of the season took place on Wednesday, July 17, and was conducted by Mr. W. B. Cowie. Owing probably to holidays, and also perhaps to the somewhat threatening weather appearances, the attendance was smaller than usual. The party left Waverley Station by the 8.30 p.m. train for Inveresk. After collecting, just at the Inveresk Station, good specimens of *Convolvulus sepium*, *Malva sylvestris*, *Linaria vulgaris*, *Potentilla reptans*, and *Urtica urens*, which was observed to be the common nettle in this district, the company proceeded to walk along the banks of the Esk river to Musselburgh, from which they returned to town by train at 10.50 p.m. Contrary to appearances, the weather conditions improved and no rain fell, although the cloudy sky shortened the period for effective plant hunting. Nevertheless, a large number of specimens were gathered, and the ramble was very successful and much enjoyed. *Solanum dulcamara* in flower and fruit was found in the hedgerow beside the pathway, and large beds of *Tanacetum vulgare* were met with. *Daucus carota* was also found to be common. The great wealth of blossom on the *Tilia europæa*, var. *intermedia*, formed a striking feature. The failure of the light just when practical work was at its briskest was felt as a disappointment, and there was a general desire expressed that the excursion should have begun an hour earlier. How that can be accomplished is a problem yet to be solved. Shorter hours would help.

Edinburgh Pharmacy Athletic Club.—The Pharmacy Athletic Cricket Club played the Warrender Cricket Club on Saturday morning, July 20, when the pharmacists were victorious by 7 wickets and 2 runs. The scores were: Warrender C.C., all out, 44; Pharmacy Athletic C.C., 46 for 3 wickets, J. Dickson being top scorer with 26.

A New Pharmacy School in Edinburgh.—Mr. W. B. Cowie, pharmaceutical chemist, in conjunction with Mr. Alexander Johnstone, F.G.S., is about to start a school for pharmaceutical students. Arrangements are being made for a laboratory and class-rooms in a central situation in town. The classes will embrace a full course of all the subjects required for the Major and Minor examinations, and also a special class for the First or Preliminary examination. The schools will be opened early in September.

Professorship of Physics at Dundee.—A Chair of Physics has just been founded in Dundee University College on the recommendation of the University Commissioners. The endowment was left by the late Miss Margaret Harris. It is expected that the professorship will be worth about £500 per annum, to be derived from first-class securities valued at £14,000. The interest of the balance of the fund—about £16,000—will be applied to other college purposes.

IRISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

PHARMACY AND AQUATICS.—Mr. Beggs, the Vice-President of the Irish Pharmaceutical Society, had his annual fixture, the Dalkey Regatta, last Saturday. Mr. Beggs is an enthusiastic yachtsman, and, as Hon. Secretary to the Regatta Committee for several years he has succeeded in establishing, in this most beautiful of the marine suburbs of Dublin, a delightful aquatic reunion which is very highly patronised by the Dubliners. Mr. H. C. Draper, of Bewley and Draper, Limited, and formerly examiner in Chemistry to the Society, was one of the competing yachtsmen on this occasion. The shore being hilly, is admirably suited as a vantage ground for spectators, of whom there were a great number present.

MR. HENRY BOYERS, M.P.S.I., of Sligo—who wedded on the 15th instant the daughter of a fellow-townsman, Mr. Francis Nelson, J.P.—is the third Licentiate of the Irish Society who has forsaken single blessedness since the beginning of the present month.

MESSRS. FANNIN AND CO., who were fined last month for selling bi-chloride of mercury tablets and antiseptic tabloids, and who stated publicly in Court that they were satisfied with the magistrate's decision, have hit upon the singular idea of displaying prominently in their window a number of bottles of these poisons.

REMUNERATION OF ASSISTANTS.—Someone, writing to a Dublin evening paper, complains of the low wages (as he says) which "members" of the Irish Pharmaceutical Society who are assistants receive. This he puts down at from £16 per annum. Those "members" must indeed be self-denying to manage to pay their guinea a year to the Society out of such a pittance! However, he admits that probably about 2 per cent. (*i.e.*, about nine or ten pharmaceutical chemists in all Ireland!) attain to the magnificent stipend of £50 indoor. As the cause of this deplorable state of things is apparently attributed to the spending by the members (the real ones presumably) of "their surplus cash" in law costs, the effusion probably emanates from some outsider who has been "hit" by the Society, and has had to pay an involuntary subscription towards those law costs.

FOREIGN NEWS.

[*From our Special Correspondents.*]

EXHIBITION OF MEDICINAL AND USEFUL PLANTS AT THE HAGUE.—Besides the numerous exhibits of articles of daily use in the pharmacy, there is to be found at this exhibition an important collection of plants and drugs that are seldom met with in European countries. The specimens are partly borrowed from the botanical gardens of the universities, partly from museums, and private collections. Thus the Hortus Botanicus of Utrecht lent several medicinal plants, as *Artanthe elongata*, *Erythroxylon coca*, *Tamarindus indica*, *Antiaris toxicaria*, *Camphora officinarum*, *Cinnamomum zeylanicum*, *Theobroma cacao*, etc. The Groningen Hortus gave *Aloë socotrina*, *Citrullus colocynthis*, *Maranta arundinaceæ*, *Jatropha manihot*, and *Pistacia lentiscus*. Mrs. Herz sent two living plants of the Indian medicament "temoe lawak" (*Curcuma zerumbet*). This medicament is used in the isle of Java in the following way: The tuber is cut into pieces and an infusion is made of it like tea; most times, indeed, the raw tuber is rasped, mixed with water, and pressed through a sieve. When prepared for use, a little lemon or tamarind juice is added, and only the clear part of the beverage is swallowed. Regularly used it works as a mild laxative, therefore it is administered in liver and bile complaints. In Java the "temoe lawak" is much found in the mountains. In the Tengger mountains there are whole fields of it, and there it attains a height of nearly a yard. In the dry mousson the leaves wither and fall off, while the tuber in the ground keeps alive. In the rainy season the leaves shoot out again. The flowers are violet-coloured.

The Pharmaceutical Laboratory of Groningen sent a collection of Indian drugs, with the *principia activa* prepared therefrom. This collection, that offers a special interest for the toxicologist, will be spoken of in due time.

The Botanical Garden at Buitenzorg provided a collection of dried Indian plants, and besides "getah pertja" (indiarubber), from the leaves of Palaquium, and several ethereal oils, prepared in the laboratory by Dr. P. van Romburgh, such as the oil from the roots of *Andropogon muriaticus*, the flower-stems of *Caryophyllus aromaticus*, and from the fresh leaves of *Thea chinensis*.

Antjar juice and the preparations therefrom, by Professor Wefers Bettink, called antiarine, toxicarine, and oepaïne, were sent by the pharmaceutical laboratory at Utrecht.

For the study of Indian medicaments the collection of Batavia medicaments, presented to the exhibition by Mr. A. G. Vorderman, Inspector of the Civil Medical Service for Java and Madoera, is certainly of the highest interest. This collection has recently been described by the collector in the 'Geneeskundig Tydschrift voor Nederlandsch Indië,' where he recommends students who intend to make a careful study of the subject to familiarise themselves thoroughly with the nomenclature of the medicaments and their external characteristics. To facilitate this work the author has given a list of names that includes also the botanical source and the place of collection of the medicaments in store at the Batavia druggists ("toehangs rempa-rempa"). The remedies which are used in the fresh state, as the different "temoes," are not to be found in the list. The trade in these drugs is a monopoly of the Chinese, who receive the Indian drugs partly from other places of the Archipelago, partly buy them at their doors from native herb-seekers, Arabs and Moors, who regularly visit British India on their commercial voyages, and furnish them with saffron, mastic, gall nuts, myrobalans, and other products, whilst their correspondents in China provide them with star anise, costus, etc. Some mineral substances, as sulphur, alum, chromate of lead, etc., are furnished to them by European import houses, being of European origin. Almost all these drug merchants live in Batavia in the lower town. Their "waroong," like other similar establishments, is opened on the street side. Under a shed stand baskets full of herbs, recognisable at a distance by a strong smell that fills the whole waroong. In the small shop are arranged several tin boxes that formerly contained petroleum, and are now filled with medicaments or spices, whilst in a cupboard stand some bottles in which are kept the dearest articles, such as saffron, cinnamon-fruits, etc. The main stock of medicaments, however, is stored up in a dark and squalid chamber behind the house, or in a kind of loft.

The whole collection consists of thirty specimens, for the greater part drugs, that are partly also used in Europe. In addition are to be found sulphur in sticks (Wĕliran), realgar (Warangan), alum (Tawas), and some compound medicaments.

It was to be expected that, as a matter of course, cinchona would be largely represented. We need only remember the part taken by Dutchmen—de Vrieze, Junghuhn, Miquel, Vrydag Zynen, de Vry, Oudemans, van Gorkom, Bernelot Moens, and van Leersum—in the cultivation and investigation of cinchona, to make it evident that cinchona bark and cinchona alkaloids have an important share in the exhibitions. Especially remarkable is the Rotterdam collection of cinchona barks, because it contains a number of historically important specimens. The nucleus of this contribution is formed by the collection of Delondre, which is very accurately described and pictured in the work added to the collection, and entitled 'Quinology,' by Delondre and Bouchardat.

Of the other exhibits of cinchona may be cited in particular the one sent in by Briegleb, from the Government cinchona forests. We find there a magnificent collection of the most varied kinds of cinchona bark, some alkaloids prepared therefrom, cinchona plants of different ages, and the seeds of several kinds of cinchona.

Mr. Nanning exhibits thirty-six kinds of cinchona grown in Japan, Ceylon, and South America, in a bower made of Java cinchona bark. Among the barks are to be found the ordinary as well as the rarest kinds, the price varying between 30 cents and 25 florins the kilogramme. To the exhibition is added a collection of seventy remedies made of cinchona. Lastly may be mentioned the collection of cinchona bark of the Pharmaceutical Commerce Society at Amsterdam, in which the barks are found as they were formerly and as they are now brought to the market.

PROFESSOR FERDINAND COHN, of Breslau, has been elected corresponding member of the French Academy.

Laccase.—M. Bertrand has found this body (see *Ph. J.*, March 2, 1895, p. 754), in a great variety of plants, and has given it the name laccase on account of its abundance in lac-producing trees. When a few drops of tincture of guaiacum are poured on a fresh section of these plants, or preferably on the expressed juice, a beautiful blue coloration is produced. The discovery has a certain physiological interest on account of the laccase causing oxidation at the expense of the oxygen of the air. The cut surfaces of many plants assume on exposure to the air a reddish or black colour, this being caused by the contained tannin, on their becoming oxidised by the action of the laccase present.

New Laws Relating to the Manufacture of Phosphorus.—The French Government has just promulgated a law placing the phosphorus industry under direct State supervision. In future every manufacturer of that substance is obliged to forward full particulars to the Excise as to the quantity manufactured, days and hours of labour, and give plans of their workshops, etc. They are forbidden to make or store phosphorus except in authorised places, and all operations must be registered in a book kept for periodical examination by the authorities. This measure is an outcome of the recent Government commission charged with investigating the practical value of any chemical body that might be used to replace the ordinary white phosphorus in the manufacture of matches, an industry which has such a pernicious effect on the health of the workpeople engaged in it. The sanitary conditions under which they labour will be the subject of further legislation.

Death of Professor Baillon.—The scientific world has to deplore the loss of one of the most eminent botanists of the age. Dr. Baillon, Professor of Botany and Natural History, died suddenly on the 19th inst., at his residence, 12, Rue Cuvier, Paris. At the age of thirty-seven he was, after brilliant examinations, appointed to the Chair of Botany at the Faculty of Medicine, which office he retained up to his death. Thoroughly absorbed in his work he lived a retired life, secluding himself even from his scientific colleagues. As an examiner, however, although strictly impartial, enthusiasm for his science was the cause of his gaining the reputation of being strict and uncompromising towards the candidates that came before him. Elected Fellow of the Royal Society, he was a frequent contributor to English scientific journals, and was the author of numerous important works, of which his 'Histoire des Plantes' and 'Dictionnaire Botanique' may be ranked among standard books. He was born at Calais in 1827. The funeral took place on Sunday, 21st inst., in the presence of a large number of friends, representatives of the five Faculties, the French Government sending a delegate from the Ministry of Public Instruction. After the religious ceremony eloquent orations were delivered by Dr. Brouardel in the name of the Faculty of Medicine, and M. Milne Edwards, on behalf of the "Muséum d'Histoire Naturelle," where the late Professor initiated a botanical section. As Officer of the Legion of Honour, military honours were rendered to the deceased, which added to the impressiveness of the ceremony.

A Ready Means of Quantitively Estimating Sugar in Urine.—M. Crégny, at the Therapeutic Society, describes a simple method for determining approximately the quantity of sugar in diabetic urine, which he suggests would be a convenience to practitioners residing in remote districts where the necessary chemical appliances for analysis are not always available. The following is the *modus operandi*, which is a simplification of M. Duhomme's process:—Two C.c. each of liquor soda, sp. gr. 1·330, and Fehling's solution are poured into a burette, and the urine to be examined is added drop by drop, care being taken to heat the solution after each additional drop, and to stop the moment that the blue coloration has disappeared. The amount of sugar present is calculated according to a prepared chart, by the number of drops required to produce reduction of the reagent. The tabulation is as follows:—4 drops of urine reducing 2 C.c.'s of Fehling's solution represents 50 grammes of sugar per litre; 8 drops of urine reducing 2 C.c.'s of Fehling's solution represents 25 grammes of sugar per litre; 10 drops of urine reducing 2 C.c.'s of Fehling's solution represents 20 grammes of sugar per litre, etc.

Boric Acid can be rendered soluble in water to the extent of 68 per cent. by previously mixing it with concentrated glycerin at a temperature of 46° C. (*Journ. de pharm. d'Anvers*).

AMERICAN NEWS.

Interesting Autobiography of a Woman Pharmacist.—The *Spatula* gives the following account by Miss Jean Gordon, of Chicago, of her connection with pharmacy.

"I think I drifted into pharmacy while employed in a hospital at Cincinnati, my native city. It fell to my lot to assist the druggist. I was much interested in my work, and having access to the medical library of the institution, I improved my spare moments in reading, under the direction of the resident physician, who had suggested that I take up the study of medicine.

"In 1888 I went to Philadelphia to join my sister who was then a student at the Women's Medical College in that city, but on account of some difficulty with my eyes I was advised not to take up my medical studies for another year. I could ill afford any loss of time and so entered the Philadelphia College of Pharmacy, where I was engaged during my junior year as assistant to Dr. Susan Hayhurst, the apothecary at the Women's and Children's Hospital in Philadelphia.

"After the close of the college term I secured a position with Wm. B. Glein, Ph. G., of West Philadelphia. I was at the time the only woman employed as a prescription clerk in that city, excepting such as were assisting in the stores of relatives. During the following winter I worked in the store during the day and attended the lectures and quizzes at the college in the evenings. I had not completed the number of years of practical experience required by the college for graduation, so was obliged to wait another year before graduating.

"When I had been in Mr. Glein's employ one year, it was proposed to employ a woman pharmacist in the Women's department at the State Hospital for Insane at Norristown, Pa. Although not a graduate, I had passed the State Board examination and so secured the appointment at the hospital. I fitted up and opened the pharmacy in the Women's department, and the following winter began reviewing the senior lectures at the college in preparation for the final examinations, journeying from Norristown to Philadelphia three evenings each week for that purpose.

"In December, when the session was but half finished, I was offered the position as pharmacist at the Garfield Memorial Hospital at Washington, D. C. The Garfield Memorial is a handsomely appointed medical hospital, charmingly located on a hill northwest of the City of Washington. These facts together with a small increase of salary tempted me to resign my position at Norristown and go at once to Washington. I was granted the necessary leave of absence to return to Philadelphia for the examinations and to appear at the graduating exercises. Although employed during the whole time of my course in the college, I was able to make a creditable showing at the examinations.

"I came to Chicago in August, 1891. After passing the examination before the Illinois State Board of Pharmacy I looked about for an opening of some kind. With what means I had saved from earnings I entered into a partnership with a medical student, who owned a small drug store in Englewood, a suburb of Chicago. About a year afterward the store was sold and I then became the business manager of the exhibit of the Women Pharmacists of Illinois at the World's Fair. It was the only place on the grounds where drugs were sold. The Jury of Awards indicated its good opinion of the pharmacy as an exhibit by bestowing upon it a medal and diploma.

"At the close of the fair I found myself again out of business. I purchased the remaining stock and the fixtures of the Woman's Pharmacy Exhibit, and following the example of Mr. Fred M. Schmidt, I removed then to an office on the seventh floor of the new Marshall Field office building at 31, Washington Street, where a colony of physicians and dentists have offices. Besides the support of the medical men in the building I also enjoy a liberal share of the patronage from the large dry goods establishment of Marshall Field and Co., where 2,000 people are employed. Located in a modern building, the conveniences are as nearly perfect as possible. Only electric lighting and fuel is used. The business is limited to drugs proper; no patents or cigars.

"Possessed of somewhat limited capital and unacquainted with the physicians located in the building, I entered upon my present venture not without some fear and trembling, but at the close of my first year's work I can say that I have passed the experimental stage and now regard the store above the street as a permanent institution. Besides the store of Mr. F. M. Schmidt and my own, Chicago boasts two other dispensing shops in office buildings."

LEGAL REPORTS.

PROCEEDINGS UNDER THE PHARMACY ACT.

Sale of Poisons by an Unregistered Person.

At the Greenwich County Court, on the 19th inst., Mr. Clement Albert Gregory Brooks, of Loampit Vale, Lewisham (trading as the Loampit Drug Co., Ltd.), was sued by the Pharmaceutical Society of Great Britain to recover five penalties alleged to have been incurred by him for keeping open shop, contrary to the provisions of the statute, for the retailing, dispensing, or compounding of poisons, to wit, chlorodyne and a mixture containing nux vomica. Two penalties were claimed in respect of the sale of Dr. Collis Browne's chlorodyne, and three in respect of a mixture containing nux vomica.

Mr. Stroud (Messrs. Flux and Co.) appeared for the Society. The defendant appeared in person. The defendant had admitted the offences, and offered to pay within fourteen days. The case was treated as an undefended one, and consequently came before the Registrar, Mr. Chas. Pitt Taylor.

Mr. Stroud said the defendant had admitted the infringements and had offered to pay within fourteen days.

The Registrar asked the defendant whether he admitted that he was liable for the penalties claimed.

The defendant replied in the affirmative.

Mr. Stroud said in this case the Society claimed to recover penalties under the Pharmacy Act. He was not content to take an order for payment within fourteen days, but was instructed to press for an immediate order. The present was an aggravated case, as the defendant had paid penalties previously. The defendant was perfectly able to pay the penalties at once, and a lengthened order would only give him an opportunity of getting away. The Society had reason to believe that the defendant might remove if an immediate order were not made. He was instructed to press for an immediate order, the plaintiffs being perfectly ready to take the consequences of asking for such an order.

The Registrar said there must be an immediate order for payment of the amount claimed and costs.

Bright's Pure Drug Company, Limited.

A motion for the committal of Mr. William Stewart Dixon, Manager of this Company, for contempt of court, came before Mr. Justice Kekewich at the sitting of the court on Thursday morning, the 24th inst. Mr. Eve, who appeared in support of the motion, reminded his lordship that a receiver and manager of the business, which is carried on at High Street, Clapham, had been appointed in an action by debenture holders, and read affidavits stating that Mr. Dixon had interfered with the representative of the receiver, had told the assistants they were not to obey his directions, and had broken into the shop after it had been locked up by the receiver, and removed a desk containing cash and memoranda. The respondent did not appear, and his Lordship made the order for his committal, subject to the production of an affidavit of service.

USEFUL FORMULÆ.

Non-Poisonous Antiseptic Solution.—Borax, 11; boric acid, 5, salicylic acid, 5; saturated aqueous solution of oil of thyme, 1000 parts (*Rev. de Thérap., Méd., Chirurg.*, xlii., 322).

Application for Toothache.—Tincture of opium, 30; camphor, 8; chloroform, 24 parts. Mix and apply to the carious cavity on cotton wool (*Rev. de Thérap., Med., Chirurg.*, xlii., 323).

Antiseptic Dentifrice.—Eau de Cologne, 2; tinctures of thyme and of lavender, of each 2; of eucalyptus and of rosemary, of each 1; of benzoin and anise, of each 7; spirit of peppermint, 120 parts. To be used with a brush, a teaspoonful in half a glassful of water. Useful in alveolar pyorrhœa (*Rev. de Thérap., Med., Chirurg*, xlii., 323).

A Soap for Cleaning Silk.—A soap for this purpose is made by heating one pound of coconut oil to 96° F., adding half a pound of caustic soda, and mixing thoroughly. Then heat half a pound of white Venetian turpentine, add to the soap, and again mix thoroughly. The mixture is covered and left for four hours, then heated again, and one pound of ox gall is added to it and well stirred. Next, pulverise some perfectly dry, good curd soap, and add it to the gall soap in sufficient quantity to make it solid—one or two pounds of curd soap will be needed. When cold the mass should be pressed into cakes (*Scient. Amer.*).

POISONING CASES AND INQUESTS.

Carbolic Acid.—James Dean, aged 63, died on Saturday, July 6, at Saville Street, Macclesfield, from the effects of carbolic acid. Verdict: "Death from misadventure."

Carbolic Acid.—Minnie Caroline Rowley, aged 4, died on Friday, July 12, at 27, Sydney Grove, South Islington, from the effects of drinking carbolic acid contained in a ginger-beer bottle in mistake for ginger-beer. Verdict: "Death by misadventure."

Carbolic Acid.—Charles Geard, a professional musician, died on Sunday, July 14, at 9, Upstall Road, Camberwell, from the effects of carbolic acid. Verdict: "Death from misadventure."

Carbolic Acid.—Margaret Ann Smith, aged 52, died on Monday, July 15, at 25, Stott Street, Beswick, from the effects of carbolic acid, self-administered.

Belladonna.—James Brown, a sawyer of Hackney, died on Saturday, July 13, in the Walthamstow Hospital, from the effects of belladonna, contained in a liniment, self-administered, under the impression that it was to be taken as a medicine. Verdict: "Death by misadventure."

Laudanum.—Charles Tetlow, aged 33, died on Monday, July 15, at 103, Stewart Terrace, Gorton, from the effects of laudanum, self-administered. Verdict: "Death was due to laudanum poisoning, but whether taken suicidally or not, there was no evidence to show."

Nitric Acid.—Elizabeth Day, aged 61, died on Wednesday, July 10, at Birmingham, from the effects of nitric acid, self-administered. Verdict: "Death by misadventure."

Vitriol.—Samuel Gregory, aged 2 years, died on Saturday, July 13, at 23, Yorkshire Street, Salford, from the effects of vitriol. Verdict: "Death from misadventure."

Laudanum.—Thomas Samuel Grindley, aged 44, died on Thursday, July 11, at 40, Villa Street, Walworth, from the effects of laudanum, self-administered. Verdict: "Suicide while mentally deranged."

Carbolic Acid.—Elizabeth Shaw, aged one year and six months, died on Friday, July 12, at Stockton Heath, Warrington, from the effects of drinking carbolic acid. Verdict: "Accidental death."

Carbolic Acid.—G. H. M. Owen, an election agent, died last week at Carnarvon from the effects of carbolic acid, self-administered. Verdict: "Suicide whilst temporarily insane."

Carbolic Acid.—Frank Bedford, a turncock, died on Thursday, July 18, at Salisbury, from the effects of carbolic acid, self-administered.

Chloroform.—Herbert Whitworth, aged 20 days, died on Tuesday, July 16, at the St. John's District Nursing Home, 444, New Cross Road, London, from the effects of chloroform whilst under an operation. Verdict: "Death from the effects of chloroform properly administered."

Carbolic Acid.—Elizabeth Hammond, aged 35, died on Sunday, July 21, in the Southern Hospital, Liverpool, from the effects of carbolic acid accidentally taken.

Muriatic Acid.—Walter Barrett, aged 42, of 16, Lower Wilton Street, Lozells, died on Saturday, July 20, in the General Hospital, Birmingham, from the effects of muriatic acid, self-administered.

Carbolic Acid.—Isaac Conway, aged 25, was found lying dead on Saturday, July 20, in a room at 112, Whitecross Street, St. Luke's, E.C., having died from the effects of carbolic acid.

Carbolic Acid.—David Henry Evans, aged 23, died on Monday, July 22, in the Mill Road Infirmary, Liverpool, from the effects of carbolic acid.

NEW REMEDIES.

[*The notes given under this heading embody recent suggestions in therapeutics. They cover both new drugs and preparations, and old ones under new aspects. The word "parts" is used to represent parts by weight, both for solids and liquids.*]

Calcium Borate in Infantile Diarrhœa.—According to *El Memorandum* of Barcelona, calcium borate given in powders, composed after the following formula, is very efficacious in diarrhœa and kindred affections:—Calcium borate, 75 grains; powdered salep, 90 grains; sugar, 150 grains. Mix and divide into 25 powders, one to be given thrice daily to children five years old.

Spray Solution to be Used Against Whooping Cough.—Extract of belladonna, ·025 to ·050 Gm; bromide of potassium, 2·500 Gm.; bromide of ammonium, 1·250 Gm.; distilled water, 60 Gm.; dissolve. To be used as a throat and mouth spray thrice daily for ten or fifteen minutes at a time, until the child's pupils begin to dilate. It is said to cure in three days at the most (Codwell, *Revista Balearica de Cien. Med.*).

Aristol for Cracked Nipples.—Mix aristol, 80 grains, with liquid vaselin, 1 ounce. Apply with a camel-hair brush to the deepest parts of the cracks or fissures, and repeat the operation daily after suckling, using a nipple shield during the treatment (*Finay*)

Paste for Acute Rheumatism.—Dr. Fienga advises the use of the following paste or ointment in this painful affection:—Sodium salicylate, 30 Gm.; iodoform, 10 Gm.; extract of belladonna, 4 Gm.; vaselin, 100 Gm.; make a paste and spread this upon the affected joint, and cover with a lint dressing, renewing frequently.

Lactophenin as an Antipyretic and Analgesic.—Stein (*Therapeut. Monats.*, No. 13) has tried lactophenin as an antipyretic in thirty cases, and concludes that it is superior to malakin or to antipyrin, and analogous in its action to phenacetin. In one gramme doses it rapidly produces lowering of the temperature. This effect is slowly continued, and attains its maximum in from five to six hours, after which the temperature again rises. Shivering is never met with—a marked advantage which this drug possesses over other antipyretics. Jaksch strongly recommends it in typhoid; with lactophenin he has obtained a permanent reduction of the temperature without any bad effects, and the course of the malady is shortened. Lactophenin is sometimes equally efficacious as an analgesic; Roth uses it in acute articular rheumatism, when it should be given in large doses. The analgesic effect is, however, somewhat uncertain; certain cases of cephalalgia have resisted the administration of as much as 7 grammes of the drug. Lactophenin has no appreciable influence on the character and frequency of the pulse, but it has an action on the vasomotor system, for cyanosis, sweats, and also miliary eruptions have been observed to follow its use (*Rev. de Therap.*, lxii., 354).

Physiological Action of Extract of Suprarenal Capsules.—Gluzinski (*Wiener Klin. Woch.*, No. 14) shows that extract of supra-renal capsules exerts a powerfully toxic action on healthy animals, such as rabbits, guinea-pigs, and dogs, particularly when injected into the veins. The author employed the extract from the suprarenal capsules of oxen, goats, and pigs. The dissected parts were powdered and mixed with equal parts of glycerin and water, in the proportion of one in four. This mixture was left for eight to ten hours in a cool place, then filtered. An injection of 1 gramme of this extract into the veins of the ear killed a rabbit weighing 1500 grammes in a few minutes, while 6, 8, and 12 grammes of splenic and pancreatic extracts prepared in a like manner are perfectly tolerated. Suprarenal capsule extract loses its toxic power when exposed to 100° C. for half an hour. Immediately after injection, paralysis of the hind-quarters is observed, with loss of sensibility, while the fore-limbs are seized with convulsive movements. Occasionally opisthotonos is seen. Respiration is accelerated, the pupils dilate, and the animal dies completely paralysed. An autopsy reveals an intense pulmonary œdema, with pleural and pericardial ecchymosis. When injected under the skin the animals sicken, but ultimately recover, unless large doses are given, when they die in a few days, and an autopsy reveals only a parenchymatous degeneration of the kidneys (*Rev. de Therap.*, xlii., 356).

Ointment for Superficial Burns.—Solution of perchloride of iron, 3 parts; vaselin, 210 parts. Mix (*Rev. de Thérap.*, xlii., 356).

Application for Painful Burns.—Menthol and iodoform, of each 1 part; glycerin, 100 parts (*Rev. de Thérap.*, xlii., 386).

Treatment of Burns.—Never put lint or cotton directly on a burnt surface. Place a thin layer of cotton, soaked in the following, between two pieces of muslin, and lay this on the burn:—Carbolic acid, 4 drachms; olive oil and saturated solution of borax, of each 8 fluid ounces. Over the above dressing spread a layer of cotton batting to prevent evaporation, finish off with roller bandage. Leave this dressing on until the third day, then remove, and irrigate the burn for from half to one hour with antiseptic solution as hot as can be borne. Dry thoroughly with baked cloths, and apply the following ointment:—Carbolic acid, 30 grains; boric acid, 60 grains; bismuth subnitrate, 120 grains; petrolatum, to 1 ounce. Spread this on linen, and renew it daily. Continue the hot wash till all sloughs separate, then discard it (*Univ. Med. Jour.*, new ser., iii., 155, after *Lousville Med. Month.*).

Treatment of Chilblains.—(1) Sozoiodol of zinc, 1 part; vaselin, 10 parts. Mix. (2) Beef fat, red ferric oxide, of each 250 parts; magnetic iron oxide, oil of turpentine, of each 30 parts; oil of bergamot, 2 parts. For broken chilblains (3) carbolic acid, 25 parts; liniment of lime, 500 parts. Mix. (4) Lycopodium and tannin, of each 17 parts; lard, 30 parts (*Rev. de Thérap.*, xlii., 356).

Creosol in Bronchitis and Tuberculosis.—Creosol, which is a compound of the various constituent phenols of creosote with tannin, contains about 60 per cent. of creosote. It consists of a deep brown, amorphous, very hygroscopic powder, which is completely soluble in cold water, alcohol, and glycerin. It may either be employed in aqueous solution or in powder. The average dose is 3 grammes. To children, a teaspoonful of a 1 in 15 solution is given for each year of age. This dose should be diluted in half a glassful of water. It is given on the same therapeutic indications as guaiacol (*Rev. de Thérap.*, xlii., 360).

Compound Resorcin Ointment in Dry Eczema.—Menthol, 2 parts; resorcin, 1 part; precipitated sulphur, 10 parts; zinc oxide, 15 parts; vaselin, 30 parts (*Univ. Med. Journ.*, new ser., iii., 156).

Intravenous Injection of Cyanide of Mercury.—In the treatment of syphilis Dr. Abadie injects once daily a centigramme of cyanide of mercury in solution in a cubic centimetre of sterilised water into a vein in the forearm. The injection is perfectly painless, and is followed by none of the distressing symptoms which are common to all other forms of mercurial medication. The most rigid antiseptic precautions are necessary to prevent the introduction of germs into the blood (*Brit. Journ. Dermat.*, vii., 186).

Puff-ball for Alveolar Hæmorrhage and Dental Surgical Cases.—Brewster, of Montreal, calls attention to the great value of *Lycoperdon giganteum* as a styptic and hæmostatic, which, although it is common in England and its properties were known from the earliest times, is not so widely employed as its efficacy merits. The author finds it preferable to any other application in alveolar hæmorrhage. In addition to this hæmostatic action, it also has marked healing properties, so that extraction cavities filled with a little lycoperdon tissue heal more rapidly than those undressed (*Journ. Brit. Dent. Assoc.*, xvi., 349).

Dental Cement Filling.—Siekel, of San Francisco, adds chemically pure zinc oxide to a syrupy solution of aluminium phosphate, until a mixture of the consistence of putty results. This is fused until it resembles porcelain, then finely powdered. The powder is used with a fluid composed of chemically pure aluminium in pure phosphoric acid boiled down to the consistence of a syrup (*Journ. Brit. Dent. Assoc.*, xvi., 366, after *Brit. Journ. Dent. Sci.*).

Camphor and Antipyrin in Croupous Pneumonia.—Ivanov highly eulogises the following in the treatment of croupous pneumonia:—Powdered camphor, 0·5 gramme; antipyrin, 2·0 grammes; morphine hydrochlorate, 0·02 gramme; sugar, 9·5 grammes; m. ft. pulv. One fourth part of the powder to be given every one or two hours (*Proc. Med. Journ.*, xiv., 383).

NOTES AND QUERIES.

[The information given in this column includes both notes of practical interest to pharmacists, and replies to queries which seem to possess sufficient interest to readers generally.]

FORMULÆ FOR ARTIFICIAL SERUM.

The following formulæ for artificial serum for intravenous or subcutaneous injection are taken from the *Bulletin Commercial* (vol. xxiii., 282). LATTA'S SOLUTION: Subcarbonate of sodium, 2 scruples; chloride of sodium, 2 drachms; water, 6 pints. HAYEM'S SOLUTION: Sterilised distilled water, 1000; pure chloride of sodium, 5; sulphate of sodium, 10. The temperature of this solution is raised to 38°C. About 2 litres for an adult is injected in cases of cholera. CHERON'S SERUM: Crystalline phenol, 1; chloride of sodium, 2; sulphate of sodium, 3; phosphate of sodium, 4; distilled water, 100. Every two or three days, 5 to 10 grammes of this are injected in the trochanterial region to counteract grave neurasthenic symptoms. CROCQ'S SOLUTION: Neutral phosphate of sodium, 2; distilled water, 100; 1 C.c. for subcutaneous injection. NEUMANN'S SOLUTION: Distilled water, 1000; carbonate of sodium, 1; bay salt 6 to 7. SAMUEL'S SOLUTION: Sterilised water, 1000; bay salt, 4. This solution is injected at a temperature of 40°C.

DISPENSING PERUVIAN BALSAM WITH OILS.

On the Continent balsam of Peru is often prescribed combined with olive or other oils, a mixture which is difficult to present in an elegant form. By substituting castor oil for half the quantity of the oily vehicle prescribed, it is stated that this difficulty may be overcome and a perfectly homogeneous mixture dispensed. Thus a frequent prescription runs: Balsam of Peru and oil of almonds, of each 50 parts; by mixing first 25 parts of castor oil with the balsam and then adding 25 parts of almond oil a satisfactory result is obtained.

WHITE WINE VINEGAR AND DISTILLED VINEGAR.

White wine vinegar is prepared, as its name implies, from white wine by the acetous fermentation, and should be practically colourless. Red wine yields a product more or less resembling malt vinegar in colour. Distilled vinegar is obtained by submitting wine or malt vinegar to distillation. A colourless liquid results which is always weaker than the vinegar from which it has been derived. It would not be strictly justifiable to supply dilute acetic acid when either white wine or distilled vinegar is asked for, though there is little doubt this is a common practice. [*Reply to W. W.*]

SALOL IN SALICYLIC ACID.

Kolbe's patent having expired, the manufacture of synthetical salicylic acid has been undertaken by different makers, and several of these new samples are said to contain salol, due to defective distillation. In this case, the acid, when treated with a solution of sodium carbonate, gives a turbid solution, and it also develops the odour of salol when it has been shut up for some time in a closed vessel.

CHARACTERS AND TESTS OF TRIONAL.

This compound occurs in light, colourless, and odourless crystalline scales which are soluble in about 300 parts of water at ordinary temperatures. It is readily soluble in alcohol and in ether, forming neutral solutions. The melting point is 76·5° C. When mixed with powdered wood charcoal and carefully heated in a test-tube, it evolves the odour of mercaptan (*Journ. de Pharm. d'Anvers*). The aqueous solution should give no odour on boiling, and after cooling and filtering should not be affected by solutions of nitrate of barium or nitrate of silver; 10 C.c. should not decolorise one drop of potassium permanganate solution (1 in 1000) in five minutes.

PREPARATION OF SODIUM BOROSALICYLATE.

The following process is taken from *L'Union Pharmaceutique* (vol. xxxvi., p. 295). Boil in a flask fitted to an upright condenser, boric acid, 125 parts; sodium salicylate, 320 parts; water, 700 parts. The syrupy liquid so obtained becomes solid on cooling; it is evaporated on flat dishes, when it forms a white opaque mass. It is soluble in four times its weight of water at 40° C.; it is also soluble in ethylic, methylic, and amylic alcohols, in acetic ether, in glycerin, and in acetone, but not in ether.

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

COMMUNICATIONS FOR THE CURRENT WEEK'S JOURNAL SHOULD REACH THE OFFICE NOT LATER THAN WEDNESDAY MORNING. TELEGRAMS CAN BE RECEIVED ON THURSDAY MORNING. ALL COMMUNICATIONS RESPECTING EDITORIAL MATTERS MUST BE ADDRESSED "EDITOR, 17, BLOOMSBURY SQUARE, LONDON," AND NOT IN ANY CASE TO INDIVIDUALS SUPPOSED TO BE CONNECTED WITH THE EDITORIAL STAFF OF THE JOURNAL.

ALL INSTRUCTIONS from Members, Associates, and Students of the Pharmaceutical Society, respecting the transmission of the Journal, must be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London, W.C.

BUSINESS communications—including advertisements, orders for copies of the JOURNAL, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Cheques and money orders should be made payable to "Street Brothers."

CORRESPONDENTS who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names—of course not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS for illustrations should be done with pen and Chinese ink, and consist of clean, sharp lines, without shading by washes. They should also be prepared twice the desired size, so as to allow for reduction.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

QUERIES addressed to the "Editor" will be replied to as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries."

REPRINTS of articles cannot be supplied unless authors communicate with the Editor before publication.

LETTERS.

FLORAL CLUSTER GALL ON ACHILLEA PTARMICA.

A CORRESPONDENT sends "a good example of a floral cluster gall gathered on the margin of a marshy pool near Galashiels. The abnormal flower-heads are full of small larvæ of a bright yellowish-red colour." He says, "I would like to know the name of the insect by which the gall is produced. Perhaps some of your readers may be able to say."

STRONG HOMŒOPATHIC MEDICINES.

A CORRESPONDENT sends a hand-bill bearing the name of Keene and Ashwell, in which it is pointed out that strong homœopathic tinctures and pilules are now so generally sold that the firm considers it important to point out that the following medicines can only be sold by legally qualified chemists, and must be registered and labelled "Poison" if of sufficient strength to bring them within the Pharmacy Act:—Arsenicum, antim. tart., sabina, aconite, secale, strychnia. The following must also be labelled "Poison":—Belladonna, mercurius cor., opium, cantharis, nux vomica.

ANSWERS.

M. GIBSON.—The plant is *Epipactis latifolia*.

F. CURRY.—"The best up-to-date work on 'Physiological Botany' and 'General and Systematic Botany'" to read for the Major examination is Vines' 'Students' Text-Book of Botany' (Swan, Sonnenschein and Co., London. 15*s*.). You cannot do better than get Cross and Cole's 'Modern Microscopy' (Ballière, Tindall, and Cox, London, 2*s*. 6*d*.), for the subject of which it treats.

J. D.—Bromoform is not a scheduled poison, but would hardly serve the purpose you mention. Try saccharin or liquorice.

CORRECTION.

In the Latin paper "First" examination (see *ante*, p. 37) the words "ea tumulus" in grammatical question No. 1 should read "ea and tumulus." This correction applies to the grammatical question No. 1 in both Cæsar and Vergil.

COMMUNICATIONS, LETTERS, ETC., have been received from Messrs. Bird, Card, Center, Clarke, Colley, Dale, Garnett, Hardwick, Hill, Holloway, Jones, Lewis, Martin, Millard, Naylor, Parry-Owen, Sawer, Shapley, Spence, Thomas.

BRITISH PHARMACEUTICAL CONFERENCE.

THIRTY-SECOND ANNUAL MEETING, AT BOURNEMOUTH.

PRESIDENTIAL ADDRESS

By N. H. MARTIN, F.L.S.
(*of Newcastle-on-Tyne*).

My first duty is to congratulate the members of the Conference upon the happy auspices under which we meet this year. We have the privilege of assembling in a town where medicine and pharmacy are conducted upon the ideal basis of prescribing being confined to those who have been specially trained and qualified for the duty, and dispensing being left in the hands of those who have been specifically and equally well trained for its performance. I have no doubt but that we shall find this to be entirely satisfactory, and that a week of contact with our pharmaceutical brethren in Bournemouth will increase our respect for, and strengthen our faith in, pharmacy and its future. I also congratulate the Conference very sincerely upon the unique character which marks the invitation to come to this town. For reasons which are well known to all of us the Conference has, with two exceptions, always been invited, and has accepted the invitation to visit the same town as the British Association. There are advantages connected with such a custom; and I, for one, hope the Conference will receive and accept many such invitations in the future. It is an open secret however, that the pharmacists of Bournemouth have been impatient at the delay of their neighbours to invite the British Association, and that they have for some years past been desirous to welcome the Conference for its own sake. I am told that all the pharmacists of Bournemouth are members of the local committee, and the programme which is in our hands bears witness that everything which is possible has been done to render our meeting a brilliant success. The Conference will owe a debt of gratitude to Bournemouth which we hope pharmacy will continue to repay to our local *confrères* long after all traces beyond the pleasant memories of this meeting shall have passed away.

The Dignity of Pharmacy.

Now I come to the serious duty which devolves upon me as the outcome of having accepted for the second time the honour which you have conferred upon me in this Presidency. The burden of my address is pharmacy, and if in reference to its past or present condition I make any remarks which are even remotely capable of a personal application, I beg you, and any who may read or criticise this address, to accept my assurances that I feel deeply the responsibility of what I am compelled to say, that my references are to facts and principles and not to persons, and if you have any love for pharmacy, I hope you will ponder over whatever may be true and helpful in any suggestions that I may make. At the present moment we are bound to acknowledge that true pharmacy in this country is in a most unsatisfactory condition. It is between a false assumption and pretence of science and the whirlwind of modern trade, and the practice of pharmacy as a separate calling is in danger of being lost altogether. By many of those who should be the leaders and defenders of pharmacy the word "pharmaceutical" is often flouted and sneered at, and treated as an adjective which no man in advance of the middle ages would dream for one moment of applying to anything scientific. Some of these men openly say that they do not know such a thing as "pharmaceutical" chemistry, and that there is no such thing as 'materia medica," chemistry and botany having eviscerated that subject long ago. Such remarks are caught up by men who never in their lives spent a thoughtful hour in the pursuit of true science, and it comes to be considered the acme of wisdom to sneer at the science which is practical in the fulfilment of an essential duty. I believe pharmacy to be an entity which is useful in a civilised state of society, the duties and landmarks of which are as capable of definition as medicine, biology, physiology and many other well-recognised divisions of knowledge. I am aware that it has no claim to stand alone as an abstract science, but must depend on botany and chemistry for the elucidation of many of its problems, but in this respect is it not on a par with the other divisions I have mentioned? Medicine, of course, is dependent on even a larger number of the various branches of science than pharmacy; but have biology or physiology any claims to be considered as abstract sciences? Are not their very names indicative of the want of knowledge of those who study them, and how dare any man say that a biological investigation is science, and worthy of all the honour which societies can bestow, while a pharmaceutical investigation must conceal its very name under some other title. As to the whirlwind of modern trade, poor pharmacy is threatened and is in grave danger of being entirely overwhelmed by it. In my address last year I pointed to the fact that pharmacy was attempting the impossibility of posing as a profession while it practised the baser methods of trade; and the answer from the headquarters of the craft, which can be read by all men in the altered features of the *Pharmaceutical Journal*, is, that pharmacy is content to be trade, and the Council of the Pharmaceutical Society the leaders of a trade association. Truly there never was a time when it was so essential for the pharmacist to be endowed with the spirit so graphically described by Robert Browning—

> "One who never turned his back but marched breast forward,
> Never doubted clouds would break,
> Never dreamed, though right were worsted, wrong would triumph,
> Held we fall to rise, are baffled to fight better,
> Sleep to wake."

In 1868 pharmacy was granted a magnificent opportunity to associate for its advancement and protection, but those who through registration ranged themselves under its banner failed to embrace it. So deep-rooted, however, was the conviction that such combination was necessary, not merely to the growth and development, but even to the very life itself of pharmacy, that ever and anon fresh suggestions and schemes have been urged forward.

Federation of Local Associations.

Of late years local associations of pharmacists, and more recently a federation of such local societies, have been suggested as offering the true panacea for the ills of pharmacy. Far be it from me to think or to speak lightly of any man's earnest endeavour to do something to raise to a higher level of security and usefulness the craft of which he is a member, but observing as I do with anxious thought and care, the waste of energy and the diversion of aim which many of these suggested schemes entail, I think it my duty to point out what appears to me to be their inherent weaknesses. As to local associations, the conditions to make these a success do not at present exist, although the success which attends local associations of medical men has been instanced to justify their adoption. In this respect how different the work and the *personnel* of medicine and pharmacy! Medical men meet each other in friendly conference to consider points of doubt or obscurity in diagnosis, and to determine, if possible, the proper treatment of serious and complicated cases. They also meet in societies to discuss the almost endless chain of cases which show greater or less divergence from the typical text-book type. They meet, as a rule, in some centre where there is a hospital, and perhaps a medical

school; consultants meet the general practitioner, and professors meet their whilom students, and there is a bond of union and a common ground for paper and discussion which is largely absent from pharmacy. Then as to the confederation of such associations, a comparison has sometimes been made with the British Medical Association and the success of its local branches, but the great difference here is that while in the British Medical Association every member must first of all be a member of the parent national association before he can even become eligible to be a member of any of its branches, in pharmacy no limitation of local membership to those who are connected with the Pharmaceutical Society has been anywhere carried out, and in some local associations men who are not even on the Register of Chemists and Druggists, but who are in business as proprietors of so-called drug stores, have been admitted to membership and allowed to contribute papers for the local society. In the present state of things, the only association of real value which is possible is, connection with the parent Society, and when we reach the condition that the vast majority of those who practise pharmacy are connected with the Society, and when in many centres throughout the land there are properly equipped public Colleges of Pharmacy, then the local members of the parent body may meet and discuss to some advantage the problems of pharmacy.

Membership of the Pharmaceutical Society.

Another proposal has been made to consolidate the Society by taking a step to render eligible for membership of the Pharmaceutical Society every person who is on the Register of Chemists and Druggists, and this principle has been so strongly advocated, that from having been a clause in a fairly comprehensive Draft Bill in 1891, it became the one object of a Draft Bill in 1893. It is admitted, however, by its principal supporters, that it is not in itself the end which it is sought to achieve, but only a means to that end, which is the promotion of a better system of education for the pharmacists of the future. It is asserted that all the efforts at legislation have failed for want of the moral support which would be the result if membership of the Society were embraced by every man on the Register, and that once we removed the barrier which prevents men who have only passed the Minor examination from becoming members, our Society would in a short time embrace them all, and then the curriculum and all the other improvements of the Pharmacy Act which are so much needed would quickly follow. There is at least one fallacy underlying this proposal. By the Act, if ever it became law, a grave injustice would be done to those men who have made pharmacy respected as much as it is, and who through good and evil report have been loyal to the Society; and finally it is inherently improbable that by extending the membership, and as a natural and logical sequence the government of the Society, to the least trained, but numerically the strongest section of those who practise pharmacy, that education would be benefited. I admit the immense advantage and power it would be, in seeking to obtain legislative assistance, if every man on the Register were connected with the Society, but that advantage can be given to the Society at once if every one will join the Society in that capacity for which he is to-day eligible; and if any man who is eligible to join as an associate, or an associate in business, holds aloof from the Society because he cannot join as a member, that man is the enemy of true pharmacy and of himself. The fallacy which underlies this proposal is the assumption that a large number of those on the Register as chemists and druggists would join the Society if they were eligible for membership; all our experience points rather to the inference that it is extremely unlikely that such would be the case. I have said that an injustice would be done to another class of men. In 1868, after several previous invitations, admission to membership of the Society was for the last time offered to those who were holding aloof, and from that time onward there was to be but one way for men to qualify themselves for it by passing the Major examination. A perfectly simple proceeding, but it was left optional to men to do so or not, and, unfortunately, we know that a large number have not qualified themselves. Some of them, however, who did not go beyond the Minor examination, having become important persons in the political and commercial world, would now like to be members of the Pharmaceutical Society. Let them present themselves for the Major examination, and they can in a very short time become eligible for membership of the Society. The Society will welcome all such, and the men themselves will have that self-respect which proceeds from the consciousness that they have entered the Society through the only portal which was honourably open to them and which did no injustice to others. I cannot understand why there is such a widespread assumption that in pharmacy a man's education is complete before he goes into business on his own account, and that so few present themselves for the Major examination afterwards. In medicine it is entirely different, and there are hundreds, perhaps thousands, of medical men who take a further qualification or a higher degree after they have for many years sustained the burden of practice. The fact is that hundreds of medical men love their profession, and in the exercise of it they are often face to face with serious gaps in their knowledge, which they embrace every opportunity to fill up, that they may do their work with greater satisfaction to themselves and benefit to their patients. Some of them go so far in this direction that during their hard earned two or three weeks' holiday you will find them in a hospital or dissecting room in Paris, Berlin, Vienna, and elsewhere in quest of the special information they want. All honour to them, but why, I ask, cannot those who practise pharmacy do this, at least, to the extent of passing the Major examination? If they did, we should hear no more demands to be admitted to membership of the Society by a special Act of Parliament, the men would be benefited and honoured, and the Society strengthened, as it cannot possibly be otherwise. Lastly, as to the idea that pharmacy would, from an educational point of view, be benefited, and improvements carried out when the majority to whose care would be committed the future of the Society was made up of men who had contented themselves with the minimum of education legally possible. This is such an absurd assumption that I am surprised at intelligent men gravely putting it forward. From the most charitable view we may take it as fair to assume that a large number—I do not say all—of those who never present themselves in the examination room after the Minor examination do not extend their reading or study much beyond that point, but beside these there are hundreds of men who are on the Register of Chemists and Druggists to-day as the result of having passed the Minor examination, but whose minds are a blank with respect to any scientific knowledge of pharmacy. I do not in the smallest degree intend to reflect on the Board of Examiners. The reason for the phenomenal blank which the minds of many of those who have qualified in pharmacy present, is due to the inefficient preliminary education and to the impossibility of mere examination being effectual to distinguish between cram and education. I ask, is it reasonable to suppose that the end sought—the elevation of pharmacy—will be achieved by such a course, is it likely that men who have never felt the need or worked to qualify themselves by education can or will assist in securing true education for others? Would you commit the government of a University and its educational details to a majority of School Board boys, or would you rather not say that men who have

received the University education are better able to understand it down to the requirements of the School Board boy himself? I trust I have said enough to show the unfairness and the unwisdom of this policy, and perhaps with these two examples, of local associations and their federation, and the proposal to admit all on the Register to membership of the Society, I may turn from criticism to some suggestions as to what ought, and I think might, be accomplished if we were in earnest, and finish by reference to some of the duties and pleasures of pharmacy.

Amendment of the Pharmacy Act.

Almost without exception we are agreed that some improvement in the Pharmacy Act of 1868 is a pressing necessity and must precede any real good which we may hope to accomplish. I do not think pharmacy has had its just share of the attention of the legislature of this country in the past quarter of a century since the passing of the Act of 1868. Within that period the medical men have added five amendment Acts to the statute book, between the years 1873 and 1883. The friendly societies have obtained the passing of eight Acts between 1870 and 1883. In connection with factories and workshops, six Acts of Parliament have been passed from 1875 to 1883. Solicitors have obtained no fewer than sixteen Acts of Parliament between 1870 and 1883. From this we see that other professional and commercial bodies have had the ear of Parliament, and have made successive and presumably successful efforts to remedy the crudities and mistakes of their earlier legislative Acts, while pharmacists, with such glaring defects as they have discovered in carrying out the Pharmacy Act, that the Society have made no fewer than eight attempts to draft a Bill, have not yet succeeded in getting a single Act passed. The inertia of those outside the Society is not entirely to blame for this; there has been a want of a clearly defined aim on the part of the leaders of pharmacy. They have followed the popular clamour to protect the material and pecuniary interests of pharmacy, rather than to maintain and uphold a high standard of education. If we are to get any good this must cease, and we must have a clear and definite policy, and having, if we can, discovered what is really best for pharmacy and for the public, we must nail our colours to the mast and work until we get it. In the following suggestions I am expressing my own deep convictions, and although to-day they do not dominate the larger section of those on the Register of Chemists and Druggists, I hope the day will come when they will do so.

The central idea and keynote of a new Pharmacy Act must be improved education, and the means of legally enforcing such a course of preparation and study as will secure that those who are registered to practise pharmacy are properly trained and educated to assume such responsibility and to perform their duties. The Act of 1868 in this direction is a complete failure, and that this would be the case was clearly seen and pointed out almost immediately after the Act was passed. At the meeting of the Conference held at Brighton in 1872, this question of education occupied a very large amount of the thoughts and the time of those who were present, and eighty pages of the Year-Book are filled with the papers and discussions thereon. The President, Mr. Brady, whilst hoping that a great deal of good would accrue from the Pharmacy Act, pointed out in the clearest manner and warned the Society against the low standard of the Preliminary examination, and against the evils of "cram," which would be sure to follow the examination system divorced from training. The whole of those eighty pages are worthy of the careful study of every one who is interested in education, and I would commend them to the younger men who have joined our Society since that date as I cannot give you even a *précis* of them in the middle of this address. Professor Attfield in his paper pointed out that the Act of 1868 had done nothing for education, he said: "I assert that the Pharmacy Act of 1868 has not created any demand for sound pharmaceutical education that did not exist before 1868, and that consequently any attempt to supply such education before the demand arises wil result in that loss of effort, time, and money which has hitherto followed nearly every attempt to establish a school of pharmacy in the provinces." How true and prophetic those words were we know to-day by the experience of the many unsuccessful attempts to establish true schools of pharmacy in many centres. Letters were read from prominent pharmacists, and the discussion was taken part in by many eminent men, including Professor Michael Foster, who pointed out the inherent difficulties of examination without direct and positive evidence that the candidate had been properly taught, and also alluded to the wisdom and the advantage of making examination and the examiner the complement of education and the teacher, and of associating the two if the final result is to be a reliable one. In my opinion education must be the basis and the main object of a new Pharmacy Act, and powers must be obtained to make true education a reality in our midst. The Preliminary examination as a measure of the intellectual capacity and the brain training of those who are to be brought into contact with some of the deepest problems of natural science is lamentably inadequate and should be raised as high as the standard of the entrance examination for medicine. A sound and extensive acquaintance with mathematics should especially be enforced. The student who is to enter pharmacy should not be eligible for this examination earlier than sixteen or seventeen years of age. After this the Act should provide for at least two whole years of compulsory training in the scientific subjects which are the basis of pharmacy—physics, chemistry, and botany. This should not supersede apprenticeship to a pharmacist, but be in addition to it; whether it should precede or follow is a matter upon which there may be a difference of opinion. To the diligent apprentice it would decidedly be an advantage for the apprenticeship to come between the entrance examination and the scientific curriculum, but for the idle and dull there would possibly be in the three years between school life and the University a great loss of the power of brain application. A course of theoretical and practical physics is essential, and the arrangements for properly teaching and demonstrating the various branches of this subject require specially arranged and furnished laboratories, as well as much apparatus of an expensive character. Chemistry and botany in their modern developments can also only be taught with similar facilities. To-day there would be no difficulty in carrying out such an Act of Parliament, and if it were passed into law there could be established in many centres throughout England and Scotland true schools of pharmacy, which would be equipped in every detail to provide the necessary compulsory education. We have only to take the University Colleges throughout the country, and we shall find ready to our hands laboratories and eminent professors, with capable assistants and demonstrators, who are prepared to teach physics, chemistry and botany as they ought to be taught, and who can and will teach these subjects in any of their technical applications. We have only to add to each of such colleges a man with a thorough knowledge of pharmacy and materia medica, and who would devote his whole time to teaching, to make our school of pharmacy complete. Many of the Bell scholars who have been trained at Bloomsbury Square, as well as others who have passed the Major examination, and to whom a life of teaching has many other attractions than retail pharmacy, would be available for this post. The establishment of a library and museum of materia medica, of which the teacher of pharmacy should be the curator, would complete the equipment. Another

important advantage of this arrangement would be that the education would be deprived of the narrow type which more or less attaches to special schools, and would give it that University character which would be of enormous advantage in the after-life of the man. This course of compulsory study, with the necessary complement of examinations, should be the qualification for the title of pharmacist, and should entitle the individual to be placed on the Register of Pharmacists as a member of the Pharmaceutical Society of Great Britain on the payment of a suitable fee. For the sake of encouraging higher education I should like to see established concurrently, a Fellowship of the Society, to be obtained as the result of one more year of compulsory education, and a much stiffer examination in botany and chemistry, as well as in the history and knowledge of drugs. If we make this object — education — the chief plank in our platform when we go to Parliament, I believe we shall secure a large amount of support from scientific and educated men, whose powerful influence will greatly help us to obtain from Parliament the necessary powers.

The second object to be aimed at must be to safeguard and protect our title, and in seeking to obtain this I would discard all ambiguous words, and especially such words or titles as other men or bodies may have an equally good right to use, and having defined by our curriculum of education and by our examination what we mean by pharmacy, I would restrict the use of any title or description such as pharmacist, pharmaceutist, or pharmaceutical chemist to the men who were registered under this Act.

The third object should be (subject to the rights of those who are registered under the medical and apothecary's Acts) to restrict the compounding of medical prescriptions and the sale and dispensing of poisonous substances, which are to be used as medicines for human beings, to pharmacists. The latter suggestion presents some difficulties, but in my opinion it must not be approached from the trades union point of view, but entirely from the side of the public health and safety. I believe most assuredly that it is in the best interests of the community that the handling and dispensing of the substances which are to be used for the relief of human suffering and the cure of human ailments should be restricted to men who have undergone prolonged and special training and have furnished to the State satisfactory evidence thereof. This is a matter which at some time or other concerns or will concern every individual in the State from the Queen to the peasant, and when pharmacists prove that they believe in and are earnest about education, the country and the Government will give them, for the sake of the people, a reasonable protection in the exercise of their calling, and upon no other basis but education have they the slightest ground or claim to ask for such protection.

Lastly, I should like the proposed Act to deal with the constitution of the Society, and to enable us to have two classes of men and two only—Members and Fellows of the Pharmaceutical Society of Great Britain—and that each should become such, by virtue of the training, the examination, and the payment of such fees for registration as might be decided on. The government of the Society in the future should be in the hands of a Council of whom one-third should be Fellows, and the Council should be elected annually by the two classes of Members and Fellows voting for their peers.

I am quite aware that there are many difficulties to be overcome, and it would be an easy task for me to occupy the next few minutes of your time in pointing them out, but I will leave it for those who may do me the honour to read and criticise what I have said, but my last word is the conviction of my life, that in order to benefit pharmacy we must approach it from the side of education and raise it to the rank and position of a profession, and not from the side of trade. If it is a question of barter, of pecuniary gains and losses, Parliament will not and ought not to interfere to assist or protect the pharmacist any more than the grocer or the draper, but if it is wise, in the interests of the health of the community, that a class of men should at the outset spend time and money in acquiring special and sufficient knowledge of pharmacy, then Parliament may be expected to restrict the practice of it to such men.

The Duties of Pharmacy.

I now come to a consideration of the duties of pharmacy. When it has acquired the professional standing which is essential, there is not the smallest reason to doubt but that gradually, but surely, the dispensing of medicines will come to the pharmacist. It will take a generation to make pharmacy fit for the trust, and the same period will under suitable conditions see the transfer of dispensing from medicine to pharmacy. As I pointed out last year, however, this can only come about by the slow process of change in the habits of the people who have grown accustomed to get the prescription and the medicine from the same source. I should like to say a word with respect to two special functions of pharmacy—its relation to the Pharmacopœia and to research.

First, with regard to the Pharmacopœia, at no time in the history of medicine probably was there so much and such wide-spread interest bestowed by various countries upon their several pharmacopœias, and in this country the necessity for a revision of the British Pharmacopœia, and the suggestion that it shall be imperial in its character and scope, has drawn forth a number of able medical and pharmaceutical authorities to publish their ideas of what the Pharmacopœia should and what it should not be. I do not intend to summarise these or to take up your time with many details, but shall briefly allude to some points which have been overlooked, and especially to the relation of pharmacy to the work.

The Pharmacopœia has in the past been produced under the general supervision of a Committee of the Medical Council, who have employed one or more experts in pharmacy to act as editors. In the production of the Addendum in 1890, the Pharmacopœia Committee acknowledged to have received "valuable assistance from a Committee of the Pharmaceutical Society," and the latter body have been again invited by the Medical Council, and have appointed a Committee to work on the same lines as in the production of the Addendum. The time is not ripe, and I regret to know that pharmacy has neglected many golden opportunities which would have given it a surer title to recognition, but when pharmacy has given to the world the evidence of the professional spirit and standing which medicine has done, then an ideal Pharmacopœia Committee will be a conjoint board of medicine and pharmacy. Pharmacy will accumulate an amount of knowledge and experience which medicine will cease to work for and to accentuate, and medicine, if it is to be brought to the highest development of precision and accuracy, will not act wisely in disregarding it or in failing to utilise it through the most favourable channels.

The Scope of the Pharmacopœia.

With regard to the scope and purpose of the Pharmacopœia. Its aim should be to provide the greatest number of the average medical men and pharmacists with accurate descriptions of all the drugs and preparations which are in reasonably common use at the time of its publication, so that they may judge of the identity and quality from the Pharmacopœia description. It should also provide formulæ which will produce stable and reliable preparations of the drugs in the manner most suitable for their exhibition. In order to reduce to a minimum the necessity for the practitioner or the pharmacist to construct formulæ for himself, the Pharmacopœia should err on the side of inclusion rather than of exclusion.

There seems to be a fear that the Pharmacopœia will be too bulky, but I do not share in this. Surely it is better that every physician who wants to use, and every pharmacist who is called upon to dispense, a preparation of a known drug, should both be able to rely upon a common authoritative standard, than that each should be compelled to possess or compile a Pharmacopœia outside and in addition to the official one. In the latter case it might often happen that the physician would designate a preparation thinking of one authority, and that the pharmacist would dispense it according to another. If no evil were the result, it is impossible for comparisons as to the value of the medicine to be made, and for accurate and precise knowledge to be accumulated. The current Pharmacopœia should be the sole authorised standard of a large and widely-distributed profession, and the aim of the Pharmacopœia Committee should be not to overlook anything which would render the book of the greatest service to the largest number. The omissions from the Pharmacopœia provide the happy hunting ground for the cupidity of the empiric and the quack in pharmacy.

Pharmaceutical Research.

With regard to research; the duty which is incumbent upon every man to do something either to increase the aggregate amount, or to render more exact and scientific the knowledge, which is in the possession of his calling cannot be too seriously taken to heart by pharmacists. It is a great mistake, however, to suppose that at any given period a very large number of men are capable of doing original work, or of making discoveries. It must be a sufficient daily task for most men to keep abreast of the discoveries of others' and to have ready for the practical affairs of daily duty a sufficiently intimate acquaintance with the large body of accumulated facts. If this is the case with men of mature age and experience, how much more must it be so with young men? One of the greatest mistakes connected with modern scientific education is the inducement which has been given to young students to write and to talk before they have read and thought.

Occasionally it may happen that an inspired genius may work upon some original line, or wrest a brilliant discovery from the regions of the unknown, without having performed the drudgery of learning what others have done in the same field of labour, but as a rule, with but very few exceptions, the attempt to make young students pursue research will not be successful. The function of education should be to make men accurate observers, so that they may have confidence that they see what they appear to do; accurate thinkers, so that they may reason with logical precision from the facts which they have observed; and above all accurate manipulators, so that they may use the instruments of science in a manner to eliminate a very common source of error, faulty workmanship. The balance and the burette and the microscope require more constant and prolonged practice to learn their accurate use than does the spade or the trowel. Education should aim at giving men a sound and extensive foundation in the theory and practice of the science basis of their profession, and should not force them prematurely into an assumption of research. When we have men who, as the result of prolonged education, have taken the Fellowship of the Pharmaceutical Society, as I have suggested in the former part of this address, they will have laid the foundation upon which may be built a training in research methods, and from whose work, if they are able to devote some portion of their lives to research, we may expect good results.

The Pleasures of Pharmacy.

Finally, a few words as to the pleasures of pharmacy, and I could wish that my conscience would have allowed me to embrace this opportunity to dwell entirely upon the pleasures which are brought into our lives by our daily work, if we do but keep the windows of our souls clean and our minds free to receive the impressions which are to many of us a perennial source of delight. If we make gold and personal fame the standard and the goal of our lives, then I think pharmacists as a class have fewer opportunities than most men to realise them, but if we prefer the possession of a cultured mind which in the exercise of our daily work is brought into contact with the greatest men who have ever lived and written upon the deepest and most fascinating subjects of precise knowledge which have ever occupied the human intellect then pharmacy does indeed afford us the opportunity. After the day's—the long day's—labour is over, the pharmacist can retire to the little room behind the pharmacy (call it shop if you like), which men like Scheele have hallowed, and enjoy a quiet hour in the companionship of the kings and giants of natural science, and all the while that he is enjoying a rich intellectual treat he is only the better fitting himself for his next day's labour. I am almost weary of the political, the trade, and the advertising spirit of official pharmacy, and it is possible that this may be the last time that I shall have an opportunity of publicly saying anything regarding it. If such should be the case my earnest hope is that in the autumn of my life I may be able to cultivate more assiduously some little corner of that immense field of scientific knowledge which Pharmacy has laid open to my gaze, and that in the great hereafter I may be found worthy to be endowed with greater powers and a larger appreciation of the truth and beauty of God's universe.

HERBA CANNABIS INDICÆ.

In Gehe and Co.'s report for April there are some interesting notes on the cultivation of hemp in India.

It appears that the hemp cultivated in the colder parts of this country, such as the Himalaya districts, is chiefly productive of fine fibres and lacks almost entirely the peculiar and much sought for narcotic resin of the hemp plant. That grown on the tropical plains of India produces, however, an abundance of this secretion, while the hemp fibres it yields are practically useless.

The narcotic resin is only produced by the female plants, and it depends on the condition of the soil and of the climate whether the resin appears on the blossoms, stalks, and leaves, or only, later on, on the fruit. The method in which it is collected is curious. Nude coolies are made to run through the fields, the resin readily adheres to their bodies, and these having been previously well oiled it can easily be rubbed off. It is then made into cakes and thus brought into the market under the name of "charas." Another narcotic stimulant favoured by the natives is "ganja." This is the drug which is best known to Europeans, and which responds to the descriptions of European pharmacopœias. It consists of the whole female plant cut when in bloom. Before drying, the natives express the resin as much as possible by treading the plants with their feet. To this is due the broken and aggregated appearance of the drug.

The hemp is sown after rain in well-dug soil. The young plants must subsequently be thinned out, and there is a special "hemp doctor," whose duty it is to remove all the male plants. This requires great care, as the male plants when left in fertilise the female plants, and thus prevent the resin being secreted in the blossoms. In some provinces the cultivation of "ganja" is forbidden by law. In these places "bhang" is grown instead. This third form of Indian hemp is really the ripe female plant which has been fertilised, and which consequently secretes the resin in the fruit, but only in a very small quantity. "Bhang" is never smoked, but is used for preparing the well-known "haschich," or else it is baked into what is called "majun" (*Pharm. Cent.*, xxxvi., 281).

ANIMAL OILS AND THE NEW PHARMACOPŒIA.*

The Properties of "Oleum Anseris" or Goose-Grease.

BY LANGFORD SYMES,
Physician to Kiltegan Dispensary, etc., etc.

Being struck for some years with the scarcity of the animal oils and oleaginous substances in our Pharmacopœia in comparison with those derived from vegetables, I would venture to briefly bring before the profession the properties of an oleaginous substance of peculiar penetrating power, and one for many years well known in most households.

At present we possess but three animal oleaginous substances in the British Pharmacopœia, viz.:—1. Oleum morrhuæ. 2. Lard. 3. Hydrous wool-fat ("Lanolin").

This strange coincidence is almost surprising in itself, considering the number of oils known in medicine and commerce. The third material has of late years been in use, viz., "Lanolin," and there is reason to believe this possesses properties which would entitle it to a place in our formularies.

The one of which I write, however, is more easily obtained than most oils, and is already well known to the public. It is plain "goose-grease." That this substance possesses valuable medicinal properties is, to my mind, clear beyond question. It is of the easiest purchase—cheap, one would imagine, as a marketable article, and of its activity, when used in medicine, I have had for a considerable time no doubt.

In affections of the chest it is a most excellent substance to apply even alone. In bronchitis of the sub-chronic type, or what would best be termed a "cold in the chest," or moderate bronchial catarrh, few liniments or applications will be found to equal this "oleum anseris," or goose-grease. Stimulative liniments are frequently prescribed for this condition, and they are most efficacious in their action. I have, however, frequently witnessed the "rubbing-in" process of these substances, and while some penetrate the skin with great difficulty, a few do not at all. Now, if a drachm or so of this grease be placed in the hand of the rubber and the liniment poured thereon, it will be carried into the tissues in a remarkable way.

During the late influenza epidemic—an epidemic fraught with some of the most interesting lessons in the study of medicine—I frequently observed patients who were using this remedy for the cough which was associated with the later stages of the disease, and marked the benefit they obtained therefrom. Where some bronchial mischief remains unresolved in the lung, and that peculiar tenacious viscid secretion lies attached to its internal mucous or serous vesicular wall, a stimulating liniment will be immensely helped by the addition of this oil. It becomes much easier to rub in, and appears to become absorbed rapidly.

One case in point was very striking. A gentleman sickened with influenza of what, in endeavouring to describe it, I have termed the "chronic" type. Never ill enough to stay in bed, and scarcely well enough to be out of it, he was troubled with dry "hacking" cough for many days. Scarcely any secretion was expelled from his lungs, in which there lay lodged, with a desperate tenacity, a small quantity of viscid exudation. With the aid of suitable internal remedies he gained ground very slowly. The liniment of camphor and ammonia (Lin. camph. co.) was prescribed for him and helped him but slightly. Goose-grease was added and its effect became at once apparent. In a day or so, being much better, this oil was omitted and he became bad again. It was repeated at each application and great benefit followed. A second and a third time he omitted the goose-grease and the cough and the distress returned. It was rapidly removed, however, by an unceasing application of it. This gentleman being convinced of its efficacy, mainly attributes this recovery to its specific action on his chest. Another instance at this time, was that of a gentleman who had a cough for two months and had suitable prescriptions prepared for it. They relieved him but little. At the end of the two months he was recommended an application of this oil, and I am a personal witness of the complete removal of his cough by no other remedy than it after three or four days.

Of its penetration there is no doubt. I have seen it remove, in a distinct way, muscular rheumatism when rubbed in. Thickening in the neighbourhood of joints after sprains or subacute rheumatic inflammation will be greatly aided towards resolution by its use.

Another manner in which I have witnessed marked benefit result from its use is in the case of wasting or marasmus. When rubbed into the abdomen and groins of young children it is a decided nutrient, and experience has convinced me of its efficacy. It can be eaten on bread with salt, and in this way, if freshly prepared, is very palatable and nutritious.

If a further illustration of its powers were wanted, its use by sportsmen supplies it aptly. I have been told by experts on firearms that it is not a good thing to too liberally apply to guns, "as it is far too penetrating," "it eats or worms its way" into every conceivable crevice.

As a basis for liniments, or the softer kinds of ointment, when the effect is desired upon the underlying tissues, I can conceive no better substance to "carry in" a drug into the deeper parts. It far exceeds lard in efficacy; and, than vegetable oils, I hold that it possesses far greater permeating qualities. It is liable, I believe, to become rancid, but I have kept it for many weeks by the simple addition of some boric acid. Active drugs incorporated with it will when applied externally, be under the best conditions for permeation through the skin, and it will not lie on the surface unabsorbed so much as other oils.

At this juncture, it strikes me, others might give their experience of this substance if they have used it. Its popularity appears to be chiefly confined to Ireland, and, mainly, I should imagine, to country districts; but that in this substance we have an excellent vehicle for the inunction of drugs in various diseases, I am so convinced that, in place of a needless intrusion, my bringing it forward to the notice of the profession has become almost my imperative duty.

* From the *Dublin Journal of Medical Science.*

AN INCOMPATIBILITY.

BY WALTER G. SMITH, M.D.,
President of the Royal College of Physicians (Ire.), Professor of Materia Medica, School of Physic, T.C., D.

The solution made from the subjoined prescription turned a dark red colour, which proved permanent:—

℞ Hydrargyri perchlor. ..... gr. iv.
Resorcin ..... ℥i.
Spir. chloroformi,
Spir. æth. nitr. ..... āā ℥ij.
M.

This produced severe irritation upon the skin of the patient for whom it was ordered.

The cause of the coloration is probably the formation of a red nitro-compound, analogous to the green nitroso-compound formed by the interaction of antipyrine and nitrous ether.

Professor Emerson Reynolds informs me that mono-nitro-resorcinol, $C_6H_3(NO_2)(OH)_2$ is easily produced when an ethereal or alcoholic solution of resorcinol $C_6H_4(OH)_2$, is treated with dilute nitric acid containing some nitrous acid. It is volatile, and crystallises from dilute ethylic alcohol in orange-red prisms, which melt at 85°. There is an isomer, but it is pale yellow and non-volatile.

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THE CONFERENCE AT BOURNEMOUTH.

The business proceedings of the British Pharmaceutical Conference commenced in the Shaftesbury Hall, Bournemouth, on Tuesday morning last, when the chair was taken by Mr. N. H. Martin, of Newcastle-on-Tyne, who was supported by several members of the Executive. The Deputy-Mayor of Bournemouth, Alderman H. Newlyn, was present, and formally welcomed the members to the town, after which the annual address was delivered by the President.

The President's Address.

The full text of this address will be found at page 93 of this week's Journal, and it will only be necessary here to comment upon its main features. As was to be expected, the address was strongly marked by the individuality of the speaker, and every pharmacist with any respect for his craft must sympathise with the strong feeling displayed by Mr. Martin in his eloquent defence of pharmacy in its professional aspect. Pharmacy has long been compelled to occupy an inferior position in the professional scale of this country, and it is quite time that an independent position were taken up by those who have been too readily contented to be regarded as second-rate chemists or botanists, or mere hangers-on of the medical profession.

With Mr. Martin's references to the trading side of pharmacy it is more difficult to agree. So long as pharmacy is pharmacy it must of necessity partake of the nature of a trade. And, that being the case, is it not wiser to recognise the fact and boldly face the difficulties which are inseparable from the situation? If the pharmacist is to some extent—greater rather than less, unfortunately, nowadays—a trader, let him openly acknowledge it, but take good care always to occupy the first place as such. Whilst the pharmacist as a professional man should be subservient to the members of no other class, as a tradesman he should be above suspicion. "The baser methods of the trade," whatever they may be, are assuredly not necessary of adoption, for a trade can be carried on, at the least, as decently and honestly as a profession. There is no reason, either, why representative pharmacists should shrink from heading a trade association, or that the *Pharmaceutical Journal* should refrain from noticing matters of interest to the craft and affecting the trade in which its members are engaged.

A truer note was struck when Mr. Martin, dealing with the topic of local pharmaceutical associations and their federation, pointed out that the only way to effect the results aimed at by various enthusiasts is to utilise to the utmost the facilities for organisation offered by the constitution of the Pharmaceutical Society. The ideal scheme is undoubtedly that by which the majority of chemists and druggists would be supporters of the Society, and throw their energies into the work of local branches, which should exist in all suitable centres. In this connection the remarks made upon the proposed consolidation of the Society, by admitting all registered Chemists and Druggists to membership, are worthy of attention. But it may, nevertheless, be urged that there are no sufficient *à priori* grounds for refusing this boon. The mis-called "Minor" examination is the only recognised legal qualification, and it is high time the old fiction, by which it was regarded as an assistant's qualification only, was exploded.

With regard to the remaining points raised in the address, it is unnecessary to do more than name them and acquiesce in the justness of many of the strictures so admirably formulated by Mr. Martin. Pharmacists undoubtedly do neglect their post-graduate education, and trust too much to a *deus ex machinâ* to help them out of the difficulties affecting them as a class. Again, no one can honestly deny that improved education must be the "central idea and keynote of a new Pharmacy Act," or that examination should be merely supplementary to systematic preparation and study. The fuller protection of titles and extension of privileges will receive general support, and there should be strong sympathy with the idea of constituting the Pharmaceutical Society of Fellows and Members only. Finally, the remarks on the duties of pharmacy with respect to the Pharmacopœia and to research are deserving of very close attention. They are the outcome of experience, and should commend themselves to all who value experience at its true worth.

At the conclusion of the address, which was delivered in excellent style, the customary vote of thanks was accorded the President, on the motion of Mr. G. F. Schacht, seconded by Mr. G. E. Bridge, and supported by Mr. S. Hardwick. The reception of delegates was next proceeded with, and followed by the reading of the report of the Executive Committee, which, it will be seen, is of a very hopeful character.

Report of the Executive Committee.

The number of paid-up members of the Conference at the end of June last is given as 1130. With a view to increasing the membership, a special circular was issued in May last, and a number of candidates have since been nominated and duly elected to membership. At the same time many proofs have been given of the continued usefulness of the Association and its official 'Year-Book.' Personal effort is still necessary, however, to maintain both in a satisfactory manner. Suggestions relative to the conduct of the general meetings have been considered, but it is not thought desirable to alter the existing arrangements. The Blue List has been revised, and further suggestions in connection therewith are invited. A grant has been made to Mr. E. J. Parry, B.Sc., and he and Mr. R. A. Cripps, F.I.C., presented reports at this meeting. In conclusion, a tribute is paid to the memory of the late Professor Fluckiger, who was an honorary member of the Conference,

The financial statement was next read, and showed a balance on the right side. The report of the treasurer of the Bell and Hills' Library Fund was also communicated, and then followed the report of the Unofficial Formulary Committee.

Formulary Committee. This Committee has not taken any steps since the issue of a revised formulary a year ago, and though suggestions have been received from correspondents, the fact that some members of the Committee are also on the Pharmaceutical Society's Pharmacopœia Committee tended to keep the business of the former body in abeyance.

The reading of reports and papers was next proceeded with, and continued during the afternoon and the following day. These communications will be published in full in the Journal later, but meanwhile the following abstracts are given :—

Parry on Sandal Wood Oil. In attempting to devise a quantitative method for the determination of the value of sandal wood oil, E. J. Parry, assuming the correctness of Chapoteaut's statements regarding its composition, found that the best plan was to ascertain the amount of santalol it contains. Other alcoholic bodies present are expressed in terms of santalol. The alcohol is converted into an acetate, and the amount of acetic acid present in the acetylated oil determined, the result being expressed in terms of potash necessary to saponify the oil. Tables were given to show the amount of KOH required to saponify five specimens of sandal wood oil, and the same after acetylation, as well as the specific gravities and iodine absorption numbers of the different samples. It was suggested that the results prove that the greater part of the aldehyde in the oil comes over in the earlier fractions, and that the saponifiable oil of highest boiling point increases in quantity as distillation proceeds, thus accounting for increase in the specific gravity. The constitution of sandal wood oil does not appear to be materially altered by acetylation, and this process, followed by saponification with KOH, serves to detect the presence of cedar wood oil, the amount of which can also be approximately determined in a mixture of the two oils.

Cripps on Ipecacuanha. The results of an as yet uncompleted investigation into the more important constituents of ipecacuanha root were communicated by R. A. Cripps, who had received a grant from the Executive in connection with this subject. The ether extract of the drug contained a trace of an alkaloid, oleic and palmitic (?) acids, neutral fat, wax, and resin. The subsequent alcoholic extract was partly dissolved by chloroform whilst acid, and partly by ether and chloroform after being rendered alkaline by ammonia. The acid chloroform extract contained some alkaloid, but this requires further investigation. By fractional precipitation the whole of the alkaloid in the ether extract was separated, and two of the extreme fractions were converted into gold and platinum double salts, which proved to be practically identical in composition, the figures agreeing closely with those required by emetine (Paul). It was concluded that emetine was the only ether-soluble alkaloid. When this alkaloid was dissolved in chloroform, and the solvent allowed to evaporate spontaneously, the residue obstinately retained chloroform, even when fused at 50° C. At 82°, however, the chloroform volatilised and left the pure alkaloid. An aqueous solution of the alkaloid did not yield the whole of the base when agitated with ether and ammonia. The residue formed a yellowish fluorescent solution when dissolved in chloroform, and it is suggested that this chloroform-soluble alkaloid may be produced by the action of the alkali upon emetine. No definite results have yet been obtained with the alkaloid soluble in chloroform. The author has been unable to obtain any trace of Arudt's volatile alkaloid, and describes the working of his recently described assay process tedious. He has also compared Keller's and Lyons' processes (see *Ph. J.*, liv., 1093), and finds that titration with hydrochloric acid, using iodeosine as indicator, yields excellent results. Further, he has confirmed the statement that a more satisfactory product results from the use of a weaker acid in the preparation of ipecacuanha wine.

Pharmacopœia Tinctures. The work previously done by Farr and Wright, in dealing with alkaloidal drugs, had as objects the discovery of the best menstrua for exhausting the drugs, of accurate and reliable methods of assay, of the average alkaloidal strength of the tinctures, and of cases in which standardisation might be feasible and desirable. They now report the results of an enquiry into the strength and quality of commercial tinctures, as sold and dispensed by retail pharmacists. A number of correspondents in different parts of the country furnished the samples reported upon, having obtained them from "pharmacies of at least average class." Tabular statements were given, showing the results of determinations of alkaloid and extractive matter, as well as the specific gravity of the different samples. A very wide range in alkaloidal value was disclosed, some of the tinctures, even those of opium and cinchona, which are directed to be made from standardised drugs, being twice or three times the strength of others. The tinctures of nux vomica never exceeded the official standard, but frequently fell below it, and those of conium were in most cases absolutely worthless, only one sample showing indications of having been made strictly according to the Pharmacopœia instructions. The relative proportion of alkaloid and extractive was also found to vary between very wide limits in different samples of the same drug.

Umney on Pine Oils. The oils of Scotch fir (*Pinus sylvestris*) and other pines were dealt with by J. C. Umney, who has continued the work embodied in his recent paper on essential oils (*Ph. J.* [3], xxv., pp. 946, *et seq.*). A quantity of the oil of *Pinus sylvestris* has been distilled from material supplied by Mr. E. M. Holmes, and its characters were fully described. These differed in some respects from those recorded by Bertram and Welbaum (*Archiv.*, 1893, p. 290). The results of the investigation show that (1) the rotation of true oil of Scotch fir may differ, either according to the period of the year at which the material for distillation has been collected, or to the conditions of climate and soil under which the fir has grown; although it should not exceed 20° in either direction in a 100 Mm. tube; (2) that the specific gravity of the oil should not fall below ·880 at 15° C.; (3) that a very considerable portion should distil above 185° C.; (4) that not more than 15 per cent. should distil below 170° C. The author suggests that if the new edition of the British Pharmacopœia includes this oil, then the above or similar stringent characters and tests must be framed so as to ensure the user obtaining the true oil, even if at very

considerably advanced prices as compared with those now ruling for the substituted oils. The other pine oils experimented with were those from *Abies canadensis*, *Abies excelsa*, *Picea vulgaris*, and *Pinus pumilio*.

Parry and Sage on Cod-Liver Oil Constants. The published constants of cod-liver oil vary so considerably that E. J. Parry and C. E. Sage have thought the matter of sufficient importance to obtain a number of authentic specimens and determine some of their most useful analytical data. The limits of specific gravity in the ten samples examined were ·9227 to ·9291; the saponification figures varied from 17·90 to 19·34 per cent. of KOH; and the iodine absorption figures from 153·5 to 168·4 per cent., confirming the results of Thomson and Ballantyne. The amount of free fatty acids, calculated as oleic, varied from 0·34 to 0·60 per cent.; their melting points from 21°·5 to 25°; and their iodine absorption figures from 164·9 to 170·1. The mean molecular weight of the acids varied from 287·6 to 292·5.

White on Surgical Dressings. The further experience gained by E. White since the publication of his paper on the sterilisation of surgical dressings (*Ph. J.* [3], xxv., 191) has enabled him to extend the observations there recorded. He suggests that the steriliser should be modified in such a way as to prevent the water collected in the steam pipe from being blown into the apparatus when the steam is first turned on. A perforated plate should also be placed over the orifice of the steam pipe where it enters the steriliser, so as to secure the even distribution of the steam. The pressure in the steriliser should not exceed ten to fifteen pounds per square inch, the steam being turned on slowly, after the dressings are placed in position, until the required pressure is attained. The excess of steam is then allowed to rush off, carrying with it any remaining air, and on again admitting steam a thoroughly moist atmosphere of steam is secured. Glass jars for containing the sterilised dressings are too fragile, and tinned copper vessels have been found best to replace them. Full details concerning the shape, size, etc., of these vessels were given in the paper. In conclusion, attention was called to a kind of cellulose wadding, which has proved very satisfactory as an aseptic dressing.

Elborne on Weights and Measures. The weights and measures of the British Pharmacopœia were compared with those of the metric system by W. Elborne, who recapitulated the main arguments against the adoption of metric weights and measures in medicine. The main point made clear by this paper was perhaps not the one intended by the author, who appears to hold a special brief for the existing order of things. It was rendered evident, however, that whatever system of weights and measures the pharmacist works by, he must never relax his vigilance, as any automatic tendency in performing his duties will render him extremely liable to court disaster.

Elborne on B.P. Volumetric Solutions. It was also pointed out by W. Elborne that the official volumetric solutions are, as a group, not entitled to the designation "standard solutions," inasmuch as the generally accepted nomenclature and standard of chemical equivalence are not uniformly adopted in their preparation. The different solutions were dealt with in detail to emphasise this fact, and suggestions were made with respect to their nomenclature.

Symes on the Pharmacopœia. In opening a discussion on the British Pharmacopœia, with reference to securing the more general use of the work and recognition for it of an "imperial" character, Dr. Chas. Symes pointed out that the task of producing the work would be an exceedingly difficult one were it absolutely necessary that the book should be perfect in every respect. Reasonable care to ensure completeness is, however, all that is requisite, and unnecessary delay in publication is to be deprecated. In extending the scope of the Pharmacopœia, it is necessary to bear in mind that the book is employed not only in all the British possessions, but also in other places under British influence. In Africa, as far up country as Johannesburg, pharmacy is practised much the same as at home, and the British Pharmacopœia is more used than any other. It is also used in Brazil, but a Portuguese work containing particulars concerning native drugs, therapeutic notes, and other matters of interest to the medical profession, is in chief demand there. This raises the question as to what the next British Pharmacopœia should comprise. Pharmacists should undoubtedly be appointed on the Pharmacopœia Committee, and the work receive additions that need not render it too voluminous. Whilst the statement of proportions according to the metric system will be appreciated by many, it may also be found useful to give the equivalents of the doses in the same way. A table of solubilities will be of value to medical practitioners, and a therapeutic table would also be frequently referred to, and the more the work is thus resorted to for information the more likely are prescribers to order pharmacopœial remedies. A secondary list of new drugs still under trial and of old ones becoming obsolete might also prove an acquisition, and help to avoid too frequent changes in the body of the work. This list could be greatly altered from time to time and occasionally some item in it might be found worthy of inclusion in the ordinary way.

Bird on Alcohol Recovery. The recovery of the alcohol retained by tincture marcs has hitherto presented considerable difficulty on account of the imperfect methods in use for conducting the operation. In displacement by water, as described by R. H. Parker, at Oxford, there is a greater loss of spirit than is apparent at first sight, and in many cases displacement is inapplicable. Distillation also involves considerable labour and loss, as usually carried out, on account of the use of water in the process. If, however, the marc be simply heated at a low temperature, the alcohol is quickly driven off as vapour, and can be condensed by means of a polished cold surface. This principle of surface condensation has been practically applied by F. C. J. Bird, who has devised a special apparatus for the purpose. This consists essentially of a shallow water bath of large area, which is furnished with a side tube for a thermometer. The condensing cover is a circular water tank, the bottom of which is conical, and the alcohol given off from the heated marc trickles down the sides of the cone into a V-shaped trough, running round the inner edge of the water bath, whence it is run off by a delivery tube. By means of this apparatus the greater part of the alcohol in a proof spirit marc may be recovered at 140° F. Rectified spirit marcs also yield their alcohol readily, but the apparatus will probably prove of most value in dealing with those which show a loss on pressing, and are also not amenable to displacement.

Naylor on Syr. Hypophos. Co., B.P.C.

The suggestion by Bird that the sulphuretted odour sometimes emitted by syrupus hyposphos. co., B.P.C., is due to the reduction of sulphates by free hypophosphorous acid appears to be negatived by some experiments conducted by W. A. H. Naylor, whose experience leads him to attribute the phenomenon to the action of the acid upon sulphites. No hypophosphite containing other impurity than a sulphite has been found to give off a sulphuretted odour, nor has any sample examined given off phosphoretted hydrogen. The results of the examination of a number of commercial samples of hypophosphites show that phosphites were present in all but one. With regard to the keeping properties of syrup. hypophos. co., B.P.C., when made with "commercially pure" ingredients, it can be stored in bulk in glassware for three or four weeks without undergoing change. To prolong the period during which it will remain bright, it was recommended that eighty grains of potassium citrate should be added to each pint.

Braithwaite on Tolu Balsam.

A spurious balsam of tolu, somewhat darker and more tenacious than the genuine, and possessing a less fragrant odour, and weaker taste, was described by J. O. Braithwaite. It differs from genuine balsam of tolu in its behaviour with carbon bisulphide, and the saponification equivalent of the insoluble residue is very low, approaching that of copaiba resin. It is suggested by the author that the saponification equivalent of the residue from genuine balsam should not fall below 300°.

Greenish on Ipecacuanha Powder.

In a paper read at an evening meeting of the Pharmaceutical Society in February last, Professor Greenish showed how ipecacuanha root and stem may be distinguished in the state of powder, and also how Brazilian and Carthagena ipecacuanha may be distinguished in the same condition. It became manifest, therefore, that the ordinary processes of assay might be usefully supplemented by a microscopical examination of the powdered drug. A chemical assay alone is insufficient, for, as pointed out, it is not enough to know that a powdered ipecacuanha contains 2 or 2·5 per cent. of alkaloid capable of being extracted by a particular method, and yielding the emetine reaction. Sawdust mixed with the alkaloid obtained in de-emetinising ipecacuanha might then be regarded as complying with the requirements to be demanded of a good sample of powdered ipecacuanha. The two assumptions commonly made when powdered ipecacuanha is valued by the result of the assay—first, that the alkaloid extracted consists of nothing but the alkaloid pre-existent in the drug; secondly, that such alkaloid is the sole active principle in the drug and alone regulates its physiological effect—may be either or both incorrect. The liability to error is much diminished if the freedom of the powdered drug from foreign admixture is previously determined by the microscope, but before such an examination of a powdered drug can be undertaken with any prospect of obtaining reliable results, the pharmacist must familiarise himself with the structure of the genuine drug. He will then be in a position to detect that which is not genuine; the determination of the nature of the impurity is of secondary importance. A minute examination of a number of different commercial samples of the genuine drug having been made by the author, he next obtained thirty-two samples of the commercial powdered drug from pharmacists in London and the provinces, and carefully examined them with the view of ascertaining whether they consisted of genuine ipecacuanha, also from what commercial variety they had been prepared, and the commercial quality of the drug that had been used, particular attention being directed to the presence of stem and of an undue proportion of wood. The results were embodied in a table which shows that none of the samples were adulterated with foreign starch or foreign drugs. Twelve samples proved to be powdered Carthagena ipecacuanha, and amongst the twenty classed as Brazilian some few may have been in reality Carthagena, whilst amongst those classed as Carthagena some may be mixtures of Carthagena with Brazilian. It is impossible to satisfactorily distinguish some exceptional samples of Carthagena ipecacuanha from the Brazilian drug. At the same time, since Carthagena ipecacuanha is not at present official in the British Pharmacopœia, its use must be regarded as a substitution. Only one sample could claim to be regarded as a powder of really good Brazilian root free from stem, and it was asserted that much of the powdered ipecacuanha sold by pharmacists contains an undue proportion of stem. Though free from gross adulteration or substitution, therefore, the powdered ipecacuanha of English commerce appears to be comparatively rarely prepared from high grades of Brazilian root.

Jones on a Still Alarm.

This contrivance, described for the inventors by Mr. John Moss, has been designed by N. C. and P. W. Jones with a view to preventing the overflow from receivers that occasionally takes place in laboratories where distillation is going on from a number of stills, and any one receiver is not sufficiently capacious to accommodate the whole of the distillate from one charge. The "alarm" consists of a vertical board carrying two arms, one over the other, which form the terminals of an electric circuit. The upper and longer arm has at the free end a bearing or guide for a vertical float rod. Attached to the underside of the arm is a short balanced rod, which is thrown out of its equilibrium when the float rod rises, being actuated by a fixed collar on the latter. The other end of the balanced rod is thus depressed so as to become immersed in a mercury cup at the extremity of the shorter arm, and so completes the circuit, and causes an electric bell to ring. When in use the float, which may be of glass, copper, or aluminium, dips into the receiver, and as soon as the level of the distillate is sufficiently high the float rises and the bell rings.

Bird on Acetic Extract of Ipecacuanha.

There is a considerable loss of alkaloid when acetic extract of ipecacuanha is prepared by the official process, so much so as to cause a marked disproportion between the percentage existing in the root and that found in the finished extract. Paul and Cownley have demonstrated that both emetine and cephaeline are affected when their acetic solutions are evaporated to dryness and exposed to the temperature of a water bath for any length of time, and it follows accordingly that the period of evaporation should not be unduly prolonged. In Dr. Attfield's recent report to the Pharmacopœia Committee of the General Medical Council some improvements in the official formula are suggested which will probably tend to decrease the amount of alkaloid destroyed, and F. C. J. Bird, in working with a

semi-alcoholic extract, has obtained some results which are likely to prove useful in the same direction. By macerating eight ounces of the root in No. 60 powder, with one fluid drachm of glacial acetic acid and eight fluid ounces of rectified spirit, and subsequently percolating with spirit until exhausted, a liquid was obtained which left a syrupy residue on distillation. This was evaporated to dryness, and the marc was then exhausted with a mixture of four ounces each of acetic acid and distilled water and subsequent percolation with more water. This aqueous extract was also evaporated to dryness and mixed with the alcoholic extract, the whole being powdered. As a result of this process there is a considerable saving of alkaloid, which might be still further increased by drying the syrupy alcoholic extract on glass plates, at a low temperature. The resulting powder has a much more decided odour of ipecacuanha than the B.P. product. With regard to the standardisation of ipecacuanha wine, it was suggested that, instead of ensuring a constant strength by the use of a quantity of powdered extract containing a stated amount of alkaloid, it might be better to fix a definite strength for the extract and adjust any variation from the standard by the addition of milk sugar or other harmless diluent.

Liverseege on Tinct. Lobeliæ.

In the Pharmacopœia it is stated that lobelia should be reduced to No. 40 powder for preparing the tincture, but J. F. Liverseege finds that only about forty per cent. can be made to pass through a No. 40 sieve, working on the small scale, and with a pestle and mortar. In view, therefore, of the fact that pharmacists might be in doubt whether, under the circumstances, they should use the specified quantity of the drug powdered as finely as possible, or take a larger quantity and make up the full weight from the powder that passes through the sieve, he has investigated the point whether the latter method would yield stronger tincture or not. As a result of experiments, it appears that a tincture prepared from the fine powder contains rather more than one and half times as much extractive and alkaloid as one prepared from the stalks left on the sieve. It was suggested, therefore, by the author that the official instructions should be so far modified as to permit of the tincture being prepared by pharmacists, on the small scale, with ordinary appliances. The same suggestion was also applied to the formulæ of other B.P. tinctures.

Davis on Cinchona Tincture.

Experimental data were given by F. Davis to show that, by the use of a mixture of glycerin and spirit a better tincture of cinchona can be prepared than by means of spirit only.

Appointment of Formulary Committee.

The papers having all been read and discussed, the concluding business of the Conference was then proceeded with (see p. 108 *et seq*). The Unofficial Formulary Committee was re-appointed, on the motion of Mr. J. C. Umney, seconded by Mr. F. C. J. Bird, and Mr. T. B. Groves thanked the members for their continued confidence in the Committee.

Presentation of Books.

The President next presented a gift of books to the Bournemouth Pharmaceutical Association, in accordance with the usual practice, the cost of the books being defrayed from the Bell and Hills Fund. Mr. G. E. Bridge, in acknowledging the gift, remarked that the books would for the present be kept in the Bournemouth public library, permission having been obtained from the Town Council for the librarian to take charge of them until such time as the Association should possess premises of its own. Mr. Stewart Hardwick also thanked the Conference for the gift.

Meeting at Liverpool in 1896.

An invitation for the Conference to visit Liverpool next year was conveyed by Dr. Symes and Mr. J. Smith, and on the motion of Mr. T. B. Groves, seconded by Mr. G. C. Druce, the invitation was unanimously accepted.

Vote of Thanks to the Local Executive.

A vote of thanks to the Local Executive Committee for the excellent manner in which they had made the necessary arrangements for the Bournemouth meeting and provided for the comfort of the visitors, was cordially awarded on the motion of Mr. S. Atkins, seconded by Mr. J. Mathews. Messrs. Hardwick, Toone, Bilson, and Williams, in responding, expressed the great pleasure they had experienced in helping to entertain the visitors, and said that the labour involved had been equally shared by the whole of the Bournemouth pharmacists.

Election of the Executive.

As the result of the ballot for the election of officers, Mr. Wm. Martindale was elected President; Messrs. M. Carteighe, J. Laidlaw Ewing, W. Hayes, and M. Conroy, Vice-Presidents; Mr. John Moss, Treasurer; Messrs. W. A. H. Naylor and F. Ransom, Honorary General Secretaries; and Mr. T. H. Wardleworth, Honorary Local Secretary. Messrs. F. C. J. Bird, E. H. Farr, E. M. Holmes, Stewart Hardwick, W. F. Wells, Edmund White, R. Wright, George Coull, and J. Smith were also elected members of the Executive Committee, and Messrs. F. Spinney and A. S. Buck were appointed auditors.

Further Votes of Thanks.

Mr. Martindale having thanked the members for electing him President for the second time, Messrs. Carteighe and Moss then proposed that Mr. N. H. Martin be thanked for the manner in which he had officiated as President during the past twelve months. This was unanimously accorded and duly acknowledged by Mr. Martin, and the thanks of the meeting having been also accorded to Messrs. Naylor and Ransom for their services, the proceedings then terminated.

BOURNEMOUTH PHARMACEUTICAL ASSOCIATION.

On Tuesday evening, Mr. G. E. Bridge, the President of the Bournemouth Pharmaceutical Association, and Chairman of the Local Executive Committee of the Conference, entertained the whole of the members of the Association at dinner at the Grand Hotel, Bournemouth, to meet the President of the Conference and the President of the Pharmaceutical Society. The Association is one of the youngest in the kingdom, but it is gratifying to find that it comprises practically the whole of the local pharmacists, and that the result of their union has been to create a general feeling of goodwill and unanimity in matters relating to the craft. The Local Executive Committee of the Conference was virtually identical as regards membership with the Association, and we gladly pay a well-earned tribute to the eminently satisfactory manner in which all the arrangements were carried out at the Bournemouth meeting, as well as to the genial hospitality extended to the visitors.

BRITISH PHARMACEUTICAL CONFERENCE.

MEETING AT BOURNEMOUTH.

The business of the Pharmaceutical Conference commenced on Tuesday morning, at 10 o'clock, in the Shaftesbury Hall, when the chair was taken by the President, Mr. N. H. Martin, of Newcastle-on-Tyne. He opened the proceedings by expressing his regret that the Mayor of Bournemouth was unfortunately unable to be present, but the Deputy-Mayor, Alderman Newlyn, had been kind enough to come in order to give a welcome to the Conference.

Mr. Alderman Newlyn, in the name of the Corporation and town of Bournemouth, offered a cordial welcome to the Conference. He said he had no doubt that the name of Bournemouth was known to all, as its fame had spread almost throughout the universe, and amongst sanitoria it stood second to none; but such visits as the present of gentlemen held in such honour by the medical profession must tend to increase the fair fame of the town. It had been the endeavour of the governing body to assist nature in laying out the town to the best advantage, taking into their confidence and obtaining the aid of those most capable of judging of such matters. He need scarcely allude to more than one circumstance which would enforce what he had said, and that was that Bournemouth was recognised as the sanatorium of England. He concluded by expressing the hope that their visitors would go away with very pleasant memories of their visit.

Dr. Lys said he had great pleasure in adding a word of welcome on behalf of the medical profession of Bournemouth. Medical men there, as everywhere, recognised fully the great aid which pharmacy had rendered in the past, and was still rendering to the art of medicine. Even the most conservative must recognise the value of some of the British Pharmaceutical Conference formulæ, and at a time when the revision of the British Pharmacopœia was imminent, and when it was being discussed in all medical circles, he might well offer a welcome to such a gathering as the present. It was a happy omen that the Conference met in a town where pharmacy held so high a position. Bournemouth stood very high in respect to the separation of medicine and pharmacy, which in that neighbourhood was almost complete. Personally he looked back on his experience of dispensing with pleasure and interest, but he recognised the value of strictly pharmaceutical work, and concluded by wishing the Conference a pleasant and successful meeting.

The President, in the name of the Conference and his own, tendered his thanks to Alderman Newlyn and Dr. Lys for their kind welcome. It was quite true that the name of Bournemouth had been known far and wide for many years. The imagination of those who lived in such a place as Newcastle could scarcely conjure up the picture of such a beautiful place, and for the first day or two of one's visit one could hardly restrain some natural feelings of envy for those who were privileged to live there, but he hoped better feelings would prevail, and that after spending a week there they would all go away with the idea that after all life was worth living, if only one could live in Bournemouth. The Corporation of the town was to be congratulated very much on the excellent taste with which it had laid out the beautiful country, and made such use of the many natural advantages, which were not to be found elsewhere. Every street and almost every house was a thing of beauty. It was very gratifying to be welcomed by a representative of the medical profession. As Dr. Lys had said, medicine and pharmacy were so intimately connected that they were really dependent upon one another. He was glad that the work of the British Pharmaceutical Conference Formulary Committee had been recognised. Before that Committee set to work there was often a difficulty with regard to formulæ for the new drugs which came into the market from time to time, and which medicine required to use, but which sometimes suffered from diversity of formulæ. In the case of strophanthus, a good tincture had been devised by the Committee, and to its general use he believed a good deal of the reputation of that useful drug was due. He concluded by again thanking Alderman Newlyn and Dr. Lys for their kind words of welcome.

The presidential address (see p. 93) was then delivered after which

Mr. G. F. Schacht (Bristol) moved a vote of thanks to the President for his address. It would be out of place for him to offer any comment upon it, except in the most friendly terms; criticism of the various points raised must come afterwards, when it had been carefully considered, but he might be allowed to say that he had listened to it with very great pleasure. On hearing the address last year it struck him that Mr. Martin would have a difficult task to interest them as much on a second occasion as he did then, but he had certainly triumphed over the difficulty very well, Without entering into any minute points, he might be allowed to emphasise his appreciation of those portions of the address which dealt with the training and education of the young pharmacist, and with the great subject of research, which had been treated with very great judgment. He would not say more, but the address was that of an earnest and courageous man, who had given in a manly-straightforward way a very intelligent view of the relation of pharmacy to the community, and the present conditions of the profession.

Mr. G. E. Bridge (Bournemouth), as representative of the local association, seconded the motion. He saidthey must all feel how well the President had grasped the subject he had dealt with. They were all anxious to see pharmacy take a higher position, and no one who lived in such a town as that could doubt the absolute necessity that young men should be better educated before entering on the calling. They were all grateful to Mr. Martin for the way in which he had handled the subject; and he hoped the whole world of pharmacy would seriously consider the points which had been brought forward.

Mr. S. Hardwick, in supporting the motion, thanked the President for recognising and calling attention to the fact that there were still some men who had a real love for pharmacy; it was on such men they must rely to raise the standard.

Mr. T. B. Groves, F.C.S. (Poole), Vice-President, put the motion, which was carried unanimously.

The President, in responding, said he wished the enthusiasm shown at these meetings were better carried out in daily life. A great deal was talked about education, but some stronger assurance that they were in earnest about it was required. That could only come from enlisting into their ranks men who had a love for natural science for its own sake. His old master, Henry Deane, often said that pharmacy as a bread-and-butter calling was drudgery, but pharmacy as an intellectual calling was one by which every man had a right to live, and to demand from the public a fair reward for his labour. In the matter of pecuniary reward he considered the chemist was most modest; he could not be overpaid for the amount of high-class work he gave to his calling. If they could only enlist into their ranks men who had had a good initial training and some love for pharmacy for its own sake, he had great hopes for pharmacy in the future. When the address was printed he should welcome the fullest criticism on every point, and should be glad to offer all the help he could to the solution of the questions raised. His great desire was to help forward in the great

FINANCIAL STATEMENT FOR THE YEAR ENDING JUNE 30, 1895.

THE HON. TREASURER IN ACCOUNT WITH THE BRITISH PHARMACEUTICAL CONFERENCE.

July 1, 1894. *Dr.*	£ s. d.	£ s. d.
To Assets forward from last year—		
Cash in Secretary's hands	0 17 0	
Cash at Bank	0 10 9	
Messrs. Churchill's Account	82 18 5	
		84 6 2
June 30, 1895.		
To Sale of Year-Book by Publishers		14 6 8
,, Advertisements, 1894 volume	65 14 6	
,, ,, 1893 ,,	2 12 0	
		68 6 6
,, Members' Subscriptions, Amount received from July 1, 1894, to June 30, 1895		454 9 9
,, Index Book, Sales by Publishers	0 0 0	
,, ,, ,, ,, Secretary	0 0 0	
		0 0 0
,, Unofficial Formulary, Sales by Publishers	13 1 0	
,, ,, ,, Secretary	0 2 0	
		13 3 0
,, Returned by Grantee		3 0 0
,, Liability on Outstanding Account, Assist.-Secretary's Salary		13 15 0
		£651 7 1

June 30, 1895. *Cr.*	£ s. d.	£ s. d
By Expenses of Year-Book :—		
Printing, Binding, Publishing, etc.	292 7 0	
Postage and Distributing	26 13 5	
Advertising and Publishers' charges	17 10 6	
Editor's Salary	150 0 0	
Advertising in Conference Handbook	2 10 0	
Foreign Journals for Editor	5 17 6	
		494 18 5
,, Unofficial Formulary :—		
Printing, Binding, etc.	13 2 1	
Advertising	5 9 0	
Publishers' Commission	1 6 0	
Carriage	0 2 0	
		19 19 1
,, Sundry Expenses :—		
Assistant-Secretary at Oxford	10 0 0	
Copies of President's Address	0 13 6	
		10 13 6
,, Assist.-Sec.'s Salary from July 1, 1894, to June 30, 1894	45 0 0	
,, Rent of Office	10 0 0	
		55 0 0
,, Blue List, Printing	3 0 0	
Postage	2 10 3	
		5 10 3
,, Postages		11 7 11
,, Printing and Stationery		9 19 0
,, Bank Charges		0 0 5
,, Petty Cash Expended		4 14 10
,, Liabilities of last year, since paid		5 14 1
,, Grant for Research		4 0 0
,, Cash in Secretary's Hand, Postage £1 16 5		
Petty Cash 0 9 7		
	2 6 0	
,, Cash at Bank	27 3 7	
		29 9 7
		£651 7 1

THE BELL AND HILLS FUND.

1894.		£ s. d.	£ s. d
July 1.	To Balance in hand	15 0 3	
1895.			
June 30.	,, One Year's Dividend on Consols	9 11 8	
			24 11 11
	By Purchase of Books for Oxford	8 2 0	
	,, Dividend on Consols overcredited by Bank, 1893-94	0 2 0	
			8 4 5
	Balance in Bank		16 7 6
	Assets—		
	Cash Balance at Bank	16 7 6	
	£360 2¾ Consolidated Stock	360 0 0	

July, 1895. Examined and found correct { C. CLAYTON, F. SPINNEY, } Auditors.

problem of lifting pharmacy out of the rut of trade, and making it a branch of the great medical profession.

RECEPTION OF DELEGATES.

Mr. NAYLOR (Hon. Sec.), then read the following list of delegates :—

Pharmaceutical Society of Great Britain.—Messrs. M. Carteighe (President), J. Harrison (Vice-President), R. Hampson (Treasurer), Atkins, Bottle, Grose, Hills, Martin, Martindale, Schacht, and Warren ; The Editor, Sub-Editor, and Secretary.

North British Branch.—Messrs. J. Laidlaw Ewing (Chairman), W. L. Currie (Vice-Chairman), and J. Nesbit.

Pharmaceutical Society of Ireland.—Messrs. G. D. Beggs (Vice-President), Baxter, Payne, Tichborne, and Wells, jun.

Birmingham and Midland Pharmaceutical Association.—Messrs. D. Gibbs, Hines, Alcock, and C. Thompson.

Bristol Pharmaceutical Association.—Mr. G. F. Schacht.

Liverpool Chemists' Association.—Messrs. Buck, Conroy, Cowley, Smith, Symes, and Wardleworth.

London Chemists' Assistants' Association.—Messrs. Guyer, Moore, Strother, and E. A. Umney.

Manchester Pharmaceutical Association.—Messrs. Johnstone, Kemp, Pidd, and Smith.

Brighton Chemists' Association.—Mr. Gibson.

Exeter Association of Chemists and Druggists.—Messrs. H. Wippell, Gadd, and J. Hinton Lake.

Plymouth, Devonport, Stonehouse, and District Chemists' Association.—Mr. C. J. Park.

Swansea and District Association of Chemists and Druggists.—Messrs. Grose and Hughes.

Letters of apology for their absence had been received from Professor Greenish and Messrs. Bell (Hull), Cripps (Hayward's Heath), Gerrard (Chertsey), Hayes (Dublin), Johnston (Aberdeen), Siebold (Manchester), Ward (Sheffield), Wright (Buxton), Allen (Sheffield), Tyrer (Stratford), Charles Umney (London), R. Reynolds (Leeds) Walter Hills (London), and Wells (Dublin).

REPORT OF THE EXECUTIVE COMMITTEE.

Mr. RANSOM next read the following report of the Executive Committee.—

Report of the Executive Committee.

"Since the last general meeting your Committee has met on several occasions, and various matters affecting the interests of the Conference have received its consideration.

"In the last annual report attention was called to the desirability of increasing the membership, and this subject has recently been brought prominently before your Committee in consequence of the serious diminution of income from subscriptions. After full discussion as to the best methods to be adopted to obtain an increase in the number of members, it was decided that a special circular should be drawn up by your President and Honorary Secretaries, and that a copy should be sent to each member of the Conference, urging upon him the necessity of individual effort to obtain candidates for election. A circular to this effect was accordingly dis-

tributed in May, and your Committee is pleased to be able to report that during the few weeks that have since elapsed, 87 candidates have been nominated and duly elected to membership. Letters in reply to the circular have also been received from various members expressing their conviction of the continued usefulness of the Conference, and their appreciation of its official publication, the 'Year Book of Pharmacy.' The result so far is encouraging, but it is important that personal effort in this direction should be maintained. The number of paid up members on June 30, the end of the financial year, was 1130. During the past year, the Conference has lost 26 members by death, and 14 by resignation, while 136 new members have been elected.

"Your Committee has had under consideration certain suggestions relative to the conduct of the general meetings; these, if adopted, would involve an additional morning being devoted to the reading and discussion of papers and the abolition of the afternoon sittings. After a detailed consideration of the proposals submitted, it was decided that it was not desirable to alter the existing arrangements.

"The Blue List has been subjected to revision, and certain necessary alterations have been made. Members are invited to suggest subjects which require investigation to be included in a future issue of this List.

"A grant of £4 has been made to Mr. Ernest J. Parry, B.Sc., towards expenses incurred in a chemical investigation of sandal wood oil. A report upon the results of his work will be presented to this meeting.

"Mr. R. A. Cripps, F.I.C., to whom grants have previously been made in connection with his work upon ipecacuanha, will also report to this meeting.

"The Conference has lost a distinguished honorary member by the death of Professor F. A. Flückiger, of Berne. On several occasions he has generously contributed valuable papers to the meetings of this Association. From his numerous researches in materia medica, and especially as joint author with the late Daniel Hanbury, of that uniq6e work 'Pharmacographia'; his name has long been familiar to all English-speaking pharmacists.

"Mr. Louis Siebold, F.I.C., F.C.S., has been re-appointed Editor of the 'Year-Book,' and the MS. of Parts I. to IV. is now in the hands of the printers.

"The reception by the President was held last night at the Hotel Mont Dore, and was largely attended by members and their friends."

Mr. Moss (Treasurer) read and explained the financial statement, which is printed on page 109.

The President moved the adoption of the Report of the Executive Committee and the Financial Statement. He said the report was very satisfactory, especially in view of the experience of the last month or two. During the last year there was a feeling in some quarters that the Conference was becoming moribund, and in consequence a circular was sent out which had resulted in obtaining forty-seven new members in a very short time, and what was still more gratifying was the tone of the letters received. Many had written saying how thoroughly their sympathies were with the Conference, how they appreciated the Year-Book, and stating their determination that the usefulness of the Conference should not be diminished for want of resources. Several wholesale firms had expressed their readiness to give special donations if financial assistance were required, so that there was no fear of the Conference ever being in financial difficulty. During the past year they had lost forty members, twenty-six by death, and it was evident that to meet losses by death and resignation it was necessary that a considerable number of new members should be added each year.

Mr. Conroy (Liverpool), seconded the motion.

Dr. Symes (Liverpool), in supporting the motion, expressed hi conviction that every member would, if it were thought advisable, willingly increase his subscription by 10*s.* per annum, rather than there should be any pecuniary pressure. He thought such a measure would be preferable to obtaining special donations from outside.

The motion was then put and carried unanimously.

Report of the Unofficial Formulary Committee.

Mr. Naylor then read the following:—

Report of the Unofficial Formulary Committee.

To the British Pharmaceutical Conference in session.

Having issued a revised Formulary in July last year this Committee has not since taken any steps. Suggestions from correspondents have been received and noted, but as some members of the Committee are also members of the Pharmacopœia Committee of the Pharmaceutical Society of Great Britain, the powers of the Formulary Committee will probably be in abeyance for a time. Still it is desirable that the latter Committee should be re-appointed by the Conference.

Wm. Martindale,
July 18, 1895. *Chairman.*

The reading and discussion of papers were then proceeded with (see page 104), and continued, with the usual interval for luncheon, until four o'clock.

SECOND DAY.

On Wednesday the reading and discussion of papers were resumed, and during the afternoon the business of the Conference was brought to a close by the transaction of the usual formal business.

Appointment of Formulary Committee.

Mr. J. C. Umney proposed the re-election of the Formulary Committee, Messrs. Martindale, Naylor, Abraham, Greenish, Groves, Maben, Martin, Ransom, Reynolds, Symes, and Wright. He did so with all the more pleasure on account of what they had heard from the President of the Pharmaceutical Society that morning, as to the manner in which the work of the Committee was appreciated by the Medical Council.

Mr. Bird seconded the motion, which was carried unanimously.

Mr. T. B. Groves on behalf of the Committee returned thanks for their re-election, saying he could not promise to do as much work personally as he had in former years, but if it was desired that his name should be retained, he would do what he could.

The President said the work of this Committee might not be so important this year, the British Pharmacopœia being under revision, but it was just as well that the Committee should remain in existence, although it might not do much active work for a year or so.

Presentation from the Bell and Hills' Fund.

The President said one of the most pleasing duties which fell to the lot of a President of the Conference was that of presenting to the local association of the town where the meeting was held a few books in commemoration of the visit. In the present case, as usual, they had consulted the Local Committee as to the books they would like, and it was found that they were not only up to date, but even wanted some books which were still in the press, so that the presentation at the present moment was not quite complete. They had chosen Thorpe's 'Dictionary of Chemistry,' and Kerner and Oliver's 'Natural History of Plants.' The latter was coming out in parts, and they could only therefore present the first volumes at present; but the others would be added when ready. To these were added the 'Science Papers' and 'Pharmacographia,' contributed by Mr. Thomas Hanbury in memory of his brother, Daniel Hanbury. He had much pleasure in making the presentation to Mr. Bridge, the Chairman of the Local Committee.

Mr. Bridge said it was a great pleasure to him to receive these books, but he must say that the credit of the selection was due to the local secretary, Mr. Hardwick. Although they had a local society, of which he was proud to be President, he was sorry to say that they had no home of their own, and arrangements had been made for placing them in the public library, under the care of the librarian. The Town Council had been kind enough to undertake the charge of them under the following conditions:—They would

be placed in the Reference Library, where they could be consulted by any of the public, but could only be borrowed by their own members, and the right was reserved to remove them, if at some future time they had a room of their own in which to keep them.

Mr. Hardwick assured the Conference that these books would be largely read by the local members, who were looking forward to deriving much profit from their use.

Mr. Schacht said he hoped the local association would soon have a home of its own in which to place the books. The Bristol Association, being in similar circumstances, deposited the books in a public library in Bristol, with regulations such as Mr. Bridge had mentioned, and unfortunately the public were not as careful as they might be, some of the books were injured, and some entirely lost. He should have been glad to hear that these books would have been left in the care of the President or one of the members of the local society.

Mr. Bridge said the Committee would make a note of Mr. Schacht's remarks, and consider the suggestion he had thrown out.

Place of Meeting for 1896.

Dr. Symes, in the name of the chemists of Liverpool and Birkenhead, invited the Conference to meet in Liverpool next year. It was now twenty-five years since they met in Liverpool, and he regretted to say that a great many who were then active members, both residents and visitors, had passed away; but there were many still left, and if the Conference were good enough to accept the invitation he was instructed to offer, they would do their best to make the meeting a successful one. He need not enlarge on the advantages of Liverpool; it was the second city in the Empire, with miles of docks, immense numbers of ships, and many modern improvements, such as an elevated electric railway, and the Mersey tunnel, and streets and warehouses of immense extent containing produce from all parts of the world; all which matters would be of interest to intellectual men such as attended the Conference. A good committee had been appointed, and no effort would be spared to carry out the arrangements satisfactorily.

Mr. J. Smith supported the invitation. The chemists in Liverpool were very sensible of the splendid work which was being done by the Conference, and felt it was only their duty to offer such hospitality as they could to the Conference, and to do all they could to strengthen it and extend its influence. There were in Liverpool two very flourishing societies, the Liverpool Chemists Association, one of the oldest in the country, and the Liverpool Pharmaceutical Students' Society, and in the officers of those societies they had the machinery for making the visit a successful one. There were other attractions besides the docks and shipping. Liverpool was on the high road to Scotland, North Wales, Ireland, and other places, and many he hoped would find it very convenient to take the Conference on their way to a further holiday.

Mr. T. B. Groves, who said he had a lively recollection of the first visit to Liverpool, under the presidency of his friend Mr. Stoddart, and should be glad to repeat his visit there, moved that the Conference accept with many thanks the invitation from Liverpool.

Mr. G. C. Druce had much pleasure in seconding the motion. He had never seen Liverpool and feared he never should see it, except under some such circumstances as a visit of the British Pharmaceutical Conference, or possibly on the route to a transatlantic journey. He was told there was an excellent atmosphere there, compared with Manchester; and that it was considered a very pleasant place by those who knew Oldham; but be that as it may, he was looking forward with great anxiety to visit it. They who lived in Oxford were supposed to be rather reactionary in their tendencies; Bournemouth was a place where they toiled not, neither did they spin; in Liverpool they would come in closer contact with more active minds, and perhaps more democratic tendencies. At any rate, if it were true that the Conference was not quite so active as it might be, and not so fully representative, no doubt coming in contact with the second city of the kingdom would certainly enlarge their numbers, and probably increase their mental activity.

The President in putting the resolution said he should strongly support it as the last act of his official life, and it was immediately carried by acclamation.

Dr. Symes thanked the Conference for so cordially accepting the invitation, which he said would strengthen the hands of the Committee in making the arrangements.

Election of Officers.

The President having explained that it was open to anyone to expunge any name from the list suggested by the Committee or substitute any other, ballot papers were handed round, and Mr. Robertson and Mr. Basker were nominated as scrutineers.

After a short interval they announced that the following had been unanimously elected:—

President.—W. Martindale, F.C.S., London.

Vice-Presidents.—Michael Carteighe, F.I.C., F.C.S., London; J. Laidlaw Ewing, Edinburgh; W. Hayes, Dublin; M. Conroy, F.C.S., Liverpool.

Treasurer.—John Moss, F.I.C., F.C.S., London.

Honorary General Secretaries.—W. A. H. Naylor, F.I.C., F.C.S., London; F. Ransom, F.C.S., Hitchin.

Honorary Local Secretary.—T. H. Wardleworth, Liverpool.

Other Members of the Executive Committee.—F. C. J. Bird, London; E. H. Farr, Uckfield; E. M. Holmes, F.L.S., London; Stewart Hardwick, Bournemouth; W. F. Wells, Dublin; Edmund White, B.Sc., London; R. Wright, F.C.S., Buxton; George Coull, B.Sc., Leith; J. Smith, Liverpool.

Auditors.—F. Spinney, Bournemouth; A. S. Buck, Liverpool.

Votes of Thanks.

Mr. Laidlaw Ewing moved that the hearty thanks of the meeting be given to the manager of the Mont Dore Hotel for the use of the hotel in connection with the holding of the garden party and the reception by the President of the British Pharmaceutical Conference. They must all congratulate the Local Committee on having obtained such beautiful headquarters, and the use of the large hall and gardens had tended very much to the comfort and enjoyment of the members of the Conference.

Mr. Collier seconded the motion, which was carried unanimously.

Mr. S. R. Atkins moved that the warmest thanks of the visiting members of the Conference be given to the Local Committee, and especially to Mr. Bridge, the Chairman; Mr. Hardwick, the Local Secretary; and to Messrs. Bilson, Toone, and Williams for the very successful manner in which the various arrangements connected with the Bournemouth visit had been carried out. He said he was very happy to have the privilege of moving this resolution. Up to date the meeting had been a most successful one; and now that the business portion was over it was only fitting to pass such a resolution, though he was not unmindful of the fact that there were other favours yet to come. The meeting had been in every respect a marked success, and to secure that result at least two things were essential. There must have been careful forethought as to what was required, and secondly, the most careful attention to details. He felt partly pleased, as a resident in the southern district, that the meeting

was held in Bournemouth. It was not possible for a small place like Salisbury to entertain such an august assembly, but when it came so near, they felt as though they had a share in it. It was a most charming locality, with diversified scenery, and he had watched the growth of Bournemouth from year to year with great interest and pleasure, for it might almost be compared to Chicago; and at last he was quite amazed to see what it had become. They found elegant pharmacy of the true type flourishing here, and it was an additional source of gratification. In conclusion he desired on behalf of the ladies to express their sense of obligation to the ladies of Bournemouth for what they had done to make them welcome.

Mr. John Mathews seconded the motion.

The President, in putting it, said he thought Mr. Atkins had for once in his life made a mistake in comparing Bournemouth to Chicago, for anything more unlike he could hardly conceive. He had attended several meetings of the Conference, and had acted on Reception Committees, but he had never known a case in which all the arrangements were so perfect.

The motion was carried by acclamation.

Mr. Hardwick said he felt it a proud moment to stand there and acknowledge this vote of thanks on behalf of the chemists of Bournemouth, for they had all helped, and even some gentlemen outside the immediate district. They all knew how Mr. Bridge, the Chairman, had worked, and the musical programme was entirely his doing. To Mr. Bilson and Mr. Williams were due chiefly the arrangements for the excursion on the morrow, which he hoped would be thoroughly enjoyed. Messrs. Endle and Jones had constantly given advice, and, in fact, everyone had helped in one way or other. He should like to borrow the words used the other day by Sir Henry Irving, when he said that the greatest honour that a man could receive was the appreciation of his comrades and fellow-workers, and with that feeling he thanked them most heartily for this vote. Before sitting down he should like, though the regular business was over, to place on record an original observation which he had made, and which, he had no doubt, other local secretaries had made in times past, though they had not published it. He had discovered that if anyone wanted to thoroughly enjoy a Conference meeting he should first of all plan to get the Conference invited to his own town, and then get himself nominated local secretary.

Mr. J. A. Toone also responded. He was glad that Mr. Hardwick had mentioned other names because those mentioned in the resolution really only represented the rest; they had all worked hard together since last autumn, more or less, and their meeting together had been very pleasant, and conduced very greatly to good-fellowship. There was only one danger which some of them apprehended, which he might as well mention. Some two or three years ago they had a meeting of the British Medical Association there, which they much enjoyed, but in the course of a few weeks or months afterwards some twenty or thirty new doctors set up in practice, and there was a vague idea that if the Conference came there they might shortly afterwards be inundated by pharmacists from other parts of the country. He should like, therefore, to correct any false impression anyone might have about Bournemouth. It was a very nice place to live in, but it was only a poet's dream to speak of it as an El Dorado or anything of that sort.

Mr. Bilson and Mr. Williams also responded briefly.

Mr. W. Martindale, after apologising for his absence during the Conference sitting, owing to his presence being required in London in connection with the meeting of the British Medical Association, then thanked the members for the honour they had conferred upon him in electing him as President for the ensuing year. He felt some diffidence in accepting the post, for he found the stress and worry of business life rather tended to exhaust one's energies, but he would promise to do his best.

Mr. Carteighe said he had to propose a vote of thanks to a gentleman whose name he was sure would be received with acclamation on this occasion, although they might have some little reckonings to go through with him in private. This gentleman was a great success in the capacity of chief; he was not only gifted with abilities of the highest order, but with a good deal of enthusiasm, and was overflowing with energy. He did not remember any meeting of the Conference where the interest and enthusiasm were so well sustained as during the last two meetings by the President, Mr. Martin; and the resolution he had to move was that "the heartiest thanks of the Conference be accorded to the President for the ability and enthusiasm with which he has discharged the duties of his office and conducted the business of this meeting." The duties of the President were not confined to presiding at the public meetings, and he knew from personal association with Mr. Martin during the last two years how he had devoted himself to the business of the Conference, sparing no pains and denying himself much in order to be present at all the meetings of the Conference, and to throw himself heart and soul into the interests of the body he represented. He desired to thank him most heartily for the success which had crowned his efforts, and he hoped his experience in presiding over his *confrères* might tend to increase his feelings of regard and affection for them, of which they had sometimes felt a little doubt.

Mr. John Moss seconded the motion with great pleasure, Mr. Martin being about his oldest friend in connection with pharmacy. They came to know each other many years ago, when they attended the same lectures, sat on the same bench, read the same books, and compared notes with each other. In these days they looked on the position of President either of the Pharmaceutical Society or the Conference with some reverence and a good deal of awe. He now saw Mr. Martin in that honoured position, and though he did not regard him with reverence or awe, that feeling had given place to one which was more satisfying to the man who held it, and more gratifying to him who inspired it. With regard to the resolution, he would only ask them to remember how the meetings had been conducted, how the President had made a few suggestive comments on each paper, directing the discussions, and eliciting the best results from the various papers brought before them, so that he might truly say that Mr. Martin had been not only a good but a brilliant President.

The motion was put by Mr. Carteighe, and carried by acclamation.

The President, in reply, said when he was first invited to become President he had great misgivings as to whether he could properly fulfil the duties, but the invitation reached him in Chicago, and he was so inspired by what he saw around him there that he—perhaps unwisely—accepted, and for the next twelve months existed in a state of constant trepidation. Then came the meeting at Oxford, and in that ancient seat of learning he was able, with the assistance of the past presidents and the general secretaries, to whom they owed so much, to get through the duties, and again felt rather elated, on being re-elected for a second year, at the prospect of presiding over the Bournemouth meeting. Again, however, there came a fall in the barometer, and his feeling of trepidation was twice as bad as the year before. Still, he had done his best, and though he had no doubt committed many errors of judgment, and his best had not been as good as the Conference deserved, he had allowed nothing to interfere with his doing all he could to promote the welfare of the Conference and the good of pharmacy. Mr. Carteighe had alluded to some reckonings to

come, and he could only say that on the square and in the open he was not afraid of them at any time or any where. He was quite aware that he had said things, and could say things, and if he lived, should say things which were strong; but they were the earnest conviction of his life, and they had been and would be said only after due consideration, and because he felt it to be his duty to say them. He thanked all who had contributed papers, and every member who had so heartily and kindly supported him, with all his shortcomings, in the chair.

Mr. G. F. Schacht then proposed a vote of thanks to the two Hon. General Secretaries, on whose labours the interest of the Conference so largely depended. It was not always easy to secure good and suitable papers for the meetings, and these gentlemen must be credited with qualities of a very special order, in that they had been able for so many years to gather together so many papers of such value. He would therefore move "That the best thanks of the Conference are due and are hereby tendered to Messrs. Naylor and Ransom for their unwearied efforts to promote the success of the Conference and their invaluable services as hon. secretaries for the past and many previous years."

Mr. Martindale, in seconding the resolution, said he had had some experience of the work of both these gentlemen, having been both Treasurer and President, and without their aid he did not know how he should have got on; indeed, without their help he should look forward to the coming year with a great deal of alarm

The resolution having been carried by acclamation,

Mr. W. A. H. Naylor said he felt almost overwhelmed by this vote of thanks, but it was all the more welcome because he had felt a little doubt whether, owing to the papers being less numerous than usual, a vote of want of confidence in them might not be passed. He could assure them that any labour he undertook for the Conference was a source of great personal pleasure; it was his desire to see the Conference grow and prosper, and he would especially thank those who had responded to his and Mr. Ransom's appeals and provided papers for the meeting. He felt sure they had only to make similar appeals for next year to receive the same cordial response.

Mr. F. Ransom, in responding, said the members of the Executive Committee were all entitled to a share of the vote of thanks, and also the local Executive.

The proceedings then terminated.

CORRESPONDENCE.

[*Letters to the Editor should be written as concisely as possible, on one side of the paper only, and preferably with name and address for publication.*]

METRIC SYSTEM.

Sir,—I must apologise for again occupying such valuable space as yours, but undoubtedly harm is done to the progress of scientific thought by the attitude of such men as "Gilgen." I shall only say in my reply (which must be final) that your correspondent entirely misses the point (see my letter on p. 18), and it would be out of place to make any remarks thereon in the presence of the report of the Select Committee appointed by the House of Commons, a perusal of which I should recommend to "Gilgen," as well as any person not conversant with the subject (*vide* p. 34 *Pharm. Journ.*, also the "*Times* on the Metric System," p. 33). Need I say that I did not quote Balfour and Carlyle to support the Metric System! (again I refer the reader to my letter). If I quoted authorities in support of that, this Journal would not contain the names in one issue.

Did I find fault with metaphor? I believe I said "Gilgen" was "great at metaphor," but that, too, I must leave to the judgment of the reader. In conclusion, I shall be very happy to give any information to anyone interested in the Metric System, if they will write to my address.

0, *Market Street, Blackpool.* Ch. H. Turver.

IPECACUANHA WINE AND EASTON'S SYRUP.

Sir,—Before the present cumbersome method of preparing vinum ipecac. was made official, I found that by using the following method it could be prepared to keep clear for six months, or nearly so:—Pack 1 oz. ipecac. root, coarsely powdered, in a percolator, moisten with sherry and percolate after forty-eight hours, to measure 17 ozs., to this add 3 ozs. simple syrup.

Easton's syrup made as follows does not crystallise:—

Take of

Polished iron wire	90 grains.
Phosphoric acid (1·500)	19 fl. drms.
Distilled water	16 fl. drms.
Dissolve and filter into simple syrup	16 fl. ozs.

Take of

Strychnine (powdered)	6 grains.
Phosphoric acid (1·500)	1½ fl. drm.

Dissolve and add

Phosphate of quinine	192 grains.
Distilled water to	1½ fl. oz.

Filter this solution into the syrup of phosphate of iron prepared as above, adding distilled water to make the whole measure 24 fl. ozs. Let stand a day and filter. Keep in full bottles.

Vinsyr.

AQUA CAMPHORÆ AND AQUA CHLOROFORMI.

Sir,—In a discussion on aqua chloroformi some months ago, some ambiguity in reference to the B.P. aqua camphoræ became apparent (*Ph. J.*, Jan. 19, 1895, p. 619). It was urged, from the resemblance of the operation involved, that the product would, like camphor water, vary according to the temperature, the argument being supported by a reference to the 'Extra Pharmacopœia,' where it is stated (page 95, 7th ed.) "aqua camphoræ is uncertain in strength; the water dissolves much more of the camphor if kept in a slightly warm place." Such processes were accordingly to be deprecated, and it is advocated that they be withdrawn from the pharmacopœia, and that concentrated solutions of camphor and chloroform in absolute alcohol be made official, wherewith by proper dilution these waters may respectively be more accurately prepared.

Now if camphor be much more soluble in warm water than in cold, one would reasonably expect the solution thus prepared to deposit the excess of camphor when its temperature is lowered, and conversely, if more soluble in cold water, for the solution so prepared to crystallise out on warming; and by direct appeal to the facts the latter is what occurs, and the above quotation, in so far as the solubility is concerned, is consequently shown to be untenable. On account of the volatility of camphor the demonstration was conducted as follows:—A pint of B.P. aqua camphoræ was prepared at 35° C., rapidly filtered, and corked up in a glass flask, leaving an air space of about one-eighth the volume; it was then cooled to 3° C. by total immersion in ice and water with constant agitation; no deposition occurred. Some camphor was then added to the flask and returned to the melting ice for two days; it was then filtered, the clear filtrate corked up again, and the temperature raised to 35° C. with frequent agitation; a large number of small crystals of camphor separated, floating on the water, and appeared more numerous when ordinary hard water was used—thus confirming the experiments of Rother (*Ph. J.* [3], vol. i., p. 1009).

The fact, however, remains that under "extremes" of atmospheric temperature a variability in composition does exist, yet before rejecting so simple and well-established a process as that for aqua camphoræ on that account, it should be borne in mind that such variation is not only unavoidable, but of an order common to the whole of the galenical and other fluid preparations in the pharmacopœia, and equally applicable to the proposed spiritus camphoræ fortior (equal parts by weight of absolute alcohol* and camphor), of which 1000 volumes at 6° C. become 1020 at 28° C., due to apparent expansion.

It is further urged that camphor and chloroform waters, being saturated solutions, are too concentrated for general use as vehicles. Now if liquor calcis, a preparation which also slightly varies in composition due to the temperature, were thought to be too concentrated, a rational mode of meeting the case would be for the pharmacopœia to direct the present product to be finished by the direct addition of say an equal volume of water, and if necessary, such a method might be extended to aqua camphoræ. The above remarks would also apply to aqua chloroformi when prepared by the author's process (*Ph. J.*, January 12, 1895), which latter in practice is found to work satisfactorily.

University College Hospital, W.C. WILLIAM ELBORNE.

QUALIFICATIONS OF PUBLIC DISPENSERS.

Sir,—"A Prison Compounder" in a letter in the Journal of July 20 takes exception to a statement of mine in a letter of July 13, to the effect "that the Prison Commissioners accept as dispensers none but qualified chemists." He says this is not correct.

I may say that my authority is an advertisement for prison compounders which appeared in the *Pharmaceutical Journal* of June 22, 1895, which reads as follows: "Candidates must hold a diploma of the Pharmaceutical Society."

It appears, therefore, that the prison authorities do insist upon the pharmaceutical qualification in making recognised appointments, although doubtlessly there are unqualified men employed to render assistance in dispensing to the medical officer in some prisons. POOR LAW DISPENSER.

THE DANGERS OF CHLOROFORM ADMINISTRATION.

Sir,—It has been conclusively proved over and over again that death under chloroform is always the result of an overdose. If deep anæsthesia can be with safety induced in an average adult by the gradual progressive absorption of from 18 to 24 minims of chloroform, and 36 minims present in the blood arrest the respiration then common sense indicates that harmful effects must be produced in due proportion to the excess of chloroform administered and allowed to enter the circulation, which may even terminate in death beyond hope of resuscitation.

Such deaths should, in justice to the public, be recorded in your Journal under the heading "Poisoning Cases and Inquests," to which they truly belong. If an overdose is not administered it cannot be absorbed, and death cannot be caused from the presence of too little chloroform in the blood. There were sixty cases of death from anæsthetics in 1894, and thirty more fatal cases have already been recorded since the beginning of this year, of which the two following happened last:—

1. Chloroform was administered in the usual way to a farm bailiff, thirty-seven years of age. There was nothing the matter with his heart. He breathed regularly at first, and practically he got into the stage of excitement when he struggled somewhat. Suddenly he became convulsed, ceased breathing, and at once became blue in colour and died. Verdict: "Deceased died in a fit of convulsions whilst under the influence of chloroform."

2. *The North British Daily Mail*, June 13, 1895, reports the case of a boy, eight years of age, who died under the influence of chloroform administered in the usual way. An inquest has not as yet been, and probably will not be, held, but it is said that the boy died owing to the weak action of the heart.

It is a strange and lamentable fact, that at coroners' inquests in these cases the cause of death is never inquired into. No question is asked and no answer is given how the overdose of chloroform was allowed to enter the circulation, and, therefore, no means are suggested for the prevention of future deaths under anæsthetics, with the result of an increase in their number.

London. OBSERVER.

*1000 vols. of alcohol at 0° C. expand to 1032·4 at 30° C. (Kopp).

BOTANICAL NOTES.

MUCILAGES IN PLANTS.—Instead of the usual primary classification of mucilages into two groups—cellulose mucilages and true mucilages, M. L. Mangin proposes to distinguish them first of all into simple and mixed mucilages. The former are then classed under three heads—cellulose mucilages, pectose mucilages, and callose mucilages. Cellulose mucilages are very rare, being nearly confined to the salep derived from the roots of Orchideæ. Among pectose mucilages are included those of the Malvaceæ, Tiliaceæ, Rosaceæ, and Abietineæ, and the mucilaginous sheath of certain algæ, such as *Zygnema*, *Glœosporium*, *Nostoc*, etc. Callose mucilages occur in sieve-tubes, the membrane of the sporange of *Mucorini*, etc. Among mixed mucilages the only combination known to the author is that of cellulose and pectose mucilages in varying proportions. These occur especially in seeds and pollen-grains, and are formed at the expense of cell-walls in contact with the air. Indeterminate mucilages, which cannot be included under either of the above categories, also occur, such as that of the endosperm of the seed of the carob (*Bull. de la Soc. Bot. de France*, xl^{i}., Sess. Extraord., pp. xl.-xlix.)

GRAND PERIOD OF GROWTH IN THE GOURD.—Mr. A. P. Anderson gives in the *Minnesota Botanical Studies* for 1895, Bulletin No. 9, a long series of tables and diagrams illustrating the rate of growth of the fruit of *Cucurbita pepo*, from the time of fertilisation to that of ripening. The development may be divided into three periods—a period of active and continuous increase from the time of pollination to the grand maximum; a period of decline in the daily increase and rise in the daily decrease, from the grand maximum to the beginning of ripening; and the period of ripening. During this latter period an extended decrease, due to transpiration, lasting throughout the daily hours, was quickly followed by a maximum increase. At the time of the grand maximum of growth the fruit gained in weight 782 grammes in twenty-four hours. The variation in the length of the internodes occurred simultaneously with a corresponding increase and decrease in the weight of the fruits.

PRESENCE OF EMULSIN IN MANIHOT.—In several Brazilian species of *Manihot* which yield the starch known as manioc, M. L. Guignard has detected the presence of emulsin. Its localisation is the same as that of papayin in the Papayaceæ, viz., in the laticiferous system of the embryo. Myrosin is also present, but not within the laticiferous tubes (*Bull. Soc. Bot. de France*, vol. xli., Sess. Extraord., pp. cili.-cvii.)

NOTES AND NEWS.

Advertising in China.—Acting-Consul Brady, in his report calls attention to the fact that a knowledge of English is not often met with among Chinese in the remoter parts of the Empire, and that to distribute price-lists broadcast is little less than sheer waste of money. He is of opinion that if manufacturers were to translate a portion of their price-lists into the vernacular, giving a concise description of the articles and the address of the firm, it would lead to business. He singles out "patent" medicines and small manufactured articles as being of special interest to Chinese buyers, and indicates that there is a large field in which manufacturers of such can push their wares.

Antivenomous Serum.—Dr. D. A. Calmette, Director of the Pasteur Institute at Lille, writes to the *British Medical Journal* to the effect that, since January last, he has been preparing antivenomous serums from both horse and ass. Dr. Thomas Fraser's researches are claimed by Dr. Calmette to corroborate results published in the *Annales de l'Institut Pasteur* by him.

Women Pharmacists in Hungary.—The Hungarian Ministry is said to be not disinclined to allow women to practise pharmacy and the majority of Hungarian pharmacists do not oppose the idea as the enforcement of new regulations respecting study have had the effect of causing a great scarcity of assistants.

Poisoning Made Easy.—A writer in the *Globe* remarks that the general belief that the sale of deadly drugs in this country is fairly hedged round with precautions will be considerably shaken by the "ugly facts" which came out at the Mansion House last week, when a supply company of the highest respectability had to answer for infringing the Pharmacy Act by selling poison indiscriminately. The incriminated article was a "weed-killer" containing arsenic (see report on page 113), which the company received in the ordinary course of business from the manufacturer, and kept in stock among other miscellaneous goods. The tins, it is pointed out, did not bear any indication that the contents were of a deadly nature. "The company had, therefore, perfectly clean hands, although it undoubtedly sold, for the small sum of 1*s.* 8*d.*, enough arsenic to kill off 6000 people! . . . . . The Lord Mayor had, perforce, to inflict a fine on the company as the vendors of a scheduled poison in an unlawful manner. But we really do not see how retailers are to keep within the four corners of the aw if manufacturers of deadly compounds are allowed to place them on the market without the slightest regard to public safety."

Technical Uses of Formalin.—This substance has attracted considerable notice recently especially as a food preservative, and Mr. E. M. Holmes, in a paper read last week at the annual conference of the Museums'Association,drew attention to its known and possible advantages. The cost of it being only about equal to methylated spirit, is much in its favour, and a 1 or 2 per cent. solution has been found to answer admirably for preserving vegetable products; in some instances the fresh appearance of the plant is not destroyed. Mr. Holmes suggested its use for the general preservation of museum specimens, and the publication of his paper has occasioned some comments in the lay press on the possibility of its general adoption as a milk preservative. Quite recently an analysis was published by a scientific weekly in which the milk supplied by a well-known dairy company was somewhat condemmed owing to the presence of formalin, and one of the evening papers recently instructed its readers as to the process to be adopted in order to detect this substance in milk.

Pharmacy in Germany. — In view of further legislation affecting pharmacy in Germany, a statistical inquiry is about to be instituted in Prussia. The chief points concerning which information is desired are the number of pharmacies, the number of assistants they employ, and the amount of goodwill last paid for each.

Memorials to Philanthropists.—Busts have recently been erected in Paris, in honour of Boussingault, whose services to agriculture have been so eminently beneficial; also of Father Damien, in memory of his labours to alleviate the sufferings of lepers, and of the late Dr. Dryardin Beaumetz, whose name is well known in connection with the introduction of new remedies.

The Prevalence of Insanity.—According to the latest report of the Commissioners in Lunacy, costermongers, hawkers, and pedlars constitute the class amongst which madness chiefly prevails. Workers engaged in the textile industries occupy the second position, and medical practitioners and chemists come next. Labourers and railway men appear to be singularly free from insanity.

Acokanthera Schimperi.—By inadvertence it was last week stated in a footnote (*vide* p. 76) that Professor Fraser's paper, dealing with the arrow poisons of some of the East African tribes, was read before the Royal Society of Edinburgh. This is incorrect; it should have been the Royal Society of London.

Pharmaceutical Curiosities.—Amongst the many thousands of objects discovered during the present year by Mr. W. Flinders Petrie and others, while excavating some thirty miles from Thebes, and now on view at University College, there is a pair of scales, which with the exception that they turn on a pin, exactly resemble those used in our pharmacies of to-day. The length of the beam is about 4½ inches, a ring at each end carries the original cords, which are three in number, and the pans, about the size of a penny-piece, are slightly convex in shape; a small ring is attached to the top by which they may be held; the finish and workmanship are alike excellent. The exhibition closes, unfortunately, in a few days, but as the discoveries have been of an extraordinary character, another opportunity will no doubt be afforded later on to those who feel interested in the past to see the collection when permanently located. It is refreshing to find that in those distant days tip-cats and tops were known to the boys, while the girls had their dolls, and the chemist manufactured pots of perfumed fat or unguent, which in one case at least still retained traces of its original odour.

The Antitoxin Treatment.—At the annual meeting of the British Laryngological Association last week, Dr. Sims Woodhead read a paper on the therapeutics of diphtheria, with special reference to antitoxin. In this he suggested that the antitoxin serum should be used as a prophylactic, as he considers it invaluble in that respect. He claimed that it antagonises the toxic effects of diphtheria, and that although it cannot make good organic lesions, in all cases it renders the patient more comfortable. Mr. Lennox Browne, however, urged that there was little doubt that the kidney trouble which so frequently follows diphtheria was aggravated by the antitoxin treatment, and that deaths had been caused by the use of the serum as a prophylactic. He doubted whether there was any more justification in using it as a preventive than in injecting the virus of small-pox or syphilis.

ENGLISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

White Wine Vinegar or Acetic Acid? The Difference in Analysts' Certificates.—At the Southampton Borough Police Court on Wednesday, before Alderman T. P. Payne (Chairman), and a full Bench of magistrates, the adjourned summons against William Day, of Day's Southern Drug Company, Limited, was heard. He was summoned for selling white wine vinegar which consisted of entirely diluted distilled acetic acid.—Mr. G. B. Nalder, the Town Clerk, prosecuted, and Mr. H. D. M. Page defended.—The Borough Analyst said the article was of distilled acetic acid, but the certificate from Somerset House said "We are of opinion that the sample in question is of distilled vinegar, commercially known as white wine vinegar, and that it did not consist of diluted, distilled acetic acid." Under these circumstances he would ask that Mr. Brierley should be allowed to go into the box, and then he would ask that the charge might be withdrawn.—Mr. Page said when the sample was taken the article was submitted to Dr. Muter, and he gave a certificate on which his client was prepared to fight the case. He pointed out the difference between acetic acid and vinegar was that the latter contained a volatile flavour of the ingredients used in its manufacture.—Mr. Brierley, the Borough Analyst, explained that he had to deal with a substance submitted to him as white wine vinegar. He had been able to buy pure white wine vinegar in Southampton. The substance was not white wine vinegar, although when the case was previously before the Bench he admitted to Mr. Page that it was distilled vinegar, and he thought it was made from malt vinegar. The only difference was that he used the terms in a general sense, whilst Somerset House used it in a specific sense.—The Chairman said they were satisfied Mr. Brierley was an excellent analyst, but these gentlemen would differ at times.—The case was then withdrawn, as was one against William Walter, of Oxford Street, for whom Mr. Lamport appeared.—The Somerset House costs were ordered to be paid by the complainant.

National Veterinary Association.—The thirteenth general meeting of the National Veterinary Association was held in the Council chamber at Birmingham on Wednesday and Thursday, the 24th and 25th inst. Mr. J. M. Parker, M.R.C.V.S., of Birmingham, occupied the chair. At the Council meeting it was decided to make a donation of £25 to the British Institute of Preventive Medicine. The Association having been welcomed by Alderman Johnson on behalf of the Mayor, the President delivered his address, and referred to that city having been one of the first places in the Kingdom to employ a veterinary surgeon to inspect bad meat. A resolution was adopted calling upon the Board of Agriculture to employ adequate veterinary inspection of dairy cows. A paper was read by Mr. H. Oliver on "Abortion," and the discussion opened by Professor McFadyean. On the second day, Professor Macquenn contributed a paper on "Abdominal Surgery," and the discussion was opened by Professor Dewar. As usual, a small exhibition of drugs and surgical instruments was arranged in an adjoining room. The firms exhibiting included Messrs. Arnold and Sons, Corbyn, Stacey and Co., Wyley's, Hewlett and Son, Harris and Co., Willows, Francis, and Butler, etc. The 1896 meeting is to take place in Yarmouth, and Mr. W. Bower was elected the next President of the Association.

A Medicine Garden.—Though the Cheshire side of the Mersey is such a happy hunting ground to the Liverpool botanist, there are only a very select few who have any idea that there lies almost within reach of the waves rolling up on the Liscard shore, a veritable "medicine garden." True it is but of modest dimensions, nevertheless it is a brilliant example of what can be done by anyone fortunate enough to be possessor of a "parcel of ground," and the ingenuity to turn it to account in the way the owner of the one in question has done. It lies close to the Liscard Battery, by which it is protected on the northern side, and slopes to the south-east, a thick gradation of trees screening it from the east wind. When recently visited there was to be seen quite a respectable collection of herbs and medicinal plants, many of them in flower, although they had only been transplanted late in the spring. There were fine clumps of *Hyoscyamus niger*, biennial, in flower, *Atropa belladonna* with its dull purple flower and peculiar fruit; *Datura stramonium*, with its white, sweet-smelling flower, and *Datura tatula* in very early stage; *Solanum dulcamara* was twining in the hedges, showing its gay purple and yellow blossoms, in company with those of the *Convolvulus* and the dark leaves of the *Tamus communis*. The Labiatæ and Scrophulariaceæ were in great evidence, comprising *Digitalis purpurea*, *Rosmarinus officinalis*, *Lavandula vera*, *Mentha rotundifolia*, *piperita* and *viridis*, *Melissa officinalis*, and *Salvia officinalis*. The Compositæ had as representatives, *Artemisia absinthium*, *Anthemis nobilis*, *Calendula officinalis*, *Helianthus tuberosus*, *Cichorium intybus*, *Lactuca virosa*, and *Tanacetum vulgare*. Of the Umbelliferæ, the chief were *Carum carui*, *Fœniculum capillaceum* and *Eryngium maritinum*, with its peculiar teazel-like flower, or, rather, inflorescence. Besides the specimens named there were many others all collected by the owner—by the way, a well-known botanist and authority on materia medica—or struck by him from seed. The educational value of such a garden is inestimable, and the acquisition of one so easy, that it is to be sincerely hoped that many local pharmacists in the suburbs who have a garden will lay it under contribution in the cause of botanical science, and so enable their pupils and assistants to gain knowledge which in the majority of cases is at present only conspicuous by its absence.

South London School of Pharmacy.—The post of Junior Demonstrator in the Chemical and Physical Laboratories of this Institution has been filled by the appointment of Mr. J. Thomas, B.Sc. (Lond.), first-class honours, who has until lately been at the Royal College of Science. Mr. Thomas is a former Bell Scholar and medallist of the Pharmaceutical Society.

Medical Diploma for a Liverpool Pharmacist.—Old members of the Liverpool Pharmaceutical Students' Society will be pleased to hear that Mr. J. R. Johnson, pharmaceutical chemist, Pharmacist to the Royal Infirmary, Liverpool, a former President of the Society, has rccently passed the Final examination of the conjoint Board of Examiners of the Royal College of Physicians and Surgeons, England. It is understood that Mr. Johnson will still remain on the staff of the Infirmary as Pharmacist—a post he is exceptionally well qualified to fill.

A Fighting Chemist.—Mr. Justice Kekewich was asked at the instance of the plaintiff in a debenture holder's action to commit the manager of Bright's Pure Drug Co., High Street, Clapham, for contempt of court. It appears that a receiver having been appointed at the instance of the debenture holders, he proceeded to take possession, but found it impossible to do so, owing to the conduct of the manager, who threatened him with a revolver. Upon the matter being mentioned last week, his Lordship made an order subject to the production of an affidavit of service, and on Tuesday last it was stated that the defendant had been served at 10 o'clock the previous evening. By direction of his Lordship the defendant was called, and, not answering, the order for committal was made.

"Not Known to the Seller."—At the Southwark Police Court on the 29th ult., J. S. Moore, chemist, Grange Road, Bermondsey, and A. F. Fosse, Old Kent Road, were summoned, at the instance of the Commissioner of Police, for selling a quantity of aconite and chloroform without knowing him, contrary to the provisions of the Pharmacy Act, 1868. The proceedings arose out of an inquest held on the body of Frederick George Shade, who died on June 13, at which it was proved that he died from aconite and chloroform poisoning. At the inquest the defendant Moore gave evidence that he sold, on June 13 aconite to the deceased, who stated that he wanted it to rub into a dog which was suffering. In the case of Fosse, one ounce of aconite and one ounce of chloroform were supplied by an assistant named Kelham, who knew the deceased as a customer, but did not know his name and address. Mr. Turner, who defended Fosse, said his client thought he had sufficiently complied with the Act, as the deceased was known as a customer, and, moreover, the bottle containing the poison was labelled in large letters to that effect. The magistrate imposed a fine of £5 and 2*s.* costs is each case.

A Sheffield Chemist in Trouble.—Mr. Walter Reckless, chemist and druggist, Exchange Street and Cemetery Road, Sheffield, has had an unpleasant experience at Barnsley. For some time past it has been a practice for well-to-do people to visit the

Queen's Grounds ostensibly to witness dog-racing, but really to play "heads and tails." On July 25 there were a number of men there who formed a ring, a man in the centre tossed up half-pennies, and the bystanders bet from 1*s.* to as much as £3 on "heads" or "tails." Sometimes there was from £20 to £30 on the ground at once. On the day named the police "raided" the grounds and marched thirteen of the men to the police-station, amongst them being Mr. Reckless. He was fined, like the others, £2 and costs by the magistrates at the Barnsley Court on Monday.

SCOTTISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Laburnum Poisoning at Hawick.—On Sunday, July 21, a boy aged 7, named Robert Gallie, died suddenly with symptoms of irritant poisoning. The Procurator-Fiscal for Roxburghshire held an enquiry at Hawick on July 23, and from the evidence it appeared that death had been caused by his eating laburnum pods and unripe fruit.

Duncan Flockhart and Co. have now removed to the temporary premises, 9, Princes Street, which have a rather commanding appearance. It is proposed to light the premises by electricity. The firm may probably have to wait three or four years before the new premises at North Bridge are ready.

William Inman and Co. (Limited) have opened a large handsomely furnished south side branch at 1, South Clerk Street.

FOREIGN NEWS.

[*From our Special Correspondents.*]

The Exhibition at the Hague.—The cocoa manufactory of van Houten, at Weesp, sent in a fine collection of cocoa fruits and fifteen sorts of cocoa-beans. The collection of preparations of *Secale cornutum*, by De Bosson, from Dordrecht, was remarkable for its completeness. We find there *Secale cornutum* in rye-blades, pulvis secalis cornuti, pulvis secalis cornuti exoleatus, seventeen different sorts of extractum secalis cornuti, and, lastly, fourteen preparations from *Secale cornutum*. The firm Pluggers, of Rotterdam, showed a collection of gum acacia and rhubarb root, and also sixteen different kinds of yellow wax.

Borremans Frères, of Hal, Brussels, gave a small but interesting collection of gum resins, as well as extractum rosarum for the preparation of mel rosarum, narcotic herbs and senegal gum in powder the latter being similar to acacia in appearance. Such pieces are obtained by exposing them in a furnace to a heat of 50° till 60°; especially remarkable were in this exhibition the beautiful *Polyporus fomentarius*, prepared as fungus igniarius.

Among the herbaria that were remarkable for careful treatment of the plants, was that of Mr. Kok Ankersmit, of Apeldoorn. The dried plants were without exception, fine specimens; they had fully conserved the fresh colour of the leaves and flowers, and next to each medicinal plant was put a little basin containing the active ingredients which are used of that plant. The contribution of Mr. van der Marck, of Zutphen, although small, was remarkable for the collection of active principles exclusively obtained from the family of the Simarubaceæ.

As for microscopy, the case of microscopical preparations lent by the chemist van Ledden Hulsebosch at Amsterdam was particularly interesting. It contained a rich collection, made by himself, of preparations concerning anatomy of plants, bacteriology, pharmacognosy, mycology, phycology.

Among the microscopes were especially interesting the three copper microscopes constructed by Antony van Leeuwenhoek and used by that famous naturalist in his observations; further, a very fine collection of modern microscopes of Carl Zeiss of Jena, exhibited by Mr. Marius at Utrecht.

To conclude, may be mentioned a shaking apparatus sent in by the inventor, Dr. van Ryn at Winschoten, that appears to be very practical.

LEGAL REPORTS.

PROCEEDINGS UNDER THE PHARMACY ACT.

The Pharmaceutical Society of Great Britain *v.* Spiers and Pond, Limited.

This case, which was a prosecution for the sale of weed-killer containing arsenic, without complying with the provisions of Section 17 of the Pharmacy Act, came before the Lord Mayor on Thursday, July 25.

Mr. Gill and Mr. Probyn appeared for the Pharmaceutical Society, and Mr. Grain for the defendants.

The Chief Clerk having read the summons,

Mr. Grain said we plead not guilty. Of course, it is for the prosecution to prove everything, but I think I may take all the facts as admitted.

The Lord Mayor: Take all the facts as admitted?

Mr. Grain: If Mr. Gill will kindly put down what facts he wants they are practically admitted, but I have one point I wish to take, which will occupy about five minutes.

Mr. Gill: My Lord, this is a prosecution by the Pharmaceutical Society. I appear with my friend, Mr. Probyn, for the prosecution. It is a summons taken out against Spiers and Pond, Limited, for an offence under the 17th Section of the Pharmacy Act, 1868. That is an Act, as you are aware, that was passed for the protection of the public, and the section requires that certain things should be done by persons who sell poisons. Having read the section, he said: In Schedule A the first mentioned is arsenic and its preparations. Now, what is alleged against the defendants is that they sold arsenic without taking any of the steps that are required by this 17th Section of the Act. Messrs. Spiers and Pond, who have large stores at Ludgate Hill, have there, amongst other departments, a drug department, at which they sell medicines, and at which they make up medicines. Judging by their catalogue they are, of course, employing persons who are thoroughly familiar with this Act, in which, referring to poisons, they point out at the commencement of the Act regulating the sale of poisons there are a number of drugs which cannot be sold unless the applicant is known to the seller, or is introduced by a person who is in a position to introduce one to the other, and who is able to give particulars, and so on. Amongst the articles which they sell is something which they call Patent Powder Weed-Killer. In consequence of information which came to the knowledge of the Pharmaceutical Society a purchase was made of this patent weed-killer, and it was submitted to an analyst by the Society, with the result that it was found that the tin containing this mixture was composed of two things—arsenic and caustic soda. The whole contents of the tin was about 2 lbs. 13 ozs. of arsenic and caustic soda coarsely mixed together; three parts of the contents of this tin are arsenic. In the tin, which can be purchased at this place for 1*s.* 8*d.*, there is enough arsenic to kill some 6000 people. Nothing can be more appalling when one comes to consider it. It is difficult to say anything about it without speaking in exaggerated language when this poison was sold in this wholesale way. There is no poison probably more dangerous than arsenic, and there is a special Act under which proceedings might be taken by any person, either police authorities or the Treasury, or any person who has his attention drawn to it. But the Pharmaceutical Society are interested in enforcing the provisions of the Pharmacy Act and of this particular section, but there is a distinct Act which deals with arsenic which requires a variety of precautions to be taken by those who sell it. Here the purchase having been made the tin was sold as it appears now. [Producing a tin.] The manufacturers of this evidently have a clear knowledge of the terrible deadly character of what they are dealing with, because they give directions for use and directions with regard to mixing, and directions even with regard to the tin, that after the tin has been used it is to be buried or burnt, because they perfectly well know that the slightest want of care would be likely to produce the most disastrous results. What occurred here was that on July 2 a person employed for the purpose went to the Drug Department of Spiers and Pond's, and asked for this powdered weed-killer. When served with a tin, which shall be produced before you, he paid 1*s.* 8*d.* for it, and took it away. He was a perfect stranger, he was not in any way known to the person selling, there was no introduction to the person selling, there was no entry in any book, he was required to sign nothing. In fact, no single provision of the section was complied with, but the analysis was that which I have described to you. The same thing was submitted to Dr. Stevenson, the Home Office

analyst, who confirms the analysis of Mr. Eastes, and confirms the statement that in this tin of 3¼ lbs. there was the enormous quantity of arsenic which I have described. Having stated these facts I shall ask you to say that the usual penalty is a very trifling fine indeed where the section of the Act has been so completely ignored as it has been in the present case. It will be within your knowledge that prosecutions with regard to these mixtures have taken place in this Court before to-day in connection with balsams and other matters, and poisons have been found in the analysis in very minute quantities, but where poison has been found in those articles which have been made up as medicines, and convictions have ensued, because no person is entitled to sell poison unless he complies with the provisions of this Act.

The Chief Clerk: I understand, Mr. Grain, you admit all the facts?

Mr. Grain: One moment [after consulting with his client], I think the facts had better be proved.

Mr. John Partridge, sworn, examined by Mr. Gill: On July 2, did you go to the stores of Messrs. Spiers and Pond, Ludgate Hill?—I did.

And were you supplied with the tin that is now produced to you? [producing same]—That is the tin.

Did you pay 1*s.* 8*d.* for it, and receive a receipt?—I paid 1*s.* 8*d.*, and that is the receipt.

Were you known to the person who sold it to you?—No, I had never been in the department before, and had never seen one of the assistants.

Were you introduced to the person who served you?—No, I went in by myself.

Was any entry made in a book in your presence?—No.

Were you asked for your name and address?—No.

Were you asked to sign any book?—No.

Was the tin given to you in its present condition, of course subject to what happened to it afterwards?—It was wrapped in a piece of brown paper, and tied with a bit of string.

Did you afterwards hand the tin to Mr. Eastes to analyse?—Yes, I went straight from Messrs. Spiers and Pond to the Pharmaceutical Society, and handed it over.

Cross-examined by Mr. Grain: Do you call that a preparation of arsenic?—I do not know of my own knowledge whether it is a preparation of arsenic or not.

I am asking you as a witness, do you call that a preparation of arsenic?—I have been informed so, but I do not know of my own knowledge.

Do you know that a great many other persons sell poisons without complying with any of the provisions that you say we have broken, for instance, carbolic acid, do you know that?—I know there are some——

The Lord Mayor: I do not think that has any bearing on the point; two blacks will not make a white.

Mr. Grain: I am sure it will not here, but I will ask another witness.

Mr. Ernest John Eastes, sworn, examined by Mr. Pro'yn: Are you a Fellow of the Institute of Chemistry?—I am.

And Demonstrator of Practical Chemistry to the Pharmaceutical Society?—I am.

You have had considerable experience as an analyst?—I have.

Did you, on July 2, receive from the last witness the tin produced?—I did.

Did you examine it?—I did.

And analyse it?—Yes.

What did it contain?—I found in it a coarse uneven mixed powder of a very pale blue colour, with a trace of colouring matter, the amount of the powder was 2 lbs. 13 ozs. I found this powder to consist of white arsenic and caustic soda.

In what proportion?—I made several determinations on the amount of arsenic present, and owing to the coarse nature of the powder those determinations differed from one another. I obtained figures ranging from 72 to 78 per cent. in portions taken from different parts of the powder. The average composition I determined to be 3 parts of arsenic and 1 part of caustic soda.

In that mixture of 2 lbs. 13 ozs. how much arsenic was there?—Over 2 lbs. of arsenic.

Did you hand the tin personally to Dr. Stevenson?—I did. Dr. Stevenson removed a portion of the powder in my presence.

On July 16?—On July 16.

Cross-examined by Mr. Grain: I believe the Pharmaceutical Society have defined what in their opinion are preparations of arsenic; have they not?—I am not aware that they have.

Do you not know this book, for instance—it must be within your knowledge—published by H. Silverlock, 'Poisons and Preparations necessary to be entered in the Poisons Register Book'? Do not the Pharmaceutical Society issue directions of that description showing what in their opinion are poisons or preparations of arsenic within the Act?—I do not know.

Do you say that they do not?—I say I am not aware of it.

Surely you would be aware of it; you are connected with the Society; are you not?—I am.

You say you have a large experience; do you not know what the Pharmaceutical Society have defined as in their opinion being preparations of arsenic under the Act?—I am not familiar with the book you are reading from.

I am not talking about the book I am reading from. Do you know that they have defined what in their opinion constitute preparations of arsenic?—I say I am not aware that they have.

Surely you ought to be aware if they have.

Mr. Gill: Perhaps they have not.

Mr. Grain: I am putting it to you definitely that they have.

Mr. Gill: He says he does not know.

Mr. Grain: How long have you been a member of the Society?—Ten years.

Do you mean to say you do not know one way or the other whether the Society itself have not defined what they consider to be preparations of arsenic?—I do not know whether they have defined them or not.

Do you know that there are many articles sold which are poisonous which are not within the Act?—Yes.

Sold by oilmen?—Yes.

Oil of vitrol?—Yes.

Vermin killer?——

The Lord Mayor: I do not really see, Mr. Grain, how this bears upon it. There is a schedule of poisons, and the question is whether this is mentioned in the schedule.

Mr. Grain: That is exactly the point I am going to contend shortly, that this is not within the Act. It is not one of the poisons within the Act.

The Lord Mayor: "Arsenic and its preparations." I looked at the schedule before I came.

Mr. Grain: I am asking him whether the Society itself have not defined what in their opinion constitute preparations of arsenic. He tells me he really does not know it, although he has been a member for ten years.

Dr. Thomas Stevenson, sworn, examined by Mr. Gill: You are a Fellow of the College of Physicians, and Lecturer on Chemistry and Medical Jurisprudence to Guy's Hospital?—Yes.

And Analyst to the Home Office?—Yes.

On July 16, was a portion of this weed-killer submitted to you for analysis?—Yes.

What was the result of your analysis?—It was a crude, imperfect mixture of white arsenic, caustic soda, and a trace of colouring matter.

Did the amount of arsenic in the different portions that you examined vary?—Yes.

Was the average quantity of arsenic about 70 per cent?—Yes.

Is this preparation highly dangerous?—Yes.

The quantity of arsenic in one of these tins—how many people would it kill?—It might kill at least 6000 people if distributed amongst them.

When this stuff is mixed with water does the arsenic partly float? It partly settles, and partly floats.

Is it partly deposited?—A good deal deposits on the side where the water touches the rim of the vessel. If you pour off the water it will be left sticking to the rim.

Does arsenic adhere to the sides of vessels?—Yes, it is a characteristic of arsenic that it floats on water, and adheres to the sides of vessels persistently.

With regard to what was found with the arsenic, the caustic soda, what is the object of putting soda with the arsenic?—To make it dissolve more easily in water.

The arsenic by itself would not dissolve, and the soda is added to make it dissolve?—Yes.

Cross-examined by Mr. Grain: Could you tell me whether within your knowledge the Society itself have defined what they consider to be preparations of arsenic?—I am told that it is so; I do not know. It is defined in the schedule to the Act.

No, it is not, sir; it is not put there.

Mr. Gill: If my friend will not be angry with Dr. Stevenson, I will put the President of the Society in the box.

Mr. Grain: I am not angry; I only want to know.

The witness: I am only an honorary member of the Society, but I am not aware that they themselves have defined it.

You cannot tell me that?—I cannot tell you that.

The Lord Mayor: Tell me, doctor, you have examined this material; in your opinion, as a professional scientist, would you think this properly described as a preparation of arsenic within the Act?—It is a preparation of arsenic within the Act in my opinion.

The Lord Mayor: How are you going to get behind that, Mr. Grain?

Mr. Gill: In fact it is very nearly all arsenic?—Practically, it is seven-tenths.

The Lord Mayor: I was going to say it is more arsenic than a preparation.

Mr. Gill: Yes, my Lord.

The Lord Mayor: Now, Mr. Grain, what are you going to say?

Mr. Grain: I have this to say, my Lord, that there is no proof before you that this is a poison, or a preparation of a poison, within the Act. I am in a position to show that, at all events as regards the vermin-killer, it was thought necessary by the Society itself, in order to bring those poisonous matters within the Act, to avail themselves of the second schedule in the Act, that said that they might under certain provisions apply to the Privy Council for an Order to be made in Council declaring this, that, and other preparation or poison or preparation of poison to be within the meaning of the Act. The Act is perfectly clear. What it was pointed at to begin with was at servants—that unqualified persons should not dispense poisons within the meaning of the Act. What are poisons properly within the meaning of the Act are defined in two schedules, Schedule A and Schedule B. You will find there in the Act itself there is arsenic or preparations of arsenic. We need not deal with the other matters, because they are not before the Court at the present moment. I was informed and instructed, and I believe rightly informed and instructed, that the Society themselves have formulated what, in their opinion, constitute preparations of arsenic. I have before me a book, which I am told is largely used, published by Mr. Silverlock, containing the Act and directions to persons who are selling poisons or preparations, and when I look under Part 1 of Schedule A, I find no mention whatever of a preparation constituted as the stuff in that tin is constituted, and if that be so I think I am justified in contending that however desirable it my be that there should be some amendment of this and other Acts dealing with the selling and dispensing of poisons, nevertheless, we are bound by the Acts of Parliament as they stand, and if I am right in saying they are not within the Act there is no case made out before you. The Act itself, as I say, deals in one or two previous sections with the qualifications of persons who shall sell poisons. It is stated in the preamble what is the mischief to be met, but, of course, I am not going to waste time here if you have made up your mind—you see I am rather interrupting my argument—but if you have made up your mind that the answer of the learned gentleman who has just left the box is correct, and that in your opinion, and that you will so find, it is a preparation of arsenic, of course, I have nothing to say in the matter.

The Lord Mayor: Mr. Grain, it strikes me that it is impossible for me to be influenced by the publication you have there, or by what you say is published by the Pharmaceutical Society, when the professional witness says he does not know anything about it. Your strong argument is that they have admitted what I think is decided by the Act.

Mr. Grain: They have by an Order in Council—I have not been able to get the actual Gazette of 1869—but by an Order in Council in 1869, which was published in the Gazette, they have shown that certain poisons which they thought ought to be within the mischief of the Act were not included, and therefore they asked for an Order in Council to be made which should include a great number of articles which were enumerated, but the Privy Council thought proper only to make an order as regards certain things called vermin killers.

The Lord Mayor: Mr. Grain, one of the most eminent analysts that ever lived has been in the box and sworn that he believes that that is a preparation of arsenic under the Act. How is it possible for a magistrate to get behind that?

Mr. Grain: I feel the force of that, but I am bound to do my duty and put my case before you.

The Lord Mayor: Which you always do.

Mr. Grain: That being so, I must leave the case. It is no use my arguing the point that it is not within the Act if you find as a fact that it is.

The Lord Mayor: I do, Mr. Grain.

The Chief Clerk: Have you anything else you wish to urge on the question of penalty?

Mr. Grain: Having put my point before you, I may say, now at once, that we feel if you find it is a preparation within the Act, that it ought not to be sold.—[After a short consultation with his clients]—My Lord Mayor, may I say this, that from the moment our attention was drawn to the composition of this weed-killer, the directors themselves had made up their minds, whatever the decision of this Court might be, whether in our favour or against us, that they would not allow this, as far as they were concerned, to be on their premises or sold by them. Therefore, the fact of their giving up the sale is not in the least dependent on your decision. Still we were bound to take the point because it was so considered, not only by ourselves, but by a great number or other persons. I need not mention them now, but large dispensers of this class of article, who were doing the same as we were, selling it without taking any of the precautions which are prescribed, as they thought in their opinion, and in the opinion of their advisers, it was not within the Act. So that we are really not offending in this matter wilfully, as I say, whatever the decision of this Court might have been we had made up our minds that we would not allow this to be sold in the future in any shape or form. I must leave the matter now entirely in your hands, but it was done inadvertently; we did not know what it contained. I will say this, we have taken every precaution at these Stores in having qualified persons there—because Mr. Paul is a qualified person—and if he had thought for a moment this was within the Act he would have taken care, as he does in every other instance, to have the Act complied with—to have had an entry made of the person introduced, and so on.

Mr. Gill: On that question the very label on this tin ought to have put any person on their guard.

The Lord Mayor: I have that in my mind.

Mr. Grain: I will not mention the names, but there are other very large establishments who have done exactly the same as we have in the past been doing.

The Lord Mayor: Mr. Grain, I do not think I shall be doing my duty unless I impose a penalty of £5. I do not hesitate to say that the firm you represent, Messrs. Spiers and Pond, not only to my knowledge, but to the knowledge of business and commercial men, are one of the most respectable firms in this country, but I consider it makes the crime worse—the offence, I may call it, rather.

Mr. Grain: Not a crime, my Lord.

The Lord Mayor: The offence—I do not want to use any term which is offensive to them, but I think people of such eminence ought really to make proper inquiry, and not to infringe the law as they have done in this case. I should apply the law just in the same way that I should make an excuse for a young barrister, when I should not for a man of eminence like you, so that I fine the defendants £5 and £5 5*s*. costs.

Mr. Grain: I hope no costs, my Lord.

Mr. Gill: Why not? They have got very well out of it. They might have been prosecuted under another Act for a very much more severe penalty.

Mr. Grain: The Society can very well afford to pay; we are not the sole offenders. I do not want to bring others into trouble, but we have purchased this in the same way at other places—very large establishments.

The Lord Mayor: If they come here after this I shall give more costs against them.

POISONING CASES AND INQUESTS.

Carbolic Acid.—Ben Westoby, aged 19, died on Saturday, July 27, at Grimsby, from the effects of carbolic acid poisoning.

Arsenic,—Mary Ann Bell, a widow, died on Saturday, July 20, at Pimlico, from the effects of arsenic, self-administered. Verdict: "Suicide while temporarily insane."

Caustic Potash.—Elizabeth Ellen Ormerod, aged 17 months, died on Saturday, July 13, at 39, Spring Street, Rishton, from the effects of caustic potash. Verdict: "Death from drinking poison."

Oxalic Acid.—On Saturday, July 6, an unknown man was found in a semi-unconscious state at the Prince's Quay, Belfast, who died whilst being conveyed to the Royal Hospital, from the effects of oxalic acid. Verdict: "Deceased died from oxalic acid poison, self-administered."

NOTES AND QUERIES.

[The information given in this column includes both notes of practical interest to pharmacists, and replies to queries which seem to possess sufficient interest to readers generally.]

To Prevent ingrowing Toe-nails.

Many methods of treatment have been proposed for this painful complaint. Thus a popular plan is to apply a solution of ferric chloride on a camel-hair brush at the edges of the nail where it presses into the flesh. A well-known physician recommends the scraping of the surface of the nail with a file as much as possible, so as to allow the growth to become more natural, at the same time applying the following ointment:—Salicylic acid, gr. xx.; boracic acid, gr. xii.; lanolin, ℥ss. This will give good results; but the plan which has proved itself far and away the best consists in applying ointment of oleate of tin. This was recommended some years since as a specific, and has certainly fulfilled all expectations. Good results will be promptly obtained by smearing a little along the edge of the nail, and applying on lint so as to cover that portion which presses into the flesh. It seems to act by softening the nail, and a cure is generally effected after a couple of applications. It is hardly necessary to add that easy-fitting, broad-toed boots and shoes are absolutely essential. [*Reply to D. H.*]

Medicated Saccharine Granules.

Grannat proposes the following method of obtaining medicated saccharine granules, which in some cases would appear to give excellent results (*Journ. de Pharm.* [6], ii., 64, after *Le centre Médicale*). The *modus operandi* is extremely simple. The saccharine granules are first prepared by simply crushing small quantities of lump sugar at a time in a mortar, avoiding the production of dust. This is then rubbed through a wire sieve of five meshes to the centimetre, then the dust and smaller particles are sifted out with a finer sieve having about twelve meshes. Taking kola as a typical preparation the granules are thus prepared: Aqueous alcoholic extract of kola, 7½ parts; granulated sugar, 150 parts. The extract is dissolved on the water bath in twice its weight of alcohol (60 per cent. by volume), and the solution poured upon the sugar in a porcelain mortar, mixed with a stirrer, and when evenly moistened, spread out in a thin layer upon paper, and dried between 20° and 30° C., taking care to separate, from time to time, those granules which tend to aggregate. The granules should be kept in a wide mouthed bottle. Each teaspoonful weighs 4 grammes and contains 20 centigrammes of extract. The method is applicable to a great number of drugs, both to chemical salts and vegetable preparations. In the case of certain salts, such as the alkaline glycerophosphates, which are insoluble in alcohol but readily soluble in water, these must first be dissolved in an equal weight of water, and then should receive the addition of an equal quantity of alcohol, the method of procedure is then the same as in the case of the vegetable extracts. In the case of glycerophosphate of lime, however, which is now being widely prescribed, the salt is very little soluble in water or in alcohol. It is, therefore, suspended in the alcohol and dissolved by the addition of lactic acid.

Glycerin and Cucumber.

The formula given below is one which can be relied upon to give satisfactory results if the directions are carefully followed. It has been made with various brands of cucumber pomade without iritating the product, and you would do well to give it a trial:—White glycerin soap, 1 oz.; cucumber pomade, 4 ozs.; glycerin and borax (B.P.), 3½ fluid ozs.; essence of jockey club, 1 oz.; powdered tragacanth, 2½ drachms; distilled water, 63 ozs. To the tragacanth, in a thoroughly warmed large mortar, add just sufficient spirit and solution of soap (previously dissolved in part of the water) to form a mucilage, then add the cucumber pomade by degrees and the remainder of the soap solution, rubbing the whole into a creamy product. Finally the glycerin and borax, perfume, and the remainder of the water. Strain through muslin into the stock bottle. It is possible that you will find it necessary to vary the amount of tragacanth used. With regard to formulæ for glycerin cream, the term is an elastic one, and almost any preparation for the hands and complexion containing glycerin, no matter how small a quantity, can be so labelled. If you do not find the preparation given above suitable for your purpose, write again. [*Reply to E. C. Spurge.*]

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

Communications for the Current Week's Journal should reach the Office not later than Wednesday Morning. Telegrams can be Received on Thursday Morning. All Communications respecting Editorial matters must be Addressed "Editor, 17, Bloomsbury Square, London," and not in any case to individuals supposed to be connected with the Editorial Staff of the Journal.

All Instructions from Members, Associates, and Students of the Pharmaceutical Society, respecting the transmission of the Journal, must be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London, W.C.

Business communications—including advertisements, orders for copies of the Journal, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Cheques and money orders should be made payable to "Street Brothers."

Correspondents who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names—of course not necessarily for publication. No notice can be taken of anonymous communications.

Queries addressed to the "Editor" will be replied to as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries."

LETTERS.

Cocaine is a Scheduled Poison.

Cocaine writes:—In the Journal of to-day's date I notice a small paragraph headed "The Dangers of Cocaine," and on reading, come to the following: "It is time for cocaine to be scheduled as a poison." I think that statement ought not to go unchallenged, as "Cocaine," coming under the definition of a poisonous vegetable alkaloid, is a "Scheduled Poison," and therefore "Cocaine," "Cocaine hydrochlor." and "Solutions thereof" can only be sold by legally qualified chemists, and every sale must be entered in the poison register. Would some reader kindly, through the medium of this Journal, oblige me with a full list of poisonous vegetable alkaloids?

[There is no doubt that cocaine being, as our correspondent remarks, a poisonous vegetable alkaloid, does come under the provisions of Section 17 of the Pharmacy Act.—Ed., *Ph. J.*]

A Correspondent encloses the following copy of a circular issued by the Apothecaries' Company, 32, Virginia Street, Glasgow:—"We desire to draw attention to the necessity of strict compliance with provisions of Pharmacy Act in the sale of poisons, and the fact that proprietary medicines, sheep-dips, etc, containing any of the scheduled poisons require to be labelled with the name and address of seller, and poison; and entered in poisons' book as directed in Section 17 of Pharmacy Act, 1868."

ANSWERS.

W. R. Fielding.—(1) Distilled vinegar should contain acetic and other ethers, which would be distinguishable by the recognised tests for such bodies. (2) We do not think he can demand to see it, but it is usually politic to accede to a request to show it. (3) See editorial articles on subject in last two volumes. It would be wise to specify the name of the actual poisonous ingredient on the label.

Homœopathic Chemists.—You do not observe the rule with regard to name and address. See notice to correspondents above.

J. L. Lewis.—We believe the freedom of the Company is only open to a limited number of its own licentiates.

"Secundus."—1. *Plantago maritima;* 2. *Medicago lupulina;* 3. *Sagina apetala;* 4. *Juncus bufonius;* 5. *Cerastium triviale;* 6. *Bromus mollis.*

A Correspondent who asks for a formula for "Household" ammonia is referred to p. 28 of the present volume, for the particulars he asks for.

Juvenis.—You will obtain the information you require by referring to p. 912 of the last volume of the *Pharmaceutical Journal.*

Communications, Letters, etc., have been received from Messrs. Allen, Burroughs, Wellcome, and Co., Carruthers, Cheetham, Coates, Fielding, Harrison, Hill, Hobbs, Houseman, Jackson, Kay, Krause, Lenfestey, Mackie, Marshall, Martin, Powell, Sainsbury, Spencer, Spurge, Walker, Ware, Wilson, Wright, Wysall.

ALCHEMY AND PHARMACY.

THEIR MYSTERY AND ROMANCE.

BY C. J. S. THOMPSON.

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(*Continued from page* 4.)

CHAPTER II.

The Fathers of Medicine:

Hippocrates, Æsculapius, Asclepiades, Galen.

Hippocrates, the wise physician and father of medicine according to Soranus, was the son of Heraclides and Phænaretes, descended from Hercules and Æsculapius. He was a Coan by birth, and was first instructed by his father, and then by Herodicus and Democritus, of Abdua, the philosopher. He flourished at the time of the Peloponnesian war, and after being instructed in physic and the arts, left his own country for Thessaly, where his fame soon became known, even as far as Persia. He was sent for by the Perdiccás, King of Macedonia, who was then thought to be consumptive, but Hippocrates diagnosed it to be a disease of the mind, and soon cured the king. He is also said to have delivered his own country from a war with the Athenians by prevailing upon the Thessalians to come to their assistance, for which he received great honours from the Coans. He taught his art with great candour and liberality to those who were desirous to learn, and at length died full of honours it is said in his 90th year, and was buried between Gyrton and Larissa. A quaint old tradition states that at his tomb a swarm of bees settled and made their honey for a long time, with which children troubled with aphthas, anointed by their nurses at the grave, were easily cured.

He was by no means covetous of money, but grave in his behaviour and a lover of Greece, as appears from his curing those of that nation with the utmost diligence, and freeing many of their cities from the plague, for which he acquired great honours.

Though Æsculapius lived so near to the time of the Trojan war, yet the Greeks knew very little about him. The superstition of the time gave him a position among the gods, and as he was adored under the character of the genius of physic, it came at last to be doubted whether he was ever a mortal; consequently his priests were obliged for their own sakes to make themselves masters of all the physic that the master could teach, that they might be qualified to give advice to those who applied to them; their prescriptions passed for the suggestions of the gods, the cures for the miraculous. But both diseases and remedies were carefully recorded. Strabo tells us that from these registers in the temple of Æsculapius at Cos, Hippocrates formed his plan for a proper diet.

At first the science of healing was accounted a branch of philosophy, so that the cure for diseases and the study of nature owed their rise to the same persons. Among the many philosophers skilled in the science the most celebrated were Pythagoras, Empedocles, Democritus, and Hippocrates of Cos. After them came Diocles the Carystian, Praxagoras and Chrysippus, with Hierphilus and Erasistratus, many of whom practised their art in entirely different ways. At this period physic was divided into three parts, the first cured by diet, the second by medicines, the third by manual operations. Those who treated by dietetic methods endeavoured to extend their views farther, with the assistance of natural philosophy. Then came Serapion, the apostle of practice and experience, and afterwards Asclepiades, who worked a revolution in medical science as then practised.

The knowledge of both surgery and medicine even in the time of Celsus is very remarkable, and many of their forms of administration of medicine are used at the present day. The enema was largely used by the ancients, a common one being Hydromel, described by Dioscorides as being made by mixing two parts of water to one of honey; sea-water was also largely used for the same purpose, and Celsus recommends the copious drinking of hot water as a laxative remedy.

Asclepiades was the originator of massage and friction, and in his book of general remedies describes his treatment, which is similar to that performed to-day. Poultices of meal of various descriptions were commonly employed, linseed or fenugreek being the favourite media.

Asclepiades studied in Alexandria, and after practising in Greece and Asia Minor, finally settled in Rome in the early part of the first century B.C. Here he soon met with success, and established a reputation for great skill. He was the physician and friend of Cicero, and probably also the instructor of Lucretius in the Epicurean philosophy, of which he was an enthusiastic advocate.

He believed the body to be composed of atoms or molecules, with spaces between, through which, like a sieve, various atoms of other shapes were continually passing in and out of the body.

In practice he believed in curing his patients with as little discomfort as possible, which doubtless helped to make him popular. He was averse to the employment of violent remedies and the excessive use of emetics and purgatives so much favoured by his fellow-practitioners.

He advocated the use of music as a soothing agent, and was strongly in favour of bathing frequently and massage.

He strongly believed in wine as a remedial agent, which, it has been said, may have accounted for his popularity with the Roman ladies, with whom as a physician he was in great demand. He lived to a very advanced age, and died, it is stated, from the effects of a fall.

Galen, born at Pergamus in the year 131 B.C., studied in the school of Alexandria, which then had considerable reputation, and there he formulated his system of treatment founded on his knowledge of anatomy and observation. His fame having spread abroad, he travelled to Rome and became physician to the Emperor Marcus Aurelius. According to Galen, the health of the body depended on an equal and uniform mixture of solids and liquids, and its sickness from their inequality; consequently, the physician should foresee illness. He was a profound student of anatomy in his early career, and afterwards turned his attention to physiology. His views as to inflammation, intermittent fevers, and his system of antipathies and sympathies, place him very much above his predecessors.

"In the beginning of the fifth century," says Lacroix, "the practice of medicine, like that of surgery, which was not yet a distinct branch, continued to be free without any authorisation being required. There were even women who, like the Druidesses of the Gauls, treated the sick." Charmers, unconscious, no doubt, of the occult forces which they set to work, attempted to cure neuralgic pains, country

bonesetters to mend fractured limbs, while oculists and impostors of the worst kind travelled the country.

It was not until the close of the eighth century that a regular course of medical instruction was founded, the first of the kind being organised at Salerno in the kingdom of Naples.

Alexander of Tralles, a noted physician, flourished in the middle of the sixth century. No Greek doctor equalled him since the days of Hippocrates in regard to his knowledge of his art in those primitive days. He is said to have possessed to a high degree the art of diagnosis, and he laid down as a principle that no decision should be arrived at as to the treatment of a case until the specific causes of disease had been carefully considered. His depreciation of violent aperients, his views on melancholia and gout, and his generally common-sense treatment stamped him as a man of superior attainments and ability. He was the first to resort to bleeding from the jugular vein, and to use iron in certain diseases affecting the blood.

It must not be imagined that the Roman practitioners of medicine were ill-paid, for it is recorded that Stertimus made some £6500 a year, and Canie, a surgeon, is said to have received £2000 for one operation, which contrasts well with fees of modern times. Votive offerings to the Roman deities were frequent, and sometimes consisted of land, animals, coin, jewellery, and other articles. Other bribes which have been discovered near ancient shrines are terra-cotta figures of deities, human beings, animals, and also portions of human anatomy, such as the liver or stomach. This superstition still exists, and is practised in many parts of Italy, the peasants making votive offerings similar to those of two thousand years ago.

The object of offering models of various portions of the body to special deities was doubtless to propitiate the god to heal that special part from which the patient believed his complaint originated.

(To be continued.)

SANTAL WOOD OIL.*

BY E. J. PARRY, B.Sc.

In the recent advances made in quantitative methods for the examination of essential oils, santal oil appears to have been entirely neglected. Chapoteaut, after a very careful study of the oil, announced some time ago that it consisted almost entirely of two bodies, $C_{15}H_{26}O$, an alcohol termed santalol, and $C_{15}H_{24}O$ probably the corresponding aldehyde, which only occurs in small quantities. These facts made me think that a quantitative method for the estimation of the value of the oil would not be difficult to apply. Naturally I turned my attention in the first place to the presence of the aldehyde. But although unable to devise any modification of the well-known bisulphite method to separate this body, I was able to confirm its presence, and hope later on to have a method for its estimation to announce. The alcohol then, of course, occupied my attention. I may here mention that there are present in normal santal oil traces of an acid, probably due to oxidation of the two bodies above mentioned, and variable quantities of a saponifiable oil, possibly an ester of santalol. Santalol, however, appears to constitute the bulk of the oil, and the aldehyde lowers the gravit of the oil, whilst the saponifiable oil raises it. After a number of experiments I found that the best way of valuing the oil was by an estimation of the amount of santalol (or other alcoholic bodies if they are present, expressed in terms of santalol).

* Read at the British Pharmaceutical Conference at Bournemouth.

This is effected by conversion of the santalol into an acetate, and an estimation of the amount of acetic acid present in the acetylated oil. To save tedious calculations the result may be expressed in terms of potash necessary to saponify the acetylated oil. About 10 grammes of the oil are digested with an equal volume of glacial acetic acid (this should be at least 99·5 per cent.) in a pressure flask for an hour and a half at 150° C. The resulting oil should be well washed in a separator until the last traces of acetic acid are removed. After drying, the oil is saponified with alcoholic potash in the ordinary way, and the amount of potash used is noted. In my first set of experiments very constant results were found. In the first column the percentage of potash used for saponifying the original oil are given. The second figure gives the amount of potash necessary to saponify the acetylated oil, and the third column gives the percentage of santalol present in the original santal oil, assuming, of course, the correctness of Chapoteaut's statements.

No.	Amount of KOH to saponify.		Percentage of Santalol.
	Original oil.	Acetylated oil.	
1.	0·96 p.c.	19·33 p.c.	86
2.	0·88 ,,	19·09 ,,	85
3.	0·85 ,,	18·66 ,,	83
4.	0·62 ,,	19·26 ,,	87
5.	0·63 ,,	19·85 ,,	90

(Decimals neglected.)

The first figure confirms Cripps' results, viz., that 1 p.c. of KOH is sufficient for saponification of the oil. The second column shows what a large quantity of acetic acid has been taken up, and as will be seen later is sufficient to detect adulteration with cedar wood oil, as this oil contains very little of an alcoholic nature.

The specific gravities and iodine absorptions of the five samples above described are given in the following table. The iodine solution used is Hübl's, and the only precautions to be observed are to allow the action to take place for ten hours, and to use large excess of iodine. The results are all within the limits 190 to 210, and are more reliable than bromine absorptions.

	Specific gravity.	Iodine absorbed.
1.	·9803	199·5 p.c.
2.	·9779	195·7 p.c.
3.	·9800	204·0 p.c.
4.	·9794	210·3 p.c.
5.	·9787	190·6 p.c.

These results suggested to me an explanation of the increase in gravity of the oil as distillation proceeded. Particulars of this were given in a paper by Mr. Conroy at the Nottingham Conference. Mr. Conroy was kind enough, at my request, to distil a 20 lb. batch of oil, and send me the first, middle, and last two ounces. These were examined by the methods above described with the results given below. These results prove that the greater part of the aldehyde comes over in the earlier fractions, and that the saponifiable oil, of highest boiling point, increases in quantity as distillation proceeds, accounting for increase in gravity. The iodine absorptions of the three fractions all fall within the limits above suggested namely, 190 to 210 per cent.

	Sp. gravity.	Iodine.	KOH for original oil.	KOH for acetylated oil	Santalol.
First fraction...	·9649	197·9	0·44 p.c.	17·03 p.c.	76 p.c.
Middle fraction	·9758	200·6	0·65 ,,	20·44 ,,	93 ,,
Last fraction ...	·9805	190·9	1·04 ,,	19·66 ,,	87 ,,

In order to ascertain if any appreciable change took place during the acetylation, other than the formation of the alcoholic acetate, the iodine absorption was taken of a sample after acetylation. Calculated for the increased weight it should have been 172·6 p.c.; found 173 0 p.c. The constitution of the oil appears therefore not to be materially altered by this treatment.

As cedar wood oil is a very frequent adulteration of santal wood oil, I examined four samples by the method above described. The oil evidently contains very small quantities of cedar camphor, which is in agreement with the lately published statement that normal cedar wood oil does not contain much, if any, cedar camphor since cedar camphor would most probably be found associated with the corresponding alcohol. The following amounts of potash were found necessary to saponify the acetylated cedar oils:—

1	2·32 p.c.	3	2·13 p.c.
2	2·21 ,,	4	1·72 ,

The average quantity required is 2·1 per cent. It is, therefore, clear that this method enables one to detect and estimate approximately the quantity of cedar wood oil is an admixture of the two oils. Of course, further experiments may show that slightly wider limits are necessary in the figures, but if this be so, it can only be to a very slight extent, and would not alter the general value of the process. In conclusion, I may say that the several samples here dealt with are of absolutely guaranteed authenticity, for which I am able to vouch with certainty. I have to thank Mr. Michael Conroy, of Messrs. Ewan, Sons, and Co., for his kindness in preparing me the three special samples referred to above, and Mr. Henry Wheeler, of Messrs. Corbyn, Stacey, and Co., for the samples of cedar wood oil.

In the discussion on this paper, Mr. M. Conroy (Liverpool) said Mr. Parry was entitled to a hearty vote of thanks for this paper, which brought out a most important fact, and gave a method for detecting the adulteration of santal wood oil with cedar wood oil, which was a very common form of sophistication. He had tried many experiments himself with the object of finding a means of detection, including the sulphuric acid test brought forward by Mr. Parry last year. He must say that was not a success, for he adulterated samples to the extent of 10 per cent., and was unable to detect the adulterant afterwards by that means. He hoped this method would be more successful, as he had every reason to think it would.

Mr. John Moss said he had not been able to follow the figures given by Mr. Parry in reading the paper, and rather wished there had been a diagram table, though some doubt was thrown last year on the utility of such aids. As he understood, Mr. Parry suggested a method of distinguishing between santal wood and cedar wood oils based on their saponification, and that it required 19 parts of potash to saponify santal wood oil, whilst 2 parts would saponify cedar wood oil.

Mr. Parry said those figures referred to the acetylated oils.

Mr. Moss said this was a very marked distinction, but the question which arose was whether an adulteration of 5 per cent. of cedar wood oil would show a sufficient distinction to base a conclusion upon. He had the same idea as Mr. Conroy, that it was very difficult to detect this adulterant if it were only present in small quantities. The two oils themselves were fairly easily distinguishable; it was the mixture of a small proportion of the cedar wood oil which caused the difficulty.

Mr. Alcock said he had recently found castor oil in capsules of santal wood oil, and he should like to know whether its presence would interfere with the saponification equivalent of the acetylated oil. He feared the castor oil would not be removed in the washing-out process, and might interfere with the exact determination of the iodine equivalent in the final stage.

Mr. J. C. Umney said he had tried a good many experiments in connection with the saponification of acetylated oils, particularly the oils of peppermint and rosemary, and in both cases it acted perfectly well. If it were applicable to the estimation of the alcoholic constituents of santal wood oil, so that one need not depend upon the solubility of oils in alcohols of different strengths, or on the amount of rotation, for detecting the presence of cedar wood oil, it would be a great advantage. In the case of rosemary oil he had not been successful with glacial acetic acid, but that might be due to the fact that rosemary oil only contained about 15 per cent. of alcohol, whilst in santal wood oil there was 80 or 90 per cent. It answered very well with peppermint oil.

The President (Mr. Martin), in putting the vote of thanks, said the paper was of great value, for the essential oils were a puzzle to most of them, and any investigations of this kind, especially with regard to such an important article as santal wood oil, they were very grateful for.

Mr. Parry, in reply, said the sulphuric acid test was not suggested by him as an original one, he merely brought it before the Conference as having been published in a French journal. He had found fairly good results with an adulteration of 10 per cent. He did not think the method now brought forward, could be relied on to detect an adulteration of 5 per cent., but for 10 per cent. it could. The commercial adulteration of the oil was generally much more than 5 per cent.; of course it was very desirable to have a means by which even 1 per cent. of adulteration could be detected, but he did not claim that this test was so delicate. He had examined a sample of one of the best known brands of foreign santal wood oil in capsules, and found the amount of potash necessary for saponification was only 14·6 per cent., as against 18·9, which it should have been, and this worked out to an adulteration of 25 per cent. He found further that this was a mixture of santal wood oil and balsam of copaiba. Castor oil would be very easy of detection, even to the extent of 5 per cent., by the amount of potash necessary for its saponification. Five per cent. of castor oil would require over 2 per cent. of potash. The iodine absorption would also show it. With regard to Mr. Umney's remarks, he might say that acetic anhydride and glacial acetic acid yielded identical results. He used the anhydride for some time, but found a difficulty in removing the last traces.

COD-LIVER OIL CONSTANTS.*

BY E. J. PARRY, B.SC., AND C. E. SAGE, PH.C.

The published constants of cod-liver oil are so varying that we thought it would not be without interest and value to obtain a number of samples of whose authenticity we were assured and determine some of their most useful analytical figures. We obtained, therefore, ten samples, all of undoubted purity, and the figures which we have obtained for them are here compared with those already published by other observers. Our object has in no way been to discuss the detection of any of the numerous adulterants of this oil, but merely to see whether the results of the examination of these ten samples would show such large variations as have been recorded by various other observers, or whether the limits would appear to be more confined.

Specific Gravity.—The specific gravity at 15·5° C. has been recorded by various chemists at from ·9220–·931. Allen originally gave ·925–·931, but later gave ·923–·930. The samples we have examined gave the following figures:—

1	·9227
2	·9240
3	·9274
4	·9281
5	·9285
6	·9286
7	·9286
8	·9286
9	·9288
10	·9291

which are included in the limits of ·9227 to ·9291.

Saponification Figures.—The figures published by previous observers here vary very widely. The actual percentage of potassium hydroxide necessary to saponify the oil is the most useful way of expressing this result, and we therefore quote the

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* Read at the British Pharmaceutical Conference at Bournemouth.

various figures recorded by this method. Allen originally gave the limits of 18·5 per cent. to 21·3 per cent., but later reduced them to 18·2 per cent. to 18·7 per cent.; Valenta gives 21·32; Kremel gives 17·1 to 18·9; whilst Thomson gives 18·51 to 18·82. In some of these cases it is probable that only a very few samples were examined, hence the narrow and different limits. Our samples yielded the following results:—

1	19·34	per cent.
2	18·57	,,
3	18·03	,,
4	19·10	,,
5	18·34	,,
6	18·49	,,
7	18·45	,,
8	18·97	,,
9	18·34	,,
10	17·90	,,

which are included in the limits 17·90 to 19·34 per cent. of KOH.

Iodine Absorption Figures.—These are, perhaps, the most discordant results of any. In nearly all cases the published results are undoubtedly too low. This is in the earlier cases due to the fact that sufficient excess of iodine solution was not employed, or the absorption was not allowed to go on for a sufficient length of time. Kremel quotes 123 to 141 per cent.; Dieterich gives 139·6 to 152·6; Fahrion gives 147·9; Lewkowitsch gives 141 to 143·4; Allen gives in his commercial analysis 129·5 to 137·6, although he doubtless would give higher figures now; Thomson and Ballantyne give 158·7 to 166·6. We have no hesitation in saying that all these figures are distinctly too low, with the exception of the last quoted. The ten samples we have examined gave the following results:—

1	154·4	per cent.
2	155·3	,,
3	162·2	,,
4	156·0	,,
5	159·2	,,
6	162·7	,,
7	154·7	,,
8	153·5	,,
9	168·4	,,
10	166·4	,,

These figures are included in the limits 153·5 to 168·4 per cent., confirming the results obtained by Thomson and Ballantyne.

Free Acids.—The amount of free fatty acids calculated as oleic, is, of course, not to be described under the term constant, but we have determined the amount in six of the samples, and quote the figures here.

2	0·60	per cent.
3	0·54	,,
5	0·52	,,
6	0·34	,,
9	0·41	,,
10	0·54	,,

Melting Points of the Fatty Acids.—The characters of the fatty acids obtained by saponifying the oil and decomposing the resulting soap, are important factors in oil analysis. The melting points are not the least important of these. Very few figures for these appear to have been published. Our results are as follow:—

1	25° C.
2	23°
3	24°·5
4	22°
5	21°·5
6	24°·5
7	23·°5
8	22°
9	—
10	24°

that is from 21·5 to 25° C.

Iodine Absorption of the Fatty Acids.—The iodine absorptions of the fatty acids are, of course, higher than those of the original oil; but the figures do not as a rule agree with those calculated from the quantity of fatty acids contained in the oil. This is due, in all probability, to the fact that during the drying, etc., of the fatty acids, oxidation or other changes take place, and the result is that the iodine numbers for the fatty acids often only very slightly exceed those for the original oils. Four samples gave the following figures for the iodine absorptions of the fatty acids:—

3	164·9
5	170·0
6	168·3
10	170·1

The question of limits to these figures is not of material importance, as they necessarily depend on those of the iodine absorptions of the original oils. It will be noticed that the samples of which we determined the fatty acid iodine numbers were those of the highest absorption. The other samples would most probably have been correspondingly lower.

Mean Molecular Weight of Fatty Acids.—This figure was determined in the ordinary way by estimating the amount of potassium necessary to form a neutral salt with a given quantity of the mixed acids. In four samples the figures were:—

3	288·2
5	292·5
6	288·6
10	287·6

or between 287·6 and 292·5.

We trust that these figures may prove of some little service as an additional series of observations on cod-liver oil, especially as they represent ten samples of oil of known purity. Had the samples been more numerous the figures might have shown even greater variations.

β-DIGITOXIN.

BY H. KILIANI.

Purified digitalin prepared in the manner described in a previous paper* is distinguishable from all other digitalis products met with in trade, inasmuch as it is, according to the experiments of Professor Boehm, the only one which produces the typical action on the heart without having any deleterious accessory effects. Notwithstanding that great advantage, purified digitalin has not hitherto been very widely adopted in medical practice, because statements have repeatedly been made, on the basis of clinical observation, to the effect that digitalin has failed to produce the same beneficial results as the infusion of digitalis. Professor Boehm has on this account been led to conjecture that the leaves of foxglove may contain another kind of heart poison, and he therefore induced Professor Kiliani to make further investigation of the constituents of the leaves with the object of elucidating this point. The investigations, conducted by them conjointly, have led to several astonishing conclusions, and in the first place to establishing the very important result that the mixture of glucosides obtained from the leaves is altogether different from that obtained from the seed. Digitonin, which is present in such large proportion in the product from foxglove seed, has not hitherto been detected at all in the leaves, neither have the leaves been found to contain the substance described in a previous paper as *digitalinum verum*. On the other hand, however, the mixture of glucosides obtainable from the seed in the usual manner does not contain any digitoxin. For the present the results described relate only to the preparation and characters of a heart poison, which is either identical with or closely related to Schmiedeberg's digitoxin.

This substance was obtained in a crystalline state to the extent of about 0·1 per cent., and it was found to be a glucoside, though in other respects it resembles Schmiedeberg's digitoxin† so closely that Kiliani proposes to name it for the present β-digitoxin. He has ascertained that digitoxin prepared according to Schmiedeberg's method also yields sugar when treated with acids, so that it may turn out to be identical with the substance now obtained by Kiliani. —*Archiv. der Pharm.*, vol. 233, p. 311.

* *Pharm. Journ.*, lv., 29. † *Ibid.* [3], v., 741.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

MEETING OF THE COUNCIL.

WEDNESDAY, AUGUST 7, 1895.

Present—

Mr. Michael Carteighe, President,

Mr. John Harrison, Vice-President,

Messrs. Allen, Atkins, Bottle, Corder, Cross, Gostling, Grose, Hampson, Hills, Martin, Martindale, Newsholme, Savory, Schacht, Storrar, and Warren.

The minutes of the previous meeting were read and confirmed.

Plymouth, Devonport, and Stonehouse Pharmaceutical Association.

The President announced that this Society recently held its first annual meeting, and, like other bodies of a similar character, had a day's excursion which seemed to have been a very enjoyable function. They had been kind enough to send a very excellent photograph, one of the best he had ever seen, which was taken at Lidford, and he would move that the thanks of the Council be accorded them for it.

This was at once agreed to.

Election of Members.

Pharmaceutical Chemists.

The following having passed the Major Examination and tendered their subscriptions for the current year, were elected "Members" of the Society:—

Armbrecht, Ernest Louis Nelson ...London.
Armitage, Thomas .....New Shildon.
Bastow, Sidney.....Crediton.
Daniels, Frederic William .....London.
Dawson, Henry Gray Woodhouse...Derby.
Fraser, Henry .....Acton.
Marshall, Gervas Gilbert .....Cheadle.
Nall, Walter ....Rochdale.
Read, Harold McLean.....Alnmouth.
Welsh, John .....Chester.

Chemists and Druggists.

The following who were in business before August 1, 1868, having tendered their subscriptions for the current year, were elected "Members" of the Society:—

Nasbet, Thomas .....Sunderland.
Rowton, Henry.....Dudley.
Sunman, Joseph Thomas .....Luton.

Election of Associates in Business.

The following having passed their respective Examinations, being in business on their own account, and having tendered their subscriptions for the current year, were elected "Associates in Business" of the Society:—

Minor.

Brislee, William Henry.....Holyhead.
Burgess, Arthur Henry .....Bowdon.
Davy, John Thomas .....Witney.
Harries, David..... .....Carmarthen.
Heppenstall, Percy .....Goole.
Murdoch, James Hamilton .....Goole.
Murray, Matthew David.....Dalbeattie.
Palmer, Frank Herman.....Ipswich.
Shaw, Frederick Bertram .....Holmfirth.
Steele, Stephen.....Southminster.
White, Herbert..... .....Rock Ferry.

Modified.

Clement, John Radford .....Egremont, Cheshire.

Election of Associates.

The following having passed the Minor Examination, and tendered, or paid, as "Students" their subscriptions for the current year, were elected "Associates" of the Society:—

Bamford, Thomas .....Aberavon.
Bell, Robert Armstrong .....Wigton.
Blunt, Henry Rowland .....Birmingham.
Bowness, Samuel Wesley .....Ambleside.
Brooks, Charles .....Plymouth.
Burgess, Frederick William .....Bradford.
Cherry, Frederick .....Bloxham.
Clitherow, Herbert George .....Birmingham.
Davies, William .....Lampeter.
Davis, Sidney .....Gloucester.
Dexter, Bertie .....Nottingham.
Dyson, Thomas Hatfield.....Ilkley.
Edwards, William Howard .....Tunbridge Wells.
Fletcher, Charles Senior .....Liversedge.
Fuge, Dingley Palmer .....London.
Hirst, Thomas .....Huddersfield.
Howard, Alfred .....Hyde.
James, Frederick.....London.
Jealous, Bernard .....London.
Jones, John Daniel .....Aberystwith.
Lee, Harry Lancelot .....Bridlington Quay.
Leslie, Robert .....Rothienorman.
Lloyd, John Ambrose.....Chester.
McNaughton, David Esplin F.....Dundee.
Marsh, Frederick William.....Crewkerne.
Marshall, Robert .....Edinburgh.
Metcalfe, William Edward .....Levenshulme.
Mitchell, George Alexander .....Crieff.
Roberts, Joseph .....Kingsthorpe.
Rowe, John Westaway .....Wrexham.
Savill, William Arthur .. ..Clavering.
Scurlock, David .....Carmarthen.
Sinclair, James Donald .....Derby.
Smith, William Urton .....Edinburgh.
Tatler, Albert Edward .. ..Hanley.
Tunbridge, Fras. Fredk. Arnull.....Reading.
Walker, Albert Storrs.....Kendal.
Walker, John Robert .....Cockermouth.
Weight, Samuel Thos. Ford .....London.
Wild, George Herbert.....Burnley.
Williams, John..... ...Llanelly.
Woodruff, Herbert .....Manchester.

Election of Students.

The following having passed the First Examination and tendered their subscriptions for the current year, were elected "Students" of the Society:—

Arber, Alfred Preston .....Malvern.
Barker, Alfred Percy .....Barnsley.
Booth, James Henry Lawson .....Southport.
Boyd, Thomas .....Glasgow.
Crooke, Olive Louisa .....Edinburgh.
David, Griffith Thomas ....Aberdulais.
Goodwin, Ernest Henry.....Hammersmith.
Griffin, William John.....Birmingham.
Hampson, Adam .....Westhoughton.
Hogg, George Templeton .....Medomsley.
Hopps, William Thomas ..... Leamington Spa.
Hough, Ralph .....Wigan.
Jack, William John .....Lochgilphead.
Johnson, George Percy .....London.
Lloyd, Bertie Taylor .....Aberystwith.
Longley, Richard Samuel .....Wombwell.
McMillan, George .....West Benhar.
Martin, Thomas Stewart .....Grangemouth.
Meadley, George Holmes .....Sheffield.
Shirras, Alexander Wilson.....Newburgh-on-Tay.
Singleton, Robert Andrew Chas. ...Guernsey.
Taylor, George Alan.....Brinsley.
Thompson, Frederick William .....Southend.
Walls, William.....Dundee.

Ward, Edward .....Northampton.
Welch, James Henry .....Monmouth.
Wixey, Lewis Edward.....Chipping Campden.

Several persons were restored to their former status in the Society upon payment of the current year's subscription and a nominal restoration fee of one shilling.

Restorations to the Register.

The names of the following persons were restored to the Register of Chemists and Druggists:—

Josiah Ward, 141, Bevois Hill, Southampton.
Albert Edward Wood, 182, High Street, Southampton.

Report of the Finance Committee.

The Secretary read the report of this Committee, which was of the usual character, and recommended sundry accounts for payment. It also included a recommendation that £1000 Consols be sold on the General Fund Account.

The President (Chairman of the Committee) moved the adoption of the report and recommendations. He said the receipts had been very small, both on the General and Benevolent Fund accounts, as was usual at this time of the year, and there would be comparatively few receipts until towards the end of September. On the other hand, the payments were unusually heavy, two months' salaries being paid instead of one, as the Council did not meet in September, and there had been law costs to the amount of over £600. There had also been a balance of £111 to pay to the Chairman of the North British Branch, to close the special building account. A thousand pounds had already been paid on this account, so that the expenses of the early part of the year had been unusually heavy, and as the receipts from advertisements, &c., would not come in immediately, the Committee found it necessary to recommend that £1000 of Goschens should be sold on the General Fund account. At the same time the Committee hoped to be able to re-invest that sum towards the end of the financial year.

Mr. Bottle said he understood this was a good time to sell out stock.

The President said it was. It was hoped some little advantage might be gained when the money was re-invested.

Mr. Bottle said that depended on their being able to do so. They seemed to be spending more than their income.

The President said there had been unusual expenditure lately, some alterations having been introduced which it was hoped would prove remunerative in future, but the returns had not begun to come in. The Committee was carefully watching the expenditure, and would continue to do so.

The motion was then carried unanimously.

Benevolent Fund.

The report of this Committee included a recommendation of the following grants:—

£12 to the widow (56) of an associate who has had two previous grants, the last in July, 1894. She is endeavouring to support herself and family by keeping a lodging-house (Hastings).

£7 to a registered chemist and druggist (81) and former subscriber. He has had several grants from the Fund since 1890, to supplement a small allowance he receives from a local charity (Lynn).

£10 to a registered chemist and druggist (49) who has been invalided for some months (London).

£10 to a former member and subscriber (76). He has had five previous grants, is paralytic, and dependent on two sons, who are unable to do much for him (Hull).

One case was deferred for further information, and two others the Committee declined to entertain.

The Vice-President, in moving the reception and adoption of the report, said three of the cases proposed to be relieved were of an ordinary character, but the fourth seemed to him one of a class which this Fund was specially designed to help, and the knowledge of which might perhaps commend the Fund the more warmly to its supporters. The proposed recipient of the grant was, he understood, in business for many years, and conducted it with much credit, but, unfortunately for himself, not successfully. Having disposed of it, from 1878 to 1893 he was an assistant. He was then overtaken by ill-health, and recently had had to undergo a critical operation, from which he was steadily recovering, and requiring a change of air he had an opportunity of entering a convalescent home. He was slightly in arrears with his rent, and there would be the cost of reaching the home and perhaps of remaining in the neighbourhood somewhat longer than the period of residence in the home in order to re-establish his health. He thought the case the more worthy of support because, as he understood, the applicant had himself made every effort to keep his head above water. He had three children who could pretty well earn their livelihood, but there were three others dependent on the parents. The wife earned 8*s.* or 9*s.* a week by needlework, and so he thought had established a fair claim upon the Fund, with a view to restoring the applicant to health, and perhaps giving him a new start in life.

The report was then adopted without further comment.

The Late Mr. Bland.

The President expressed the regret with which he had to report the death of one of their oldest members, and one well known to all who attended their evening meetings—Mr. Bland. He thought the Society might well place on record their appreciation of the interest their late friend always showed in the welfare of the Society. He was one of the few remaining men of the old school who had received a sound education, was a man of considerable abilities, and felt nothing too mean for the exercise of his talents. He carried on, he (the President) believed, almost every department of his business with his own hands, and he kept himself well abreast of all modern movements in chemistry.

Mr. Atkins said it should be mentioned that Mr. Bland habitually attended not only their evening meetings, but he was generally seen at their annual meetings, in which he always showed a lively interest.

Mr. Hampson said he should like to add a few words respecting an old and honoured friend. Having had frequent opportunities of converse with him, he had often been struck with the vigour of his mind and his thorough experience as a chemist well up in the modern knowledge of chemistry, and able to express his opinions with force and strong individuality.

Library, Museum, School, and House Committee.

Library.

The report of the Librarian had been received, including the following particulars:—

	Attendance.	Total.	Highest.	Lowest.	Average.
June	Day	337	21	7	14
	Evening.....	141	16	2	7

Circulation of Books.	Total.	Town.	Country.	Carriage paid.
June	160	76	84	£1 0*s.* 2*d.*

Donations to the Library had been announced (*Pharm. Journ.*, July 13, p. 37), and the Committee had directed that the usual letters of thanks be sent to the respective donors.

The Committee had recommended that the under-mentioned works be purchased:—

For the Library in London:—

Green, Manual of Botany.
Warming, Systematic Botany.
Beasley, Druggists' General Receipt Book.
Van Heurck, Treatise on Diatomaceæ.

The Committee had also recommended that the Librarian be authorised to attend the annual meeting of the Library Association at Cardiff.

Museum.

The report of the Curator had been received, and included the following particulars:—

		Attendance.	Total.	Highest.	Lowest.	Average.
June	Morning..... ..	479	48	10	20
	Evening.....	50	16	1	2

Donations to the Museum had been received (*Pharm. Journ.*, July 13, p. 37), and the Committee had recommended that the usual letters of thanks be sent to the respective donors.

The Committee had also authorised the Curator to attend the annual meeting of the Museums Association at Newcastle-on-Tyne.

School of Pharmacy.

The report of the Committee included a report by the Professors on the diagrams and apparatus used in the lectures. Two small microscopes were reported to be missing. An increase of £50 in the salary of Professor Greenish was recommended, and also that Professor Green be allowed an assistant.

The President moved the adoption of the report and recommendations. There was nothing calling for special comment except Professor Green's application for an assistant, which the Committee thought it well to accede to, and the letter from Professor Greenish. With regard to him, the Committee felt that his opportunity of earning additional remuneration from fees was very limited, and having in view the desirability of encouraging the Professor in doing original histological work, a branch of work which had not been cultivated very extensively in this country, it would be desirable to increase his stipend by £50. Professor Greenish had done a great deal of work for various educational purposes connected with the Society which might be called extra-official. The main consideration, however, which weighed with the Committee was the belief that the Professor would be able to do certain original work which would bring credit to himself and also to the Society.

The motion was carried unanimously.

The Redwood Scholarship.

The President said he had to report on behalf of the Research Committee that it had considered the merits of two gentlemen who had applied to be elected Redwood Scholars, and recommended that Mr. Harold Brown be elected to this Scholarship for the ensuing year. He was a late Bell Scholar, and his name would be mentioned again presently in connection with the list of honours at the Prize Examinations.

It was then resolved that on the report of the Research Committee, Mr. Harold Brown be elected to the Redwood Scholarship for the ensuing session.

Certificates in Lieu of the Preliminary Examination.

The President said applications had been received from two German gentlemen that their names might be placed on the list of students previous to studying for the Minor examination. In each case certificates had been submitted, one from the Real Gymnasium at Carlsruhe, and the other from the Real Gymnasium at Stuttgart, they had been gone into before the Board of Examiners and were found to be far above the standard which the College of Preceptors required. He therefore moved that the Board of Examiners be empowered to accept these certificates in lieu of the Preliminary examination.

The motion was carried unanimously.

The Hanbury Medal.

The President announced that the Hanbury Gold Medal, which was awarded biennially by the Presidents of the Linnean, Chemical, and Pharmaceutical Societies, the President of the Pharmaceutical Conference, and a pharmaceutical chemist nominated by the two last named, had this year been awarded to Dr. August Vogl, Professor of Pharmacology and Pharmacognosy in the University of Vienna. He might add that the previous medals had been awarded to a Russian Professor, to a German, a Frenchman, an American, an Ango-Indian, and an Englishman. The present recipient was the first Austrian to receive the medal.

The British Pharmaceutical Conference.

The President said it was his duty as one of the delegates appointed to attend the Pharmaceutical Conference to report that several of the gentlemen nominated attended, and took an active part in promoting the best interests of the Conference, and in conferring with the Bournemouth members of the Society, and especially with the members of the Local Association. Bournemouth was fortunate in having a number of active as well as accomplished pharmacists, and a local organisation of which every chemist and druggist in the district was a member. It was also fortunate in having a President who possessed the rare gifts of organisation, patience, and long suffering He referred to Mr. Bridge, who was not only the President of the local association, but also Chairman of the local Committee, and Mr. Martin, the late President of the Conference, would bear him out in saying that everyone who attended the Conference felt not only indebted to the whole Committee, but personally indebted to Mr. Bridge for the untiring exertions he made for their comfort and happiness. It was not necessary for him to refer to the scientific papers and discussions, which were duly reported, but there were certain portions of the proceedings which were not reported on which he might say a word. He had been at many Conferences and similar meetings before, but he did not remember any one in which the comfort of every member of the Conference was so satisfactorily cared for. He did not wish to say anything disparaging of the exertions made in the various towns at which the Conference had met in previous years. Part of the success was due to the peculiar position of Bournemouth, and the great advantage it had in having an hotel like the Mont Dore, at which they could all assemble. For the first time in the history of the Conference they were all able to meet in one hotel, where there was a winter garden and a summer garden. In the latter was held a garden party, while the reception by the President and Mrs. Martin was held in the winter garden; the luncheons were also held there, and the smoking concert, whilst the musical evening, under the direction of Mrs. Martin, was held in the drawing-room. It was needless to say that under these circumstances a much larger number of ladies than usual was present, and finally the local Committee organised a most perfect excursion into the New Forest, which was carried out without a hitch. The party arrived at the rendezvous to the minute; they had a magnificent luncheon in the heart of the forest, then visited Lyndhurst, and went on to Ringwood, where tea was provided,

and having been photographed on the coaches and brakes were driven back happy to Bournemouth. During the whole visit the programme was so well filled that it was difficult to find any time for oneself. It was only right that he should, as one of the delegates publicly said, express his sense of the obligation under which they had been laid by the local Committee, and especially he had to congratulate the local Association in having at its head a man of such breadth of view and power of organisation, and possessing the art of doing everything in such a quiet unobtrusive way that you were unconscious of its being done, or who was doing it. He paid the Presidents of the Society and of the Conference the compliment of inviting them to his own table to meet all the members of the local Association and their wives, which enabled them to make the personal acquaintance of those who were associated with him in his work. Those who were present would long remember the boundless hospitality and excellent taste with which that evening's entertainment was carried out.

Mr. Martin said he should like to endorse what had fallen from the President, especially as regarded the admirable arrangements made in Bournemouth. In all his experience of conferences he remembered none where such thorough good feeling prevailed throughout the whole meeting. In addition to the testimony he joined the President in bearing to the services of Mr. Bridge, which were beyond all praise, he felt that every member of the Committee and every pharmacist in Bournemouth worked as if the success and honour of the Conference depended on his own personal effort. Espccially was this the case with Mr. Toone and Mr. Hardwick, the local secretary, who he quite believed when he told them that if they desired to spend a happy week thcy should come to Bournemouth and let him make the arrangements, for a gentleman who showed more delight in discharging the duties of the position he undertook than Mr. Hardwick he had never seen. As President, he considered himself most favoured and fortunate in being supported at the meeting by so many of the members of the Council and especially by the President of this Society, whose presence was to him most gratifying.

Mr. Atkins, as a neighbour of their Bournemouth friends, said he was sure nothing would give them more pleasure than the flattering and complimentary remarks which had just been made. For himsclf he was exceedingly glad that the President had taken advantage of the present opportunity for recognising the value and merits of the Bournemouth meeting, one admirable feature of which, he thought, was the delightful music at the evening receptions. Beyond these passing pleasures he thought they might expect much to result in the way of consolidating the interests of pharmacy through holding these conferences, and enabling them the better to know and understand each other. For himself, although by no means a stranger to Bournemouth, the recent Conference had led to his acquaintance with local gentlemen whose friendship he felt to be desired, and of whose qualities he might otherwise have remained in ignorance, and no doubt his experience would be also realised by others. Having friends in Bournemouth, it would give him great pleasure to convey to them the substance of the complimentary remarks which had been made to-day, which also he felt he could safely acknowledge on their behalf.

Mr. Martindale said he should also like to express his recognition of the advantages and pleasure he derived from attending the Conference and to join in the remarks which had fallen from previous speakers. He would further take the opportunity of reminding the Council that Liverpool, where the Conference was to be held next year, was a place second to none as a centre of pharmacy. It had had a school of pharmacy for some years, and as occupying an official position in relation to the Conference he ventured to bespeak the interest of the Council in the meeting.

Report of Examinations.

July, 1895.

	Candidates.		
	Examined.	Passed.	Failed.
England and Wales:—			
Major	49	23	26
Minor	229	53	176
Scotland:—			
Major	4	2	2
Minor	141	60	81
First Examination	392	183	209

18 Certificates by approved examining bodies were received in lieu of the Society's examination.

Mr. Corder said, having been an old examiner, he much regretted to hear of the extraordinary failures in the Minor examination, and asked could any reason be assigned for these failures.

The President said he supposed Mr. Corder did not expect him to answer that question. Would it not be better to let the subject stand till the end of the year and then review the whole thing? Against the failures it must be remembered many of the candidates were much better than they had ever had before. It should also not be forgotten that in London there were a good many remanets, and it was evident that a number of these had not yet received sufficient tuition in practical work.

General Purposes Committee.

The report of this committee included the following reports on the prize examinations:—

Practical Chemistry.

Professor Attfield had reported that there had been sixty-seven students in this class, which was an average number; that as regards conduct he had no serious lapse to record; and that as regarded the progress made a larger proportion of the students had passed the examinations than had been the case for twenty years. Eleven students had competed for the silver medal.

Chemistry.

Professor Dunstan had reported that there were six candidates at the sessional examination in chemistry, and that the papers were distinctly above the average.

Botany.

Professor Green had reported that there were six candidates for tho prizes in this class, the papers sent in by the two Bell scholars being far in advance of the others.

Materia Medica.

Professor Greenish had reported that there had been thirty-two students in this class, the average attendance being twenty-eight. The general conduct of the class had been exceptional and the progress made distinctly above the average. Seven students competed in the prize examination and the papers were satisfactory.

Pharmacy and Practical Pharmacy.

Mr. Ince had reportcd that ten candidates competed for the silver medal, of whom four obtained 80 per cent. or upwards of the possible marks.

Prize Awards.

Acting on the foregoing reports, the Committee had recommended that the following awards be made:—

Practical Chemistry.

Silver Medal .....John Robert Walker.

Certificates of Honour ..... { Harold M. Read. / Sidney Davis. / Lewis John Giles.

Chemistry.

Silver Medal .....Harold Brown.

Certificates of Honour..... { Harold M. Read. / John Robert Walker.

Botany.

Silver Medal .....Harold Brown.

Certificate of Honour..... .....John Robert Walker.

Materia Medica.

Silver Medal .....Harold Brown.

Certificates of Honour ..... { John Robert Walker. / Sidney Bastow.

Pharmacy.

Silver Medal .....Harold Brown.

COUNCIL PRIZES EXAMINATION.

Professor Percy Frankland, Mr. Ransom, and Mr. Seward, who had been appointed to conduct this examination, had reported on the competition for these prizes, for which there were ten candidates. The envelopes bearing the mottoes of the successful candidates were opened and found to contain the names of H. Brown, H. Fraser, and F. H. Tully.

The following awards were then made:—

Pereira Medal (Silver); and Books value £5, presented by the late Thomas Hyde Hills.

Harold Brown.

Pharmaceutical Society's Medal (Silver); and Books value £3, presented by the late Thomas Hyde Hills.

Henry Fraser.

Pharmaceutical Society's Medal (Bronze); and Books value £2 presented by the late Thomas Hyde Hills.

Fred. Herman Tully.

The following are the mottoes of the remaining competitors for the Council Prizes, arranged in order of merit:—

3, Up to date; 4, Calyx; 5, Existing results have existing causes; 6, Sperans; 7, Inferior non sequatus; 8, Tentando superabimus; 9, Upsilon; 10, Ego.

JACOB BELL MEMORIAL SCHOLARSHIPS.

The examiners appointed to conduct the examination for the Jacob Bell Scholarships had reported that thirty-two candidates had competed for the scholarships at the following centres:—

Aberystwith, 1; Birmingham, 2; Brighton, 1; Bristol, 1; Cardiff, 1; Cheltenham, 1; Darlington, 1; Edinburgh, 2; Glasgow, 1; Hull, 1; Lancaster, 1; Lincoln, 1; Liverpool, 1; London, 7; Newcastle, 1; Northampton, 1; Norwich 1; Nottingham, 3; Sheffield, 1; Southampton, 1; York, 2.

The envelopes bearing the mottoes of the successful candidates having been opened by the Committee appointed to make the award, had been found to contain the names of the following:—

Francis Underwood Stamp .....**London.**
George Senter .....**Edinburgh.**

The Committee had awarded the Scholarships to Mr. Stamp and Mr. Senter, subject to the approval of the Council.

The competitors who wrote under the following mottoes obtained upwards of two-thirds of the maximum number of marks (which is the minimum number for the award of a Bell Scholarship). The arrangement is in order of merit:—

3. Perseverando vincet;
4. Nemo E. R.;
5. { Perseverance; / Sine quâ non;
7. Whittington;
8. Cogito ergo sum;
9. Pro viribus agam;
10. { Alere ignem; / Progrediens;
12. { Palmam, qui meruit, ferat; / Nec pluribus impar.

The remaining competitors did not reach the standard of efficiency above referred to.

MANCHESTER PHARMACEUTICAL ASSOCIATION SCHOLARSHIP.

The Committee reported that one candidate sat for the examination for this Scholarship, but that he had failed to attain the standard of marks entitling him to the award of the Scholarship.

HERBARIUM.

Professor Green reported on the Herbarium competition, and on his recommendation the following awards were made:—

Silver Medal .....Geo. Valentine Chapman Last.

Bronze Medal .....Herbert Payne.

Certificates of Honour ..... { Frederick A. Upsher Smith. / Edwin George Martin.

The PRESIDENT said they must all extremely regret both that there was but one candidate for the Manchester Pharmaceutical Association Scholarship, and that he had failed to attain a sufficient standard. It was obvious that their Manchester friends, by founding the Scholarship, were anxious to encourage young men, but there must be a certain amount of proficiency before the Examiners could recommend a student.

Mr. ALLEN joined in this expression of regret, but added that the fact of there being thirty-two competitors for the Bell Scholarship throughout the country showed there was no lack of preparation going on, and might perhaps induce their Manchester friends to adopt a suggestion he had before thrown out of expanding the competition for their gift, and not confine it to their district. Looking through the list he found there were at least eleven besides those who had gained Bell Scholarships who had attained a sufficient standard to compete for them.

The PRESIDENT then moved the adoption of this portion of the report, and the consequent award of the prizes.

This was carried unanimously.

Votes of thanks were passed to Professor Percy Frankland and Messrs. Ransom and Seward for conducting the Council Prizes Examination, and to Messrs. Tanner, Holmes, and Pinches for conducting the Jacob Bell Scholarships Examination.

LEGACY TO THE BENEVOLENT FUND.

The PRESIDENT announced that he had received a letter from a firm of solicitors in Birmingham stating that the late Mr. Thomas Charles Taylor, of Nottingham, had bequeathed £500 to the Benevolent Fund of the Society, which they hoped to be shortly in a position to hand over to the person authorised to give a receipt for the same.

THE HOLIDAYS.

The PRESIDENT announced that the next Session of the Council would be held in October, the September meeting being as usual suspended in view of the holidays.

RESEARCH LABORATORY.

Mr. BOTTLE said he had recently been through the Research Laboratory as requested, and found that, as the result of considerable condensation through not using the means provided for ventilation, something must be done. He suggested experiments with a view to seeing whether they could avoid the evil, or it might be desirable to make an open fireplace. The walls of the balance-room, too, showed signs of damp or condensation, which in the interests of the balances it was necessary should be attended to, and the examination hall required to be looked after. He also gave details of the cleaning and decorations that were necessary.

The PRESIDENT, with the expressed approval of the Council, said they thanked Mr. Bottle for the interest he had shown in these

matters, and he supposed they would approve of his suggestions, and empower their being carried into execution.

This was agreed to.

Legal Business.

The Council then went into Committee as usual to consider the legal portion of the report of the General Purposes Committee. This included the usual letter from the solicitors. A number of cases of infringement of the Pharmacy Act were reported, and proceedings were recommended.

On resuming, the report and recommendations were adopted, and special resolutions passed, authorising proceedings against the persons named.

CORRESPONDENCE.

[*Letters to the Editor should be written as concisely as possible, on one side of the paper only, and preferably with name and address for publication.*]

MR. MARTIN'S ADDRESS.

Sir,—The President of the Conference has delivered himself of what all must acknowledge is a well-thought-out address, and has placed before us a high—though some may think a Utopian—ideal worthy of deepest consideration by everyone connected with pharmacy. Since Mr. Martin has asked us to criticise the views he has communicated, I feel less reluctant than I might otherwise have done to enter my respectful though none the less emphatic protest against what I feel to be mistaken ideas and ill-timed comments. Leaving for the moment the "waste of energy and the diversion of aim," by which he sums up the various efforts being made to improve the status of pharmacy as a livelihood, I refer now especially to that part of his address wherein he spoke of the recent attempts at consolidation of the Pharmaceutical Society, and said, in substance, "Let every man who desires to become a member of the Society pass the Major examination, as that is the only portal through which he can honourably enter." *Ergo*, "he that would come in by any other way is a ———" You know the rest, Sir!

This is not the time to sow discord, and although I know that at an earlier period Mr. Martin's views were shared by a majority of the Council and by a fair proportion of Major men outside, I am pleased to say that it is not the case at present; and there have been many expressions of opinion favourable to the removing of this existing barrier to a united society both from councillors and laymen. I feel sure that Mr. Martin will agree with me in this, that the man who passes the Minor examination to-day must know quite as much as the man who passed the Major when Mr. Martin was a student, and I maintain that if the Major men of those days have been worthy to be entrusted with the direction of the affairs of the Pharmaceutical Society, both as an examining and as an educational body—so would those affairs continue to be jealously safeguarded, even though some portion of that august Council should consist of men who had passed merely the one qualifying examination. When he further said, "there are hundreds of men who are on the Register to-day as a result of having passed the Minor examination, but whose minds are a perfect blank with respect to any scientific knowledge of pharmacy," he said nothing but the truth, but he might have equally well added, "and hundreds of such who have passed the Major." The mere passing successfully through the examination rooms will never make a dull-head into a man of science, and, on the other hand, there have been, and still are, hundreds of assiduous students in the science of pharmacy and of chemistry who have never gone beyond the one qualifying examination. Far be it from me to underrate or depreciate in any way the value of the prolonged studies necessitated by the higher examination; I am too well convinced of the wisdom of higher education in all branches of knowledge, but it was with pain that I heard Mr. Martin re-open this question in words which savoured of a sneer at those who have been less fortunate, yet whom it is extremely desirable to enlist in the ranks of a united society of pharmacists. There are still other points to which I would like to refer, but this must suffice for the present.

Manchester. Harry Kemp.

"QUACKERY, LIMITED."

Sir,—One of the greatest nuisances the chemist has to put up with is the prevalent system of doctors prescribing proprietary articles. Hundreds of chemists must have their shelves loaded with useless remnants of rubbish, for which they can find no sale, use, or value. For instance, a prescription is handed in ordering an ounce of some proprietary liquid extract not to be had in the town, and the chemist must buy an original bottle, say 8 oz., at a cost of 5*s*. 6*d*. or more, 7 oz. remain on hand for ever, result loss of 4*s*. on the transaction.

This does not apply to secret compounds only, which may be termed quack doctors' remedies, but to ordinary fluid extracts, etc., masquerading under fancy names. The chemist may have a dozen kinds of ext. cascara, but cannot fill the prescription faithfully without getting the thirteenth. The makers will not supply the small quantities required, so to save time and money, I venture to offer a suggestion which I am certain will prove a profitable line to the first house which makes itself known as headquarters for special preparations in broken quantities as required.

I would advise that some London house lay itself open to buy and sell these goods, so that any chemist requiring a small quantity of any particular one can obtain it per return of post by wiring to "Quackeries, London" (registered telegraphic address).

There is scope for profit directly, and indirectly a splendid introduction at small expense to every chemist in the kingdom. What pharmacist but has a few of these skeletons in his cupboard for sale at any price, and where is the chemist who would not buy a shilling's worth of stuff rather than run the risk of losing five?

I have thought out a system of working the trade easily and at small expense, and will gladly explain my views to anyone who entertains it.

6, *Broad Street, Hereford.* J. J. Jackson.

Lead-Chloride-Pyridine-Hydrochloride, and Derivatives.—Some new and interesting double compounds of the haloid salts of lead with members of the pyridine series are described by Goebbel (Ber. xxviii., 792). In 1893 Classen and Zahorski prepared double salts of lead tetra-chloride and ammonium chloride, and then replaced the ammonia radical (NH_3) by organic bases as pyridine and quinoline.

The corresponding picoline, lutidine, and collidine salts have been prepared by dissolving lead chloride in strong hydrochloric acid, then passing chlorine through the solution, and finally adding a base, as picoline. A crystalline mass is obtained which, purified by usual methods, has the probable formula ($3PbCl_4 \cdot 7C_6H_7N \cdot HCl$), whilst with lutidine two double salts were obtained of formulæ ($2PbCl_4 \cdot 5C_7H_9N \cdot HCl$) and ($PbCl_4 \cdot 2C_7H_9N \cdot HCl$).

By boiling crystalline lead di-chloride with picoline hydrochloride, a crystalline double salt was obtained of formula ($2PbCl_2 \cdot C_6H_7N \cdot HCl$). A similar lutidine salt was also obtained.

By boiling pyridine with lead bromide two crystalline compounds were obtained of the following formulæ: ($PbBr_2 \cdot C_5H_5N$) and ($PbBr_2 \cdot C_5H_5N$) + $2C_5H_5N$.

A similar compound with quinoline and lead iodide was obtained.

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THE COUNCIL MEETING.

After the reading of the minutes of the previous meeting, the President drew attention to a photograph of the members of the Plymouth, Devonport, and Stonehouse Pharmaceutical Society, taken at an excursion to Lidford in connection with their first annual meeting, and it was agreed that its presentation should be acknowledged with the thanks of the Council.

The additions to the Society comprised thirteen members, fifty-four associates, and twenty-seven students.

The report of the Finance Committee showed that, as is usual at this period of the year, the receipts have been small during the past month, while the August payments are, in comparison, exceptionally heavy, and on this occasion there have been additional demands on the Society's funds, among them six hundred pounds for law costs and a further sum on account of the Society's new premises in Edinburgh.

On the recommendation of the Benevolent Fund Committee, four grants were ordered to be paid, one of twelve pounds, two of ten pounds each, and one seven pounds. To one of these grants attention was directed by the Vice-President, Mr. Harrison, as relating to a case which he thought was of a nature for which assistance from the Benevolent Fund was especially suitable, the recipient having not only been unsuccessful in business but subsequently, while acting as an assistant, so disabled by illness as to have to enter a convalescent home. The grant would enable him to pay off some arrears of rent, and help him to make a new start in life, on the restoration of his health.

The President mentioned the death of Mr. Bland, one of the oldest members of the Society, who will be remembered by attendants at the anniversary and evening meetings as a constant occupant of a corner seat in the theatre which serves for the place of meeting. Mr. Bland was one of the few remaining men of the old school, who had been well educated and kept himself in touch with the advances in science, besides taking great interest in the work of the Society. Both Mr. Atkins and Mr. Hampson added their tribute of regret for his loss.

Two applications for the acceptance of certificates from the Real Gymnasium at Stuttgart, and from the Grand Ducal gymnasium at Karlsruhe in lieu of the Preliminary examination were agreed to.

The Report of the Library, etc., Committee gave the usual statistical information as to the attendances at the Library and Museum. Recommendations were adopted that certain books should be purchased, that the Librarian should attend the annual meeting of the Library Association at Cardiff, that an increase should be made in the salary of Professor Greenish, and that Professor Green should be allowed an assistant.

The announcement was made that the Hanbury Gold Medal has been awarded to Dr. Augustus Vogl, the Professor of Pharmacology and Pharmacognosy in the University of Vienna.

As one of the delegates from the Society to the Pharmaceutical Conference at Bournemouth, the President reported that he had attended with several other delegates who took an active part in the proceedings. He spoke in high terms of the arrangements made by the local Committee for rendering the meeting one of the most agreeable in the history of the Conference. Mr. Martin, Mr. Atkins, and Mr. Martindale also spoke in praise of the efforts made by the pharmacists of Bournemouth to entertain their visitors, and Mr. Atkins especially dwelt upon the advantage of such reunions as a means of consolidating the interests of pharmacy and enabling those engaged in the business throughout the country to become personally acquainted with each other.

Consequent upon the reading of the report of the examinations, Mr. Corder expressed regret at hearing of the extraordinary number of failures in the Minor examination, and he inquired whether any reason could be assigned for their occurrence. The President replied that he did not suppose Mr. Corder expected him to answer that difficult question, and suggested that it would be better to let the subject rest until it could be reviewed at the end of the year, adding also that in compensation for the failures many candidates were much better than on any previous occasion.

On behalf of the Research Committee the President reported that it recommended the election of Mr. Harold Brown as the Redwood Scholar for the ensuing year, and a resolution to that effect was passed.

The Report of the General Purposes Committee included reports from the professors on the competitions for the sessional prizes, and the prizes were awarded in accordance with the recommendation of the Committee.

The Council examination prizes were awarded in accordance with the recommendation of the Committee and the reports of Professor Percy Frankland, Mr. Ransom, and Mr. Seward; the Pereira medal to Mr. Harold Brown, the silver medal to Mr. Henry Fraser, and the bronze medal to Mr. Fred. Herman Tully.

The Jacob Bell Memorial Scholarships were awarded to Mr. Stamp, of London, and Mr. Senter, of Edinburgh. Out of the thirty-two candidates competing for these Scholarships in different parts of the kingdom, eight besides the successful candidates obtained more than the minimum number of marks.

The Manchester Pharmaceutical Association Scholarship was not awarded: there was only one candidate for it, and he did not obtain marks sufficient to entitle him to the award. This circumstance evoked an expression of regret from the President and from Mr. Allen, who also added that the evidence given of study going on by the result of the compe-

tition for the Bell Scholarships might perhaps be taken as a reason for extending the competition for the Manchester Scholarship beyond the district to which it is now limited.

Votes of thanks were passed to the examiners who had conducted the several examinations.

A legacy of five hundred pounds, bequeathed to the Benevolent Fund by the late Mr. Thomas Charles Taylor, of Nottingham, was announced by the President.

Mr. Bottle reported upon the defective condition of some parts of the Laboratory and balance room, suggesting also the means to be adopted for removing these defects, which were approved.

The legal business of the Committee was as usual considered in committee, and proceedings were ordered to be taken in a number of cases.

PROPOSED AMENDMENT OF THE COMPANIES ACTS.

The Report of the Departmental Committee appointed by the Board of Trade to inquire what amendments are necessary in the Companies Acts, 1862 to 1890, has just been published, and may be described as practical and useful though it does little more than touch the fringe of a vast subject. The difficulty of attacking the problems involved will be realised to some extent when it is stated that there were in the United Kingdom, in April, 1894, 18,361 limited liability companies, with a paid-up capital of £1,035,029,835. The number of persons directly interested in these companies is enormous, and, as pointed out in the Report, legislation affecting interests of such magnitude demands great caution and care, whilst restrictive provisions are not to be lightly entertained. Certain suggestions are, nevertheless, made by the Committee, and these are embodied in a definite shape in a draft Bill. The chief points dealt with are the practice of proceeding to allotment and commencing operations with insufficient capital, the disclosure of the real vendor and the purchase price, etc., etc., whilst in an addendum to the Report by Mr. Justice Vaughan Williams, it is proposed that companies should be compelled to file yearly balance-sheets at Somerset House. But, with regard to the present practice in the registration of companies, the Committee does not recommend any alteration of the law, as regards either the number of subscribers to the memorandum of asssociation or the amount of their subscription. It is acknowledged that there is no magic in the number seven, which does not even secure seven substantial or real shareholders, and unless a minimum holding were fixed sufficiently high to exclude the small investor, it would be impossible to declare the holding of any member of a company unsubstantial. "You must, in the opinion of the Committee, look elsewhere for provisions to secure the *bonâ fides* of the undertaking."

From the point of view of chemists and druggists, however, the portion of the Committee's Report bearing on so-called "one-man companies" is of greatest importance. Thus, the Report speaks of the "growing practice" of converting the business of an individual or of a firm into a joint stock company. As is well known, the business is carried on as formerly, but the owners are become shareholders with liability limited to the amount of their shares, and in some cases "individuals or firms, it may be on the eve of bankruptcy, form a company consisting of themselves and the requisite number of clerks or dummies, and then purport to sell their business to the company so formed, usually at an inflated valuation, and purport to receive payment in cash, which is satisfied by cross entries, or set off against the calls on shares subscribed for by them." Another object of such transactions is that persons are thus enabled to escape the operation of the bankruptcy law. Reference is made to the communications submitted to the Committee by the Pharmaceutical Society and medical associations stating that similar means are resorted to by unqualified persons for the purpose of enabling them to carry on the business of chemists and druggists, or some branch of the medical profession, which they could not do as individuals. In the opinion of the members of the Committee, however, specific amendment of the law in these respects should be effected in connection with the Pharmacy and Medical Acts. At the same time, the instances given by the Pharmaceutical Society are quoted as affording "cogent evidence of the facility with which an individual may be converted into a company," and further evidence is given by the advertised offer of an enterprising firm, to turn a person into a corporation with limited liability for a modest fee, accompanied by a statement of the advantages of this proceeding.

Amongst the typical "companies," of which particulars were given in a statement communicated to the Committee by Mr. Michael Carteighe, President of the Pharmaceutical Society, the chief position is taken by the "Southampton Drug Company." William Day, a grocer of Southampton, having in 1882 been fined under the provisions of the Pharmacy Act, 1868, for the illegal sale of poison, he associated himself with other persons and formed this company, with a nominal capital of £10,000 in £1 shares. Day held 5995 of the 6000 shares taken up, and the other five shareholders held one share each. Not one of the six subscribers was legally qualified to carry on the business of a chemist and druggist, and the articles of association were so drafted as to throw the whole conduct of affairs uncontrolled into the hands of the managing director. The company thus consisted practically of one man, and by assuming the position of managing director, William Day was permitted by the Companies Acts to limit his personal liability, whilst his power to contract debts remained unlimited, and he was thus enabled to do without restriction what a court of law had previously held that it was illegal and dangerous for him to do. To prevent and put a limit to such an anomalous state of affairs the following clause was suggested by the Council of the Pharmaceutical Society for insertion in an amending Act: "If any company shall practise, carry on, or exercise any profession, trade, or calling, wherein any personal qualification, whether with or without certificate or registration, is by law required in the persons practising, carrying on, or exercising the same, or shall take, use, or exhibit, any name, title, description, or addition, which cannot by law be taken, used, or exhibited unless the person taking, using, or exhibiting the same has a personal qualification, such company shall thereby incur the same penalties, and be subject to the same consequences in all respects as though such company were an individual person practising, carrying on, or exercising such profession, trade, or business, or taking, using, or exhibiting such name, title, description, or addition without having such qualification." It was also suggested that provision be made in the Companies Acts to empower any person, whether a share-

holder or not, to institute proceedings against a company for any offence against the Companies Acts. But, as already stated, the members of the Committee did not think the specific amendment of the law asked for fell within the scope of their reference, and they suggest that any real grievance should be met directly by the parties interested by amendment of the Pharmacy and Medical Acts.

The expression of that view by the Committee is preceded by mention of the judgment of Lord Justice Lindley in the case of Broderip *v.* Aron Salomon and Co., Limited. That decision is understood by the Committee as showing that although a company be in formal compliance with the requirements of the Companies Acts, yet if it be proved that its formation was a mere device to defraud creditors the law as administered by the courts will go behind the legal machinery and hold the persons who are beneficial owners of the business liable. Upon that basis the Committee considers that amendment of the existing law in this respect is unnecessary, but to meet such cases as that of Aron Salomon, and possibly also those to which attention has been called by the Pharmaceutical Society and the medical associations, it is thought there may be some addition of the grounds upon which a winding-up order may be made. With that object a clause in the draft Bill provides that a company may be wound up when the Court is satisfied that it has been formed with intent to effect any illegal purpose or that its business has been carried on with such object.

MEDICAL MEN ON THE PHARMACOPŒIA.

There was a good attendance of members of the British Medical Association at the meeting of the section of pharmacology and therapeutics, on Thursday, August 1, when the revision of the Pharmacopœia was under discussion. The general tendency of the speakers was in favour of simplification of the work. Amongst other opinions expressed, Professor Leech suggested that several preparations now official might with advantage be omitted in the next edition, and that no new remedies should receive official recognition unless proved to be really useful. It would probably be well also to indicate the exact impurities which the specified tests are designed to detect, and the metric system of weights and measures should be introduced side by side with the English system. Other suggestions by various speakers were that the Pharmacopœia should continue to be regarded as a work of reference rather than a text-book of pharmacology and therapeutics; that the doses should be carefully revised; that the number of preparations of a given substance should be considerably reduced; and that medicated pessaries and bougies should be included.

INTERNATIONAL CATALOGUE COMMITTEE.

A report has been presented to the President and Council of the Royal Society in which they are requested to take measures to call together, in July of next year, an International Conference in London, at which representatives of the several nations engaged in scientific work shall be invited to attend, "with the view of discussing and settling a detailed scheme for the production by international co-operation of complete authors' and subject catalogues of scientific literature." According to the report there is a considerable degree of unanimity in favour of English being the language of the subject catalogue, and some form of card catalogue appears to be generally favoured as the basis of the scheme.

NOTES AND NEWS.

Apothecary and Natural Philosopher.—A correspondent of the *Athenæum* corrects an error of long standing, by which several works on medicine and natural philosophy, written about 1780 by John Elliott, an apothecary, who kept a shop in Carnaby Market, have been attributed to Sir John Elliott, a member of the College of Physicians.

Presentation to Sir Joseph Lister.—On Tuesday, July 30, Sir Joseph Lister was presented with a three-quarter length portrait of himself, painted by Mr. J. H. Lorrimer, A.R.S.A., together with an illuminated and illustrated album containing the names of the subscribers, on the occasion of his retirement from the chair of clinical surgery in King's College Hospital. The presentation of these marks of affection and esteem from his old friends, colleagues, and pupils, was made by Sir John Erichsen in the theatre of King's College Hospital, and he referred to the brilliant results of the system developed by Sir Joseph Lister, which had raised surgery almost to the rank of an exact science.

Telephones and Thunderstorms.—It was stated in the *Newcastle Daily Leader* a few days ago that a gentleman who was using a telephone to speak to Newcastle during a thunderstorm received a shock which caused him intense pain and rendered one of his arms powerless. Similar, though not so severe, cases have happened elsewhere, partial deafness being caused for a time, and there is grave reason for doubting whether the apparatus usually provided for carrying strong currents to earth is as a rule sufficient for the purpose.

A Neglected Alkaloid of Opium.—In the pharmacology section of the British Medical Association, last week, Sir Wm. Roberts read a paper on "Anarcotine, a Neglected Alkaloid of Opium." Anarcotine, generally known as narcotine, was shown to represent the antimalarial properties of opium, and instances were quoted to prove that in many cases it is decidedly more efficacious than quinine. It is apparently an antiperiodic of great power, analogous to the latter.

Coffee or Alcohol?—A Liverpool newspaper warns its readers against drinking coffee to excess lest their consequent troubles and ailments be "mistakenly put down by a censorious and ignorant world to over-indulgence in liquor of another kind." The relevancy of this warning depends upon "the result of investigations recently made by a distinguished scientist," who has found "that taken in undue quantities the effects of coffee upon the human system differ little, if at all, from those of over-doses of alcohol." In both cases the stomach and nervous system are said to bear the brunt, and caffeic and alcoholic gastritis are described as "nearly identical as to their symptoms."

The Ethics of Advertising Medicines.—In the Ethics Section of the British Medical Association, on Wednesday, July 31, Dr. G. W. Potter proposed a resolution to the effect "That advertising in every shape is highly derogatory to the profession, and that the Council be requested to use every effort to suppress it." The consideration of the matter was deferred, and the Council of the Association is reported to have since passed this resolution: "That the granting of testimonials which are used for the purpose of advertising proprietary drugs and similar articles is inconsistent with the dignity of the profession, and opposed to its best interests."

Printing for the British Medical Association Meeting.—As illustrating the enormous amount of printing done in connection with this meeting, it is stated that between 7000 and 8000 copies were prepared of the 'Local Guide,' a forty-five page descriptive hand-book of amusements, containing a woodcut of London in the time of Charles II., from a rare print by Hollar, in the possession of Dr. Isambard Owen, one of the hon. local secretaries. Sixteen thousand copies, at the rate of 4000 a day, have also been issued of the 'Daily Journal,' an octavo volume of 150 pages. Papers contributed to the various meetings, tickets, bills, etc., helped to make up a vast total of printed matter.

"Tyranny of Science."—A reader of the *Echo* has apparently just come across the number of the *Pharmaceutical Journal* containing the account of the last annual dinner of the Pharmaceutical Society, and is somewhat disturbed by Professor Michael Foster's utterances on that occasion. Under the heading of the "Tyranny of Science," therefore, he remarks that "there are some matters about which men do not, as a rule, joke—some matters about which, if they do joke, it may fairly be assumed that their feelings are of a different class to those of the generality of men. There are also some things which, if men say of themselves as of the class they represent, it may fairly be assumed that those things are true." He then refers to the professor's allusions to a supposititious tyranny that might be exercised by men of science, and to the one duty of a scientific man being to prove his brother the liar he believes him to be. "Now," says this tardy critic, "these statements were made either in earnest or in joke; if in earnest, they are pretty much what a large number of persons already think, and amply account for the lack of confidence in the medical scientist. . . . If said in joke, this utterance shows that in the circle to which Professor Foster addressed his words there exists a condition of mind not readily comprehended by the ordinary Englishman." It is questionable whether pharmacists will regard it as complimentary or the reverse to be included in the category of those referred to, but they should certainly be interested in the statement that there is no doubt "those accustomed to the present methods of medical study do develop a type of mind absolutely incomprehensible to the generality of men."

The Conference Photograph.—We are asked to announce that a copy of the Bournemouth Conference photograph may be seen by anyone interested, on personal application to Mr. Richard Bremridge, 17, Bloomsbury Square, W.C. The group is a very satisfactory one, and copies of the photograph can be obtained of Messrs. Debenham and Gould, Glen View Studio, Bournemouth, at three shillings each, post free, or permanent platinotype prints will be supplied for a shilling extra.

Botanical Directory.—According to *Nature* it is proposed to issue a complete directory of living botanists and officers of botanic gardens, institutes, and societies of all countries. This is a much needed publication, and readers of the Journal may assist in making it as complete as possible by communicating any suitable information in their possession to Herr J. Dörfler, III Barichgasse 36, Vienna.

Science and Art Directory.—The new 'Directory of the Department of Science and Art' has just been issued, and contains particulars of some important alterations in the syllabuses of the requirements in theoretical and practical inorganic chemistry, geology, practical plane and solid geometry, and physiography.

ENGLISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Death of Sir John Tomes.—Sir John Tomes died on July 29, at Caterham, at the age of eighty. He was a pioneer in the teaching of dental surgery, having, by his lectures at the Middlesex Hospital fifty years ago, at once taken position as an authority. Numerous papers upon the Microscopic Anatomy of the Teeth and of Bone, established his position as a man of science. For his services in the cause of dental education, first, in the establishment of a dental diploma, then of the Dental Hospital, and, finally, in promoting the Dentists Act, which was passed in 1878, he obtained the honour of knighthood in 1886. In 1883 he was elected an Honorary Fellow of the Royal College of Surgeons. Sir John was also a Fellow of the Royal Society, and a Fellow and Licentiate in Dental Surgery of the College of Surgeons.

A New Sheffield Pharmacy.—Mr. Newsholme has now opened his new pharmacy at 27, High Street, Sheffield. The old premises at 74, Market Place, were occupied by the late Mr. W. V. Radley (who was also a member of the Pharmaceutical Council) and his predecessors for nearly 150 years, and are to be pulled down. The new establishment has been most creditably fitted by Messrs. Maw in their highest style, electric light, mirrors, Spanish mahogany, and recess labelled letters combining to make a most striking and artistic *tout ensemble*. The arrangement of the "retail" reflects great credit on all concerned, and would well repay inspection by any pharmacist passing through the city. The serving counters, the various desks, the well-lit dispensing department, and book-keeper's enclosure being all visible from the entrance, and commanded fully from the desk of the principal in the private office. The modern pharmacist does not hide away his numerous assistants in private boxes or behind high screens, and the modern public seem to enjoy the unusual and interesting sight, as testified by the numbers who frequently crowd the footpath in front of the pharmacy, as well as by the many old and new clients Mr. Newsholme has constantly to receive inside. Considering that the premises are old and had to be adapted to pharmaceutical wants, the result is astonishing, and Mr. Newsholme deserves as much credit for his ingenuity as for his enterprise. Friends at a distance will join their good wishes to that of his local friends, and wish him a long and increasing measure of prosperity.

Supply of Drugs at Newport Union.—At a meeting of the Newport Board of Guardians, held on Saturday last, the Rev. C. Ayliffe suggested that in future all drugs required should be ordered through local tradesmen. The chairman said that druggists obtained the articles from the same source that the Board did. Mr. Searles thought that tenders for drugs should be obtained from local chemists, and on this suggestion being embodied in a resolution, it was carried.

National Art Competition, 1895.—In the annual report of the examiners, under the heading of architectural sketches, occurs the following:—A gold medal is given to Mr. Giffard H. Lenfestey, of the National Art Training School, for a set of sketches which are not only charmingly drawn but are also useful architectural studies. He is also a winner of a bronze medal for still life painting in water colours. His brother, Stanley de Jersey Lenfestey, a scholar of Peterhouse, Cambridge, has gained at the City of London School the Fishmongers' Scholarship, tenable at Cambridge for four years, and the school prize for mathematical proficiency. The above are sons of Mr. W. Giffard Lenfestey, a member of the Pharmaceutical Society, Piccadilly Circus, London, and for some years Local Secretary at Faversham, Kent.

The Perception of Light.—Sir G. Gabriel Stokes, Bart., F.R.S., took the Chair as President of the Victoria Institute, at the Annual Meeting held last week, and delivered the Annual Address. He took for his subject the "Perception of Light" and the laws affecting it, describing very fully the results of the most recent researches as regards the structure of the eye, and the mode which light in its various forms was received and conveyed to the brain by means of nerves, and the functions of the bacillary layer. In

conclusion Sir G. Gabriel Stokes called attention to the bacillary layer, declaring that to his mind it afforded overwhelming evidence of a design in its construction, a design to bring about a predetermined end, adding, that he did not, when saying this, intend to deny that there may be, and doubtless are, what we are in the habit of calling second causes leading up to this final end; citing Paley's illustration of a person who should happen to see a time-piece without having previously known there was such a thing, he would immediately of course think there was some designing power moving it. If he opened the time-piece, and saw the wheels and so forth, his first impression would be but accentuated; thus if we look at this marvellous structure we can hardly imagine that it has not been designed, and the deeper we go in our knowledge of it, the stronger our belief becomes in this design.

Master and Apprentice.—On Tuesday, July 23, Thomas E. B. Blankley, chemist and druggist, Brigg, brought an action against Charles William Danby, aged 15, under the Employers and Workmen Act, 1875, for failing to fulfil his duties according to the terms of a deed of apprenticeship, and for damages caused by defendant's absence.—A cross-summons was taken out against Mr. Blankley, for non-fulfilment of indenture, wages due, etc.—Mr. Blankley gave evidence to the effect that according to the indentures, which were put in, the boy Danby was to serve four years, the first two years of which were to be spent in the warehouse and in delivering parcels, and the last two years he was to be in the shop. He was bound apprentice in May, 1894. He had complained about the boy being late in the morning, and also for refusing to deliver goods.—In cross-examination, witness admitted that there had been certain disagreements between the boy's father and himself, and letters had passed between them. There was no agreement the lad was to deliver parcels in Brigg only, and he had never sent him out with loads which were too heavy for him to push on the hand-cart. The lad had been very civil and respectful to him, and had never complained; he had lately started an aerated water business, and the lad had taken out a few bottles. One day he was ordered to take out two dozen bottles of mineral water and he refused, saying that his father had told him to do so. He then told him to go, but never said anything about kicking him off the premises.—Mr. Barker for the defence said that the lad had been apprenticed to learn the business of chemist and druggist, but instead he was being treated as a common porter. The only fault that the complainant had to make was that he had refused to carry out some aerated waters, which he, Mr. Barker, contended was outside the business of a chemist. There had been some difference between the boy's father and the complainant, and they had not got on very well, and both parties were dissatisfied. He therefore asked that the Bench should cancel the indentures.—Charles William Danby, the defendant, said that when he objected to take heavy loads Mr. Blankley said to him "What good are you?" He had complained to Mr. William Blankley about the heavy loads, but not to his master. He had not been taught his trade sufficiently, being kept in the warehouse too much.—After further evidence had been called as to the heavy loads taken out by the defendant, the magistrates ordered the indentures to be cancelled, but made no order as to damages, wages, or costs.

An Ingenious Infants' Food Warmer.—A contrivance for warming infants' food has just been patented by Mr. Reid, of the firm of Broom and Reid, Queen Street, Exeter. It is both ingenious and simple, being an ordinary water bath containing three bottles, and heated underneath by means of a night-light. The apparatus can be kept in thorough order with as little trouble as possible. No difficulty is found in keeping the warmer clean, the parts being easily displaced for the purpose.

Chemists and the Companies Acts.—In an article dealing with the Report of the Departmental Committee on the Companies Acts, the *Sun* observes that:—"An interesting portion of the Report is the appendix containing a statement furnished by the Pharmaceutical Society. It appears that the Companies Act is at present used to facilitate evasion of the law by allowing unqualified persons to act as chemists. It has been decided that 'a company' registered under the Companies Acts is not 'a person' within the meaning of the Pharmacy Act, and that such a company cannot be made liable to penalties imposed by that Act on every person convicted of a breach of its provisions. The result is that a person who would personally be disqualified from carrying on business as a chemist has only to form and register a company of himself and his wife, and five others, all of whom may be his children and servants, and then he is at liberty to sell, dispense, or compound any poison or drug. Obviously this is a weak point which requires dealing with. Already a large number of companies more or less on that basis have been formed, and are carrying on business."

British Pharmaceutical Conference.—The following report was not received until Wednesday last, and the matters it refers to were fully dealt with in last week's Journal:

A meeting of the Executive Committee was held at the Hotel Mont Dore, Bournemouth, on Monday, July 29, at 6 p.m.

Present:—Mr. N. H. Martin (President); Messrs. Atkins, Carteighe, Groves, Schacht, Ewing, and Toone (Vice-Presidents), Mr. Moss (Treasurer), Messrs. Bird, Bridge, Druce, Farr, and Mathews. Mr. Stewart Hardwick (Hon. Local Secretary), Messrs. Naylor and Ranson (Hon. Gen. Secretaries), and Mr. J. C. Nightingale (Asst. Secretary).

The minutes of the previous meeting were read and confirmed.

The Treasurer's financial statement of the year ending June 30, 1895, was read and approved.

A draft report for presentation to the annual meeting was submitted by the Hon. Gen. Secretaries and agreed to.

A proposed list of officers for the ensuing year was adopted for recommendation to the general meeting for election. It was decided that a list of these names should be printed and handed to each member at the annual meeting.

The draft programme for the proceedings of the sittings of the Conference was laid on the table and approved.

The place of meeting for 1896 was considered, and it was announced that a deputation would be present from Liverpool, who would offer a cordial invitation to the Conference to meet in that city.

Eighty-seven gentlemen having been duly nominated were elected to membership.

Medical Masonic Smoking Concert.—In connection with the meeting of the British Medical Association a masonic smoking concert to provincial and foreign medical brethren was held by invitation of the Æsculapius Lodge and Chapter, No. 2410, at the Portman Rooms, Baker Street, on Thursday, August 1.

SCOTTISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

An Interesting Veterinary Case.—In the Edinburgh Sheriff Court on July 24, before Sheriff Rutherford, William Johnston, blacksmith, Roslin, Mid-Lothian, appeared to answer a charge of having contravened a section of the Veterinary Surgeons Act of 1881, in so far as he, not being a fellow or member of the Royal College of Veterinary Surgeons, unlawfully implied that he was a member of the college by declaring and stating so in a certificate granted by him to the Employers' Accident and Live Stock Insurance Company, relative to the death of an animal, the property of Mr. James Slater of Loanhead. Johnston had been asked to fill up a certificate of the death of a horse for an insurance company and had inserted the word "yes" where asked the question "if he was member of the College of Veterinary Surgeons," without considering what he was doing. Sheriff Rutherford said he did not doubt that the respondent had acted in perfect *bonâ fide* in granting this certificate, but at the same time he committed a great error in not scoring out these words "I being a member of the Royal College of Veterinary Surgeons," instead of adding the word "yes" where he was asked to state if he was a member of the College. However, he was of opinion that Johnston had acted in good faith, and he would impose a fine of 10*s.* only with expenses, amounting to £2 2*s.*

Women Students in Marburg University.—The University of Marburg, Germany, has recently admitted the first two women students, one of whom is an Austrian, the other a Scotswoman.

Appointment under the Food and Drugs Act.—Mr. John Hunter, Edinburgh, has been appointed analyst for the Burgh of Thurso, under the Food and Drugs Act.

IRISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Sad Death of a Druggist's Assistant. — An assistant of Messrs. Thacker and Hoffe, wholesale druggists, Dublin, was cycling homewards on the evening of the 23rd ultimo, and had just ridden up a very steep ascent to the top of Rutland Square, when he suddenly dismounted, blood pouring from his mouth and nose. He rushed into the chemist's shop of Messrs. Wyse and Co., and was in the act of taking a bottle of medicine from a shelf behind the counter when he fell to the ground. Dr. J. E. Kenny, M.P., who lives in Rutland Square, was sent for and arrived in a few minutes but the poor fellow died almost immediately. The remains having been removed to the morgue, an inquest was held on the following day by Dr. Kenny, City Coroner, when the medical testimony showed that the deceased's lungs had several large cavities, caused by over-exertion.

Pharmacy Prosecutions in Dublin.—On Thursday, July 25, in the Southern Divisional Police Court of Dublin, the presiding magistrate being Mr. Swifte, Mrs. E. H. Barnes, of 3, Harcourt Road, Dublin, was summoned by the Pharmaceutical Society of Ireland for having on June 10 last, at No. 1, Charlemont Street, in the same city, "kept open shop for the compounding of medical prescriptions, and compounding a prescription contrary to the provisions of Section 30 of the Pharmacy Act (Ireland), 1875, she not being properly qualified to do so." After evidence had been given,

Mr. Jefferson submitted, in defence, that the summons should be dismissed. It had been shown that Corcoran, who made up the prescription, did so without authority, and he thought the magistrate would have no difficulty in coming to the conclusion that whatever became of the proceeds of the prescriptions they did not go into the pocket of Mrs. Barnes.

Mr. Clay, for the Pharmaceutical Society of Ireland, contended that the evidence fully established the offence charged in the summons.

Mr. Swifte said a question of law was involved in the case. He would give his judgment about that day fortnight.

In the same court, on Thursday and Friday, August 1 and 2, a case came on of the Pharmaceutical Society of Ireland *v.* John Frederick Corcoran, in which the defendant was summoned for having on the 10th of last June at No. 1, Charlemont Street, Dublin, compounded and sold a medical prescription to Patrick Waters, an Inspector of the Society, the defendant not being legally qualified to do so.

On July 25, in the case of the Society *v.* Mrs. Barnes, the purchaser of the premises above mentioned, in which Mr. Swifte reserved his judgment, the defendant in the present summons was examined as a witness and admitted that he made up the prescription in respect of which Mrs. Barnes was summoned.

Mr. Murchison, representing Mr. Robert Clay, the solicitor of the Society, now asked the magistrate to sanction an arrangement which had been come to with the defendant's solicitor, by which the defendant, who was willing to plead guilty, was to pay £1 fine and £1 costs.

Mr. Wheatley, solicitor, said he appeared for Corcoran, who was sorry for what had happened, and had so stated to the Society.

Mr. John Walker, who had appeared for Mrs. Barnes in the case against her, asked that some evidence should be given to indicate the prescription in respect of which the present summons was brought.

Mr. Swifte said it would be satisfactory to have such evidence.

The evidence having been given accordingly, Mr. Swifte made an order for the payment of the fine and costs asked for, and then said: I suppose neither party has considered whether this proceeding has any effect on the other case.

Mr. Clay: It was not with that object at all that we instituted this proceeding pending your worship's decision in the other case. The summons in the present case was issued before you decided to adjourn your judgment in the other case. If your intention to postpone that judgment for fourteen days had been intimated earlier, we should not have issued this summons until after that decision. This case will not have any effect on the pending case, but it will have an effect on five other summonses that we intend to issue against Mrs. Barnes.

Pharmacy Prosecutions in Dungannon.—On Monday, July 29, at Dungannon Petty Sessions, before a numerous Bench of magistrates, Messrs. R. C. Marshall and Son, druggists, were summoned by the Pharmaceutical Society of Ireland for having, on May 8 last, kept open shop for the retailing, dispensing, and compounding medical prescriptions, and with having on same date compounded a certain medical prescription for one George A. Phillips, they not having been qualified to do so. Mr. W. B. Galway, solicitor, Belfast, appeared for the prosecution, and Mr. Samuel Howard, solicitor, Dungannon, defended. Mr. Marshall, sen., pleaded guilty, and was fined £5 and £1 costs. The case against the son was dismissed. Mr. Galway urged against the dismissal, and maintained that Mr. R. E. Marshall was a partner, and therefore liable under the Act. Mr. Marshall, sen., was thereupon examined, and stated that his son was not a partner. The magistrates' decision was therefore maintained.

Some of the Exports from Belfast. — From a return just issued by the Belfast Harbour Commissioners of goods imported into and exported from Belfast for the three months ending June 30, 1895, it appears there were imported 3 tons of alkali (as against 12 tons for corresponding period last year), 11 tons of alum, 906 tons of bleaching powder, 2 tons of brimstone, 267 tons of farina, 181 tons of glycerin (against 15 tons for the same period in 1894), 64 tons of gum (against 4 tons for corresponding period last year), 87 tons of hop bitters, 145 tons of margarine, 201 tons of phosphate (ground), soda and soda crystals, 1027 tons; nitrate of soda, 628 tons; soda ash, 1044 tons; spirit of turpentine, 77 tons; vitriol, 242 tons. The above may be interesting as indicating the nature of some of the industries in Ireland's commercial capital. A very important item in the exports is yeast. The quantity sent from Belfast during the past three months was 465 tons, as against 358 tons for the corresponding period last year.

The Pharmaceutical Chemists' and Apothecaries' Assistants' Association of Ireland.—The second general meeting of this Association took place at the XL Café, Grafton Street, Dublin, on the 31st ultimo, for the purpose of appointing office-bearers and drawing up rules.

There was a large representative attendance, principally of pharmaceutical chemists' assistants.

The following office-bearers were elected:—President, Mr. J. B. Alister, L.P.S.I.; Vice-President, Mr. W. McCarthy, L.P.S.I.; Hon. Secretary, Mr. John Long, L.P.S.I.; Vice-Secretary, Mr. D. H. O'Sullivan, L.P.S.I.; Hon. Treasurer, Mr. William B. Payne, these being *ex-officio* members of a committee consisting of twenty members.

The consideration of the draft rules was then proceeded with, and, with one or two amendments, they were approved of.

From these rules it appears that the objects of the Association are educational and social; by bringing the many members of the profession into more intimate and friendly intercourse with each other. With these objects in view, it was decided to hold weekly meetings, at some of which there would be debates, or papers read on matters of pharmaceutical interest, while others would partake of a social character.

Other rules dealt with membership, it being decided that assistants to pharmaceutical chemists and apothecaries should be eligible for election as members at an annual subscription of ten shillings per annum, apprentices as associates at five shillings, in each case payable in half-yearly moieties in advance. Apprentices may become members on payment of the additional five shillings. Principals are eligible to become honorary members on payment of ten shillings a year.

Among the other rules is the very sensible one that the meetings must close not later than 10.30 p.m.

The President, after making a few appropriate remarks, thanking the Association for electing him, and assuring the members that he had their interests very much at heart, mentioned that, according to the rules, meetings would be held in future weekly on Friday evenings.

Drug Contracts.—Very extraordinary differences in the prices of drugs in tenders occasioned some lively discussion at the weekly meeting of the North Dublin Guardians, on the 31st ult. In one instance it was mentioned that the prices varied from one penny to

ten shillings! In the case of another article—Jeyes' Fluid—one firm charged four times the cost price. Under such circumstances it is not, perhaps, surprising that, as stated, the actual expenditure on medicines should be five times the amount estimated as necessary.

Doctors' Fees.—The Recorder of Dublin, on the 31st ult., in the case of a physician's claim against a grocer's assistant for a balance of an account of £33 5*s*., fees for attending defendant's wife, commented severely on the practice of Dublin doctors charging not less than one guinea, although he admitted that they were in the habit of giving extra visits for nothing, or, as he put it, "for charity." His idea is that when dealing with the poorer classes they should charge for each visit a fee of 1*s*. 6*d*. or 2*s*. 6*d*. His Honour is, perhaps, a little too hard on the doctors, many of whom are not by any means grasping; but, still, it might be better if they did not adhere so closely to the custom of a bygone age, as by accepting more moderate fees they would probably have much less reason to complain of counter-prescribing.

FOREIGN NEWS.

[*From our Special Correspondents.*]

Responsibility of Doctors and Pharmacists.—An interesting question involving the relative responsibility of doctor and pharmacist in the exercise of their respective professions has just been adjudicated upon by the Tribunal at Lectoure (Department of Gers, France). The facts of the case are as follows: A prescription was formulated by a doctor thus:—Solution—Hydrochlorate of morphine, 1·50; water, 90·0. Mixture—℞. Kermes mineral, 0·50; syrup tolu, 30·0; water, 60·0. Directions: Clear solution, half to-morrow at noon, the rest the following day. Mixture, tablespoonful doses in case of cough. These preparations were dispensed by the pharmacist without demur, he labelling the solution No. —, external use, and the mixture No. —, shake the bottle. The patient drank half the solution at the hour indicated on the prescription (thus absorbing 0·75 of morphine), went to sleep and died four hours later. A prosecution was instituted, both doctor and pharmacist being charged with "homicide involontaire" (homicide without intention). On the part of the former, he admitted having written morphine instead of quinine, which he purposed ordering, and thus caused the death of the patient; but he contended that the pharmacist had not fulfilled his duty, which consisted in delaying the delivery of the medicine until he had been consulted, when the error would have been discovered.

The pharmacist maintained that having strictly carried out the physician's instructions, and considering the vagueness of the directions, no responsibility could be attached to him.

The Court, in delivering judgment, found that the doctor was guilty of negligence, inasmuch as he had not complied with the regulations laid down by law, which enjoins that when poisonous substances are prescribed the quantities of such should be written in full and not in figures, and that complete directions as to use of same should also be given. The pharmacist, it was decided, was equally culpable for dispensing a prescription containing a poison which did not comply with these regulations. They were jointly condemned to pay a fine of 300 francs, and 3000 francs as compensation to the family of the deceased.

Treatment of Diabetes.—At the Academy of Medicine, Dr. Worms read a paper on Diabetes, giving some details of his experience, extending over a period of thirty years, of the treatment of that malady. He finds that diabetes is almost entirely restricted to the brain-working community, isolated cases only being found among the labouring classes. In the intellectual world it is more prevalent than is generally supposed, quite 10 per cent. of litterateurs, lawyers, politicians, etc., whose ages range from forty to sixty years, being sufferers. The amount of sugar excreted daily varied to an extraordinary extent, rising from 5 to 50 grammes in a day, and this without any explicable cause. It is re-assuring to hear that, contrary to the popular idea, it is very amenable to treatment. Eighty-five per cent. of the patients can with reasonable care live to a good old age, as is instanced by several attended by Dr. Worms for many years that are now seventy years old and enjoy good health. The *régime* he considers the most beneficial is that advised by Bouchardat, associated with suitable medicines, opium, alkalis, and quinine, according to circumstances. Bread made from almond meal is recommended in preference to the gluten kinds, the latter containing from 40 to 50 per cent. of starch, the former 7 to 8 per cent. only.

The Spanish Patent Medicine Duty.—With reference to this cordially detested impost, *El Memorandum de Barcelona* says: The Congress of Deputies has definitively thrown out the proposition of the Deputy, Señor Avila, that the annoying (not to say unjust) duty of a 10 centimo (1*d*.) stamp on patent medicines and pharmaceutical specialties be abolished. *El Memorandum* is ignorant as to the reasons which induced the pitiful objectors to oppose such a just claim, but thinks it is absolutely necessary to return to the charge on this subject of contention when the new Budget is presented, and not to hesitate in the matter. "The evil must be rooted out and extirpated, as well as those who uphold it." From the foregoing may be judged the feeling of our Spanish *confrères* in the matter of stamp duties. With them it is now a case of what they would call *gucrra á muerte*—war to the knife.

The Spanish Municipal Authorities and their Drug Bills.—The Havannah authorities in their recent bad treatment of Señor Sarra, the pharmacist to whom they have been owing a sum of 55,000 dollars for seventeen years are not at all peculiar in their unenviable way of doing or rather not doing business. In Barcelona the same state of things prevails, the pharmacists who have furnished medicines for the use of the poor in the city being unable to get any money from the corporation though the doctors are regularly and promptly paid. This seems, however, to be a normal state of things on the Continent, at any rate amongst the Latin races, for it is only a short time since that there was a similar outcry in Paris owing to precisely analogous "long windedness" on the part of the Municipality.

Vaselin Ointments Containing Aqueous Solutions.—The editor of a Portuguese contemporary, *Novidades Medico-Pharmaceuticas*, in noticing the suggestion of M. Zoole that a little castor oil be added to the vaselin to facilitate the incorporation of the aqueous liquid in these cases, advises the use of powdered gum acacia as an alternative. To English dispensers this method will hardly recommend itself, in the first place because of its giving a most unpleasantly dirty ointment, and in the second, from the action acacia gum has on many solutions of metallic salts, such as the liq. plumbi subacetatis. A little of the anhydrous lanolin would be a better addition, whilst in some cases a trace of powdered hard soap would be advisable and admissible. The majority of such ointments may be turned out quite satisfactorily without any added substance, by simply working on a slab with the point of a palette knife.

A Large Order for Quinine.—General Martinez Campos has asked for 600 kilogrammes of quinine for the army in Cuba. The Spanish Minister of War has consequently ordered that this enormous quantity of quinine be procured at once, and on consulting the chief of the military laboratory 200 kilos. was promised to be ready for delivery during the present month.

Meat Preservative Prohibited in Madrid.—The Mayor of Madrid has prohibited the use of a preservative—Nievelina—(probably boric acid) by the butchers and meat dealers in the market and shops of the city, who have been in the habit of using it largely to keep their wares sweet during the hot weather.

Foreign Silver Money in France.—Some time ago the French Government terminated the monetary convention with Italy and sent back across the Alps many tons of Italian coins, which, in consequence, almost disappeared from circulation in France. Now, however, Italian coins are beginning to reappear in considerable quantities, and English visitors to France are warned that they should examine all the silver change given to them. French, Belgian, and the latest issues of Swiss coins should alone be accepted. Swiss coins bearing the figure of Helvetia seated should be refused, as they are no longer current, even in Switzerland.

Sad Death of an Italian Botanist.—Doctor Domenico Riva, of Modena, a well-educated botanist, who accompanied Prince Eugène Ruspoli's expedition to Africa, has committed suicide at Rome,

after seeking in vain for some occupation, or to be sent back to Africa in the service of science. After being frequently disappointed, he was obliged to take the situation of assistant in a chemist's shop, but being straitened in his means, and receiving but a small salary, he became disgusted with his life, and put an end to it by cutting his throat.

Pictet's Gas.—M. Pictet having observed that an addition of carbonic acid to sulphurous acid seemed to materially increase its powers of disinfection, requested Professor d'Arsonval to investigate the value of this admixture and report thereon. M. d'Arsonval has communicated to the Société de Biologie the results of his experiments. He finds that CO_2 and SO_2 in the proportion of four of the former to six of the latter, combine chemically to form a gas (which he calls Pictet's gas) possessing marked antiseptic properties and extraordinary powers of diffusion. Thus, cultures of typhoid and cholera were placed on rags between the leaves of a book which was enveloped in cloth and exposed to the influence of the gas. In the space of an hour the germs were found to be entirely destroyed. Pictet's gas had also been fatal to microbes, which were still living after their treatment with sulphurous acid.

Destruction of a Pharmacy.—A violent explosion, which is attributed to the ignition of a carboy of ether, took place in the pharmacy of M. Baret, at Sury-le-Comtal, a little market town in the Department of Loire. The whole of the shop front was blown into the road, and the contents of the pharmacy were completely wrecked, furniture, bottles, fixtures, etc., being thrown into inextricable confusion. Although the force of the explosion was sufficiently great to shake all the houses in the town, there were, happily, no fatalities to record, one woman (whose father, strange to say, was killed three weeks ago by the explosion of a canister of gunpowder) was severely burnt, and had to be conveyed to a neighbouring hospital. The proprietor and his family were uninjured, being at the moment of the disaster in an upper storey of the house, whence they had to be rescued by means of ladders, the staircase having been entirely destroyed.

Guaiacol as a Local Anæsthetic.—At the Academy of Medicine, Dr. Lucas-Championnière called attention to the accidental discovery of the analgesic properties of guaiacol by his assistant, who being engaged in researches on that body, had inadvertently burnt his hand, and lacking the usual remedies, made an impromptu dressing with an ointment of guaiacol. The anæsthetic effects were so marked that he decided to make further investigations, and after numerous experiments arrived at the conclusion that an oleaginous solution of guaiacol, employed subcutaneously, was as pronounced in its anodyne action as cocaine; applied in dental surgery it gave results which he considered were superior to those obtained from cocaine, even in the presence of abscesses. It has been also successfully employed in minor surgery, three or four punctures being necessary, and a period of five or six minutes being allowed to intervene between puncture and operation. Slight gangrene of a benign nature occurred, but never were those accidents observed which occasionally happen with cocaine. In reply to a member of the Academy who criticised Dr. Lucas-Championnière for not having also tested its action on animals, he stated that he considered that the sensitiveness of the latter was inferior to that of human beings.

Conversion of Animal Matter into Marble-like Substance.—A communication has been made to the Académie des Sciences by Mr. Martin, a resident in Paris, of his discovery of a means of converting animal matter before decomposition has commenced into a substance resembling marble, being sufficiently hard to allow of it being sculptured. He calls the attention of the Society to the possibility of his invention being utilised to preserve human bodies after death. The process has been patented.

Swiss Apotheker-Verein.—On Wednesday and Thursday, July 31 and August 1, the Swiss Apotheker-Verein held its fifty-first annual meeting at Bern. Previous to the meeting, on the Tuesday evening members and visitors were received and conducted by Professor Tschirch through the new Pharmaceutical Institute, the arrangement of which was explained in detail. The inspection of the Institute was followed by refreshment in the form of wine and cigars, and by the exhibition of a number of lantern slides, illustrating chiefly the various typical forms of palm trees.

On Wednesday morning the first meeting was held in the hall of the Grossrath of the Canton Bern. In his address, the president, Dr. Keller, in welcoming the members, alluded to the loss the Verein had recently sustained in the death of Professor Flückiger, and touched upon a number of subjects, chiefly of local interest. Amongst the business conducted in this meeting the only matter of general interest was the decision of the Verein to form a standing pharmacopœia committee, consisting of six of its members, who should, if possible, act in concert with three members of the medical profession, the appointment of whom was to be suggested. After a short adjournment for lunch, business was proceeded with; at its conclusion, the members and visitors dined at the Hotel Bellevue, and were finally entertained in the evening at supper by the local association of chemists in the town and Canton of Bern. Here the proceedings, which were prolonged well into the small hours, were characterised by a joviality quite unknown in England. In addition to the instrumental music provided, numerous songs were sung by individual members, or often by the entire company; in the latter case pharmaceutical songs set to well-known melodies had been composed for the occasion, printed with other humorous matter as a facsimile of the journal of the Verein, and distributed to the members during the evening. By the hilarious merriment it produced, this mock edition of the journal was one of the most successful incidents of the evening.

On the Thursday an excursion was made by rail to Langnau, where a meeting was held. Amongst the scientific contributions, Professor Schaer stated that from investigations made in his laboratory, it appeared that the so-called igasuric acid of nux vomica was identical with caffeotannic acid. Professor Schaer thought it very probable that, considering the simple relative proportions of brucine and strychnine to one another in nux vomica and Ignatius beans, these alkaloids existed in some form of combination with one another. Dr. Keller gave the meeting the results of work on ergot, with which he had been engaged. From the results it appeared there could be no doubt that only one alkaloid existed in the drug, and this he had obtained in the form of acicular crystals with comparative ease. Pure ether extracts this alkaloid, which, therefore, probably exists in the free state; by addition of ether containing hydrochloric acid gas to such an ethereal solution the hydrochloride of the alkaloid is at once deposited. The precipitate, after washing, can be dissolved in water, and the alkaloid liberated by ammonia; it is, however, still amorphous, but can be crystallised by dissolving in ether, adding a little petroleum spirit, and allowing the solution to evaporate very slowly. The most characteristic reaction was obtained by dissolving in glacial acetic acid, adding a trace of ferric chloride and then concentrated sulphuric acid, so as to form a distinct layer; a deep violet-blue zone appeared at the line of contact.

After this paper the meeting adjourned for dinner. A very welcome diversion was the introduction during dinner of a chorus of girls in Bernese costume, who entertained the visitors with national songs, and finally supplied a necessary element for the dances which followed. In the evening the party returned to Bern. To a stranger the whole proceedings were characterised by a cordiality and conviviality that were extremely marked, and formed a most agreeable contrast to the stiff formality which appears to be an indispensable element to similar meetings in England.

PUBLICATIONS RECEIVED.

Herbal Simples Approved for Modern Uses of Cure. By W. T. Fernie, M.D. Pp. 432. Price 5*s*. (John Wright and Co., Stone Bridge Bristol.) From the Publishers.

Bulletin van het Koloniaal Museum te Haarlem for July. Pp. 39. (J. H. de Bussy, Amsterdam.) From the Museum.

Syllabus of the Yorkshire College (Medical Department), 1895-96. Pp. 74. (The Yorkshire College, Leeds.) From the College.

Catalogo de Extractos Fluidos de Silva Araujo and Ca. Pp. 116. (Silva Araujo and Ca., Rua 1o. de Março, 1 e 3, and Rua D. Anna Nery No. 158, Rio de Janeiro.) From the Firm.

Revue des Médicaments Nouveaux et de Quelques Médications Nouvelles. Par C. Crinon. Fourth Edition. Pp. 438. Price 4 francs. (Rueff et Cie, 106, Boulevard Saint Germain, Paris.) From the Publishers.

LEGAL REPORTS.

Homocea Trade Mark.

On Thursday and Friday last Mr. Justice Stirling, in the Chancery Division of the High Court of Justice, heard an application on behalf of Messrs. Johnson and Johnson, manufacturing chemists, of 12, Long Lane and New York, for the rectification of the register of Trade Marks by the removal therefrom of marks numbered 172,619, 180,222, and 183,079 in Class 3, of which the Liverpool Mortgage Insurance Company, Limited, are the registered owners, the marks having been assigned to them by the Homocea Company, Limited. The first mark consisted of the words "It touches the spot," and "Homocea," for a preparation described as a "medicine for human use"; the second mark was "Homocea," and the words "Instantly touches the spot," being also a medicine for human use, and the third mark related to "chemical substances prepared for use in medicine and pharmacy." In 1892 the applicants being about to bring out a plaster called "Wood's Penetrating Plaster," advertised for a design suitable for the plaster, and from the many sent in they selected one consisting of a hand and wrist, the finger touching a wafer and the words "It touches the spot." The mark was advertised very largely in connection with the plaster, and upon their proposing to register it in this country, it was found that the Homocea Company had a similar mark on the register. Mr. Henry Daubeney Brandreth, managing director of the Homocea Company, had made an affidavit in opposition to the motion, in which he stated that in June, 1892, he entered into a conditional agreement with Mrs. Bowden, patent medicine proprietor and vendor, of 43, King William Street, to purchase her rights in certain preparations known as Hippacea, Household Hippacea, and Thilum, with her trade marks therefor and the goodwill, it being arranged that the word Hippacea should be abandoned and the preparation in future sold under the description of Homocea—a word suggested by the husband of Mrs. Bowden. This word was afterwards registered by Mrs. Bowden. The device of a hand touching the spot was suggested to Mr. Brandreth by his printer, who said he had got it from a Californian paper. Mr. Brandreth denied that at the time of registration he was aware of the use by others of a similar device. Some time afterwards his business was taken over by the Homocea Company, and the marks in question and the goodwill of the business were assigned to the Liverpool Company who held the same as trustees for the debenture holders under a trust deed. On the ground that it was impossible to have an assignment of a trade mark in gross without the business and manufactory connected with it, the Court was now asked to rectify the register.

Mr. Graham Hastings, Q.C., and Mr. Willis Bund appeared for the applicants; Mr. Moulton, Q.C., Mr. Bousfield, Q.C., and Mr. C. E. E. Jenkins for the respondent.

At the conclusion of the arguments his Lordship said he would like time to consider his judgment.

On Wednesday last, his Lordship said he had come to the conclusion that the deed assigning the trade marks was a perfectly valid deed, and that no fraud would be perpetrated on the public if the provisions were adhered to. The fraud upon the public, within the meaning of the authorities, was where one man manufactured the goods and another used the trade mark, the trade mark not being applied to the goods manufactured by the person from whose skill and ability it originally derived its value. Upon the point whether there had been an assignment in connection with the goodwill of the business, within the meaning of Section 70 of the Act, he felt considerable difficulty, because if the Liverpool Co. were taken off the register, somebody else would have to be put on, and therefore the notice of motion ought to be amended. This amendment might be made in one of two ways, either the real case which was intended ultimately to be fought ought to be raised, and all necessary parties brought before the court, or it might be directed to the specific point which had been argued, viz., that the state of the register was not in accordance with the Act. This raised an important question in which the Comptroller was interested, and therefore motion must stand over until after the long vacation, in order that the Comptroller of Trade Marks might appear and argue the question.

Franz Josef Bitter Water.

On Wednesday last, before Mr. Justice Stirling, in the action of Moritz Hirschler *v.* The Franz Josef Co., Ltd., and Hertz and Collingwood, the plaintiff moved for an injunction restraining the defendants from selling, or causing or procuring or allowing to be sold, any mineral water not the product of the Franz Josef Spring in the kingdom of Hungary, the property of the plaintiff, under the name or description of Franz Josef Water, Franz Josef Aperient Water, New Franz Josef Water, or under any other name or description, or in any way so as to induce the belief that such mineral water is that of the plaintiff's. In 1890 Hertz and Collingwood were appointed fiduciary consignees and agents for a period of ten years by the plaintiff, but owing to disputes notice was given by the plaintiff terminating the agency, and legal proceedings had been the result. Hertz and Collingwood were now advertising that after careful search they had discovered in the immediate vicinity of the Franz Josef a new spring from which water would be taken to supply all future orders, and that they had adopted a label with a pink border bearing a representation of the Emperor Fanz Josef in lieu of the old label with a blue border, and that the water could be obtained from all chemists. It was also alleged that the defendant company had been formed by Hertz and Collingwood with a view of defeating the rights of the plaintiff. The defendants denied this allegation, and contended that they had a perfect right to sell Franz Josef water, which had become identified with their names owing to the large amount which they had expended in bringing it before the public, the plaintiff not being known in counection with the water.

Mr. Grosvenor Woods, Q.C., and Mr. Younger appeared for the plaintiff, Mr. Graham Hastings, Q.C., and Mr. Ribton represented the defendants.

His Lordship said he considered the defendants' label might easily be mistaken by an unwary purchaser for the plaintiff's, and further that the defendants were selling water as "Franz Josef" which could not properly be described by that name, and granted the injunction.

POISONING CASES AND INQUESTS.

Carbolic Acid.—Ellen Stevenson, aged 63, died on Saturday, July 20, at Abingdon Villas, Kensington, from the effects of carbolic acid, self-administered. Verdict: "Suicide," there being no evidence to show the state of her mind at the time.

Cyanide of Potassium.—Henry Richard Mortem, aged 30, died on Monday, July 22, at 28, Waterloo Road, London, S.W., from the effects of cyanide of potassium, self-administered. Verdict: "Suicide while temporarily insane."

Morphine and a Corrosive Lotion.—Agnes Ross, aged 46, died on Monday, July 22, in the Royal Infirmary, Newcastle-on-Tyne, from the effects of morphine and a corrosive lotion, self-administered. Verdict: "Deceased poisoned herself while in a despondent state of mind."

Prussic Acid.—Herbert Horace Ridley, aged 38, described as a chemist, died on Sunday, July 21, at 71, Myddelton Square, London, E.C., from the effects of prussic acid, self-administered. Verdict: "Suicide while of unsound mind."

Bichromate of Potash.—Claud Philip Leaning, aged 17, of 90, Grove Lane, Camberwell, died on Thursday, July 25, in the Bolingbroke Hospital, from the effects of bichromate of potash, self-administered. Verdict: "Suicide whilst of unsound mind."

Laudanum.—An inquest was held on Friday, July 26, on the body of a child, aged six weeks, the daughter of John W. Hardisty, who died on the Thursday, at Brighton Place, Hunslet Carr, from the effects of laudanum, given by its mother in a teaspoonful of syrup of rhubarb. Verdict: "Death from misadventure."

Phosphorus.—Elizabeth Logan, aged 27, died at Maryport from the effects of phosphorus, through swallowing powdered or half-dissolved match-heads. At the inquest held on Saturday, July 27, a verdict was returned to the effect that "Deceased had taken an overdose of the poison."

Chlorodyne.—Harry M'Carthy, aged 41, died on Saturday, July 27, at 8, Meadows Row, New Kent Road, London, from the effects of chlorodyne, self-administered. Verdict: "Suicide whilst temporarily insane."

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

Communications for the Current Week's Journal should reach the Office not Later than Wednesday Morning. Telegrams can be Received on Thursday Morning. All Communications respecting Editorial matters must be Addressed "Editor, 17, Bloomsbury Square, London," and not in any case to individuals supposed to be connected with the Editorial Staff of the Journal.

Correspondents who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names—of course not necessarily for publication. No notice can be taken of anonymous communications.

All Instructions from Members, Associates, and Students of the Pharmaceutical Society, respecting the transmission of the Journal, must be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London, W.C.

Drawings for illustrations should be done with pen and Chinese ink, and consist of clean, sharp lines, without shading by washes. They should also be prepared twice the desired size, so as to allow for reduction.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Queries addressed to the "Editor" will be replied to as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries."

Reprints of articles cannot be supplied unless authors communicate with the Editor before publication.

Business communications—including advertisements, orders for copies of the Journal, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Cheques and money orders should be made payable to "Street Brothers."

LETTERS.

The Sale of Poisons by Unqualified Men.

A Correspondent writes as follows:—"I see by your issue of this week that Messrs. Spiers and Pond have been fined for selling 'weed-killer.' This is an offence which is I think very common, especially in small country towns; to my certain knowledge a considerable number of ironmongers are breaking the law in the same way; dealers in photographic goods also sell poisons, apparently without fear of the Pharmacy Act, yet in all these towns there are Local Secretaries; what are these gentlemen doing? It is surely their duty to see that the Act is respected; yet these unqualified men are allowed to go on setting the law and the Society at defiance. In the small town of Banbury there are several breaking the law; how can we expect that our qualifications will be recognised and respected if unqualified men can with impunity usurp our rights? I believe the root of the whole matter is the fact that the Local Secretaries are not paid; if they were paid for the work they could be compelled to do their duty—now who is to call unpaid men to account?"

*** To enable Local Secretaries to perform the duty of reporting infringements of the Pharmacy Act, particulars of such cases should be communicated to them. In the event of their failure to report cases the requisite information may be sent direct to the Registrar; but, in any case, it comes within the business of all persons registered under the Act to assist in securing recognition and respect for their qualification. Our correspondent has probably not considered the question where funds could be obtained for the payment of Local Secretaries.—Ed. *Pharm. Journ.*

Glycerin Tincture of Cinchona.

Mr. Frederick Davis points out with regard to his paper upon "Glycerin Tincture of Cinchona," contributed to the Conference, that although an apparent discrepancy exists, yet, in fact, none is present. He says, "It will be observed the strength of the tinctures operated upon is not mentioned; this is a grave omission upon my part, but I may now state in all cases a valoid preparation of the bark was made, and five fluid ounces of this preparation considered as equivalent to a pint of tincture, that is of the same strength as if a pint of tincture had been obtained from five ounces of the bark, hence it will be seen by referring to the first three columns of my comparative table that in some cases about 90 per cent. of the alkaloids contained in the barks were present in the resulting tinctures. It is apparent, also, a better tincture results from the use of glycerin and spirit, although the actual difference is not large. I have to thank Mr. Ransom for pointing out the apparent error by telegram prior to the meeting. The time, however, was too short to explain satisfactorily before the paper was read." In view of the criticisms upon Mr. Davis' paper at the Conference it seems desirable to publish this letter at once, though the paper itself has not yet been published in the Journal.

ANSWERS.

A. H. Ware.—A really good work on inorganic chemistry for Major students is rather a desideratum, as the majority of the text-books are either too diffuse, or do not cover the ground. Richter's work (translated by E. F. Smith) is good as far as it goes, but is hardly full enough. Tilden's edition of 'Fownes' Inorganic Chemistry' certainly covers all the ground, but contains much that is not needed. You cannot go far wrong if you read the latter in conjunction with Scott's 'Introduction to Chemical Theory' (A. and C. Black), which you will find of great service.

"Ossian."—Most certainly lavender oil does not improve by keeping for an indefinite length of time. If it is required to be kept for any prolonged period, you will find it advantageous to add to it a greater or less proportion of rectified or Cologne spirit. At the same time there is little, if anything, amiss in the sample of oil you send. It is somewhat coarse and would doubtless be improved by blending if required for perfumery, but there is no reason why it should not give satisfaction if sold in its present condition.

"A Medical Man," who writes respecting the qualifications of army medical compounders, has neglected to enclose his name and address, and has also written on both sides of the paper. If he will communicate with us again, observing the instructions to correspondents printed above, we shall be pleased to consider his arguments.

H. W. Colley.—Many thanks for the cuttings, etc., you send.

S. Jones finds that the following mixture throws out a flocculent precipitate on standing:—R. Quin. sulph., ℥ss.; acid. citric., ℥ivss.; tr. nuc. vom., ℥iii.; syr. aurant., ℥vi.; aq. ad., ℥x. It is difficult to see what can cause any precipitate in this case, assuming that distilled water is used and the other ingredients are quite pure. Perhaps, however, some reader can throw light on the matter.

"Alpha."—There is no law to prevent anyone calling his school a college or school of pharmacy and dispensing.

E. C. Spurge.—The word commencing the fourth line, in the reply about glycerin and cucumber last week, should have been "vitiating."

"Melanyl."—We have no information regarding the composition of the preparation you refer to.

Communications, Letters, etc., have been received from Messrs. Coates, Greenish, Hill, Howie, Hyslop, Jones, Linstead, Marlar, Meats, Mitchell, Ray, Reynolds, Spence, Theakston, West, Wilson.

OBITUARY.

Bland.—On July 9, John Bland, Pharmaceutical Chemist, Finsbury Park. (Aged 78.) Mr. Bland had been a member of the Pharmaceutical Society of Great Britain since 1842.

Foster.—On July 12, Harry Pibworth Foster, Chemist and Druggist, Portsmouth. Mr. Foster was a member of the Town Council and Board of Guardians for Portsmouth.

Dawson.—On July 12, Athol Stancliffe Dawson, Chemist and Druggist, Paddington. (Aged 37.) Mr. Dawson was an Associate of the Pharmaceutical Society of Great Britain.

West.—On July 13, Mary Ann, wife of Thomas West, Chemist and Druggist, Stretford.

Hare.—On June 16, William Hare, Chemist and Druggist, Exeter. (Aged 70.)

Thornton.—On July 18, Hezekiah Thornton, Chemist and Druggist, Bradford (Yorks). (Aged 64.)

Price.—On July 21, George Price, Chemist and Druggist, Newport, Mon. (Aged 72.)

Prichard.—On July 29, Edward Prichard, Chemist and Druggist, London. (Aged 67.)

Bartlett.—On July 30, Arthur Henry Bartlett, Chemist and Druggist, Ryde, I.W.

O'Neill.—On August 3, James O'Neill, Chemist and Druggist, Morecambe. (Aged 70.)

THE QUALITY OF COMMERCIAL POWDER OF IPECACUANHA.*

BY HENRY G. GREENISH,

Professor of Materia Medica to the Pharmaceutical Society of Great Britain.

In February last I communicated to the Pharmaceutical Society† the results of a comparative histological examination of a number of samples of ipecacuanha, the majority of which were taken direct from original bales. These results were summarised as follows:—

Ipecacuanha root, whether Brazilian or Carthagena, may be distinguished as such in the form of powder by (a) the shape and size of the starch grains, (b) the absence of vessels, presence of perforated tracheids, (c) the acicular raphides, and (d) the emetine reaction with chlorine.

The stem may be distinguished from the root (in powder) by (a) the presence of sclerenchymatous cells, (b) of lignified cells of the pith, and (c) of spiral vessels.

Lastly, Carthagena ipecacuanha may in most cases be distinguished from Brazilian by the larger size of its starch grains. In this respect it must be carefully remembered that Carthagena roots with small starch grains occur, that are practically indistinguishable when powdered from Brazilian roots with large grains.

These results have an eminently practical bearing. The majority of pharmacists, if not all, purchase their powdered ipecacuanha as such from the wholesale druggists, and it must be regarded as essential that the retailer should be in a position to exercise a control over the powder so supplied. For this purpose the assay as at present effected is, in this as in nearly every similar case, insufficient. It is not enough to know that a powdered ipecacuanha contains 2 or 2·5 per cent. of alkaloid capable of being extracted by a particular method, and yielding the emetine reaction. If this were the case, sawdust mixed with the alkaloid obtained in de-emetinising ipecacuanha might be regarded as complying with the requirements to be demanded of a good sample of powdered ipecacuanha. In point of fact, in judging the quality of a powdered drug by the proportion of alkaloid it yields, two assumptions are commonly made; first, that the alkaloid extracted consists of nothing but the alkaloid pre-existent in the drug; secondly, that such alkaloid is the sole active principle in the drug and alone regulates its physiological effect. Both these assumptions are commonly made when powdered ipecacuanha is valued by the result of the assay; in this case both assumptions may be, the second certainly is, incorrect. The liability to error is much diminished, though not entirely removed, if the purity of the powdered drug, that is, its freedom from foreign admixture, is previously determined. This determination, which can be effected by the microscope, and by that alone, must be regarded as necessarily supplementary to the assay.

Before such a microscopical examination of a powdered drug can be undertaken with any prospect of obtaining reliable results, the microscopist must make himself familiar with the structure of the typical drug, as well as the principal variations from the type that may occur in commerce; he will then be in a position to detect that which is not genuine; this is the principal point, for the determination of the nature of the impurity is of secondary importance.

In the case of ipecacuanha, the minute examination of a number of different commercial samples of the genuine drug has been made, and it is now possible to proceed to the examination of the commercial powdered drug.

Thirty-two samples were obtained from pharmacists in London and the provinces. They were carefully examined with the view of ascertaining, first, whether they consisted of genuine ipecacuanha, secondly, from what commercial variety they had been prepared, and lastly, the commercial quality of the drug that had been used, particular attention being directed to the presence of stem and of an undue proportion of wood. The results are embodied in the following table:—

Sample.	Variety.	Principal Microscopical Features.	Quality.
1	Brazilian	No stem, much parenchyma, little wood.	Very good.
2	,,	Stem present; woody; occ. foreign fibre.	Medium.
3	,,	Not much stem; coniferous tracheids; foreign fibre.	Medium.
4	,,	Not much stem; woody.	Medium.
5	,,	Stem present; fragment of leaf.	Medium.
6	,,	Stem present; coniferous tracheids; woody.	Medium.
7	,,	Much stem.	Medium.
8	,,	Stem present; woody.	Medium.
9	,,	Stem present; woody.	Medium.
10	,,	Not much stem; not much wood.	Good.
11	,,	Not much stem; much too woody; overheated.	Bad.
12	,,	Not much stem, not much wood; coniferous tracheid.	Good.
13	,,	Not much stem; not much wood; occ. fibre.	Good.
14	,,	Much stem; very sandy.	Bad.
15	,,	Not much stem; not much wood.	Very good.
16	,,	Much stem; fragment of leaf.	Medium.
17	,,	Not much stem; occ. fibre; conif. trach.; very woody.	Bad.
18	,,	Not much stem; woody.	Medium.
19	,,	Very little stem.	Good.
20	,,	Not much stem; not much wood.	Good.
21	Carthagena	Stem present; woody.	Medium.
22	,,	Very little stem; not much wood.	Good.
23	,,	Stem present; woody.	Medium.
24	,,	Stem present; woody.	Medium.
25	,,	Much stem; woody.	Bad.
26	,,	Much stem; woody.	Bad.
27	,,	Very little stem; not much wood.	Good.
28	,,	Stem present; not much wood.	Good.
29	,,	Very little stem; rather overheated.	Good.
30	,,	Much stem; woody.	Bad.
31	,,	Much stem; woody.	Bad.
32	,,	Little stem; woody.	Medium.

None of the samples examined showed the presence of any adulteration in the shape of foreign starch or foreign drugs; the presence in four of unduly numerous coniferous tracheids indicates possibly only carelessness in cleansing the mill rather than wilful adulteration. Twelve samples out of the thirty-two proved to be powdered Carthagena ipecacuanha; it is possible that amongst the twenty classed as Brazilian there may be some few that are in reality Carthagena, and that amongst those classed as Carthagena there may be some which are mixtures of Carthagena with Brazilian. I have previously drawn attention to the impossibility of satisfactorily distinguishing some exceptional samples of Carthagena ipecacuanha from the Brazilian drug. Carthagena ipecacuanha is not at present included in the British Pharmacopœia, and its use must, therefore, be regarded as a substitution.

Only one sample can claim to be regarded as the powder of really good Brazilian root free from stem. Without insisting upon the complete absence of this impurity, it must be admitted that much of the powdered ipecacuanha sold by pharmacists contains an undue proportion of stem and wood; the former is an avoidable

* Read at the Pharmaceutical Conference at Bournemouth.

† *Pharmaceutical Journal*, liv., 685.

impurity, since it can easily be separated from the commercial drug by picking, the latter indicates the use of an inferior drug.

The results of the examination may be summarised as follows:—

Quality of Commercial Powder of Ipecacuanha.

Good Brazilian	22 per cent.
Medium „	31 „ „
Bad „	10 „ „
Carthagena	37 „ „

An instructive comparison may be made with the results of the examination of powdered ipecacuanha published by Ranwez and Campion* in Louvain. They show that powdered ipecacuanha of Belgian commerce may be classed as follows:—

Normal (Brazilian)	15 per cent.
Too woody	40 „ „
Carthagena (wholly or partly)	15 „ „
False cultivated ipec.† (wholly or partly)	30 „ „

From this it is evident that although in quality the powdered ipecacuanha of English commerce leaves much to be desired, it is distinctly better than that supplied in Belgium. It is at least free from gross adulteration or substitution, but appears to be comparatively rarely prepared from high grades of Brazilian root.

The President (Mr. Martin) said this was an extremely valuable communication, and they were much indebted to Mr. Greenish for it. He was sorry he was not present to read it. There were several important points in the paper. One thing was pointed to clearly, viz., the value of the histological examination of drugs. For some time chemistry had had its way, and set up to be sole arbiter from which there was to be no appeal, but it would be found in future that vegetable histology would claim an equal place in the determination of the value of many of these older drugs, which were the sheet anchor of many medical men in the treatment of disease. They welcomed every advance in chemistry, and if chemistry could demonstrate that it knew what were the constituents of every particular drug, and what was the physiological effect of those constituents, no doubt chemistry would win hand over hand, but in the absence of that information, and in the strong presumption over hundreds of years that there were other constituents of which chemistry did not take note, it was extremely important to cultivate this histological knowledge, and to put it to practical use. Of the thirty-two specimens it appeared that the very good were two, the good nine, medium fourteen, and the bad only seven, and of those seven four were Carthagena. No doubt in the examination of drugs their physical condition and histological and chemical examination must all be the province of the pharmacist if he were to provide the medical man with drugs of known value, which would be constant in their effects.

Mr. Holmes said he had had the pleasure of seeing what Mr. Greenish had done in the matter, and some of the specimens had been taken from the Society's Museum. The time taken to prepare a paper of this kind was far more than was generally imagined. When they found that histology was doing so much for the craft they might congratulate themselves that they had men like Professor Greenish who would take pains and spend time in finding out the best means of examining powders, because the powders were the crux of the profession. Pharmacists did not prepare them themselves as a rule, because the fineness required called for special mechanical means. It was very gratifying to find that the wholesale trade benefited so much by these investigations. When they found that out of thirty-two specimens of English ipecacuanha, practically none contained an adulterant it was a matter for congratulation. With regard to Carthagena root he did not think they were in a position to say whether it was inferior or equal to the Brazilian from a chemical point of view. What the alkaloids were, or what their effect was, they could not be certain, but in the collection of Pereira, nearly fifty years old, there were specimens of large granulated ipecacuanha, unquestionably the same thing as the Carthagena, and undoubtedly within the last twenty-three years the Carthagena had been used in commerce. Professor Greenish was quite right in saying it ought to be regarded as a substitution, but they were not in a position to throw away any chance of making powders as effectual as possible. Ipecacuanha was used very largely in croup, and it was therefore of great importance that the medical man should be certain of its having proper effect. He hoped to see ipecacuanha powders marked "root only," showing that the woody part had been eliminated.

Mr. J. C. Umney said his firm had been in the habit lately of including in their price lists "powdered ipecac.; from root only," and "from hand-picked root," in order that this question might not arise. Until two years ago a large proportion of root was found to contain a small percentage of stem, but for the last year or two it rose to 30 or 40 per cent. On analysing the stems compared with the root, he found the percentage of total alkaloids was less, and, therefore, it became necessary that something should be done. On behalf of some wholesale druggists, Professor Attfield and others made an examination of the root, and gave it as their opinion that the roots contained a much larger proportion of alkaloids than the stems. In consequence of that, many put on their prices current "powdered ipecac. from root only," and "powder from hand-picked root." Unless the retail druggist specified the contrary, he was supplied with powdered ipecac. root, and charged a proportionate price. What Mr. Greenish said was very interesting about the certainty with which powdered Carthagena root could be detected, at any rate when not mixed with powdered Brazilian root. But if he remembered rightly, Dr. Paul had shown that the proportion of cephaeline was relatively greater to the emetine than in the Brazilian. Therefore, until the point was cleared up which of the two alkaloids, if they both existed, was the one to which the emetic properties were due, they would have, at any rate, not to use Carthagena, either for powders or for galenical preparations. They found about three-fourths of the alkaloids in the stem as compared with hand-picked roots.

Mr. Grose said he presumed, in drying the root, the whole of the root was passed through the sieve, the woody portion as well as the cortical.

Mr. J. C. Umney said, yes; there were numbers published giving the relative proportions of woody and cortical portions.

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* *Annales de Pharmacie*, i., 114.

† By this designation is meant the drug offered at the London sales as "East Indian Root," probably the rhizome of *Cryptocoryne spiralis*.

STERILISED SURGICAL DRESSINGS: A RECORD OF EXPERIENCE.*

BY EDMUND WHITE, B.SC.

In vol. xxii. of the St. Thomas's Hospital Reports† I published a communication upon sterilised surgical dressings, giving my experience in supplying these materials for general use in hospital practice. The arrangements I made were contrived so that a supply might be sent to any part of the hospital and for any purpose, from the dispensary. This was done in order to obviate the necessity of specially sterilising the dressings for each individual operation.

The experience I have gained since the publication of the paper mentioned above has enabled me to modify and extend the observations contained therein.

In the first place I would suggest some modifications in the steriliser.

1. The introduction of a trap or condensed water box in the steam pipe leading from the boiler to the steriliser. This would prevent the water, which collects in the pipe, from being blown into the steriliser when the steam is first turned on.

2. A disc or plate with fine perforations should be placed over the orifice of the steam pipe where it enters the steriliser. This secures the even distribution of the steam. If the orifice be left uncovered the steam, entering the chamber in a jet, is apt to crack glass vessels with which it comes into contact.

In the details of the sterilisation I have been led to make the following modifications:—

1. The pressure is not allowed to rise higher than 10 to 15 lbs. to the square inch. The temperature corresponding to 20 lbs. pressure,

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* Read at the Pharmaceutical Conference at Bournemouth.

† See also *Pharm. Journ.* [3], vol. xxv., p. 191.

at which I originally worked, has been found to have a destructive action on the dressing materials, making them rotten and slightly charring them.

2. When the dressings are *in situ* steam is turned on slowly, the tap at the bottom of the steriliser being left open to allow the air to be displaced by the specifically lighter steam entering at the top. When the air has been displaced, as shown by the escape of steam from the bottom tap, the latter is closed and the pressure allowed to rise to 10 lbs. Steam is then shut off and the bottom tap fully opened. The excess of steam then rushes out, carrying with it the bulk of the air not previously displaced. This operation, which occupies three to five minutes, is then repeated before sterilisation proper is commenced, and serves to secure a thoroughly moist atmosphere of steam.

With the precautions described in my previous paper I have no difficulty in turning out the dressings in a satisfactory condition, free from obvious moisture, and giving excellent results in practical surgery.

With regard to the receptacles for holding the dressings; I have been forced, reluctantly, to give up the use of glass jars with which I originally commenced. The breakages were so numerous that I had to seek for some more durable material in spite of the obvious superiority of glass in every other respect. Nearly all the fractures in the glass occur when the vessels are removed from the steriliser to the comparatively cold external atmosphere, and not during the heating in the steriliser. The change of temperature in the latter case may be brought about gradually, by letting in the steam slowly at first, but when the vessels are removed at the end of the process the change is necessarily sudden.

I have tried the following materials in place of glass: Zinc, copper, copper-tinned, copper nickel-plated, and aluminium, with the following results:—

Zinc suggested itself to me as a light and inexpensive material not liable to oxidation under ordinary conditions. In the steriliser, however, the steam at the high temperature employed rapidly forms a coating of oxide or hydrato-oxide, which rubs off as a white powder on the dressings.

Copper vessels proved more durable, but they become black and unsightly, and occasionally stain the dressings blue.

Copper-tinned proved satisfactory to tin, being quite unaffected after many months of continual use.

Copper nickel-plated also answers well, but a good coating of nickel is necessary to prevent the copper stains after some time.

Aluminium proved the most satisfactory of all, the vessels being very light, and their appearance is quite altered by twelve months' continual use.

As a result of these experiments I now use copper-tinned vessels, the aluminium being too expensive on the large scale. The copper nickel-plated does not offer advantages over the copper-tinned commensurate with the increased cost of the former.

It has been found practicable to still employ glass lids with the copper-tinned vessels, the mortality among the lids being insignificant compared with that among the glass jars.

In addition to the cylindrical canisters measuring 8 by 4 inches, I have devised another receptacle of a larger size which is useful when a large quantity of material is required for several operations in succession. This consists of a copper-tinned box 10 inches long, 8 wide, and 6 high, provided with a hinged lid. On the inner surface of the lid, and running round all four sides, there is a groove into which the upper edge of the body fits when the lid is closed. This groove is filled with sterilised cotton wool when the vessel is removed from the steriliser, and consequently forms a germ-tight junction when shut. Fitting into this receptacle is a copper-tinned wire basket which receives the dressings to be treated. During sterilisation the basket is removed from the vessel, so that its contents may be exposed to steam on all sides. When the steriliser is opened the basket is dropped into the outer vessel and the lid closed, as already described. I am now trying to find some material which may be permanently fitted into the lid in place of the cotton wool, which has to be arranged each time, but have not yet succeeded; all the materials I have tried have shrunk and become useless after being used a few times.

In conclusion I should like to call your attention to a material which has proved very satisfactory as an aseptic dressing, and promises to become a very valuable addition to our dressing materials. It is a kind of cellulose wadding made by the disintegration of pine wood. It absorbs about the same amount of water as absorbent cotton, but its special value is that discharges absorbed by it are distributed more evenly throughout the bulk of the dressing, instead of running through at one spot as is the case with cotton wool.

The President (Mr. Martin) said this was a very interesting paper. Sterilised dressings were now such an important part of the armentarium of the surgeon that the chemist must supply them, and any suggestions which would improve them were of great value.

Mr. Collier said the dressings used at Guy's Hospital had for some time been sterilised, the apparatus used being very large, and employed for other purposes as well. Their method was very simple; the sister in each ward prepared the particular dressing and put it into a small bag made of brown holland and lined with gamgee tissue, which was securely tied. These bags were then placed inside another larger one, each ward having one of these bags, and they were brought to the dispensary, and from there taken to the steriliser, which was an apparatus as large as the boiler of a locomotive, and in it they not only sterilised the dressings but the surgeons' coats as well. Sponges were now but little used, softened cotton enclosed in a little bag of muslin being substituted, and these were all sterilised. The method described by Mr. White might be a very excellent one, but it appeared rather troublesome, whilst theirs was very simple and gave great satisfaction.

Mr. Moss suggested that, if it were necessary to sterilise the surgeons' coats, it might be advisable also to sterilise the surgeons.

The President inquired if the cotton-wool with which the joint in the lid of the box was made was sterilised before being put in.

Mr. White said it was.

Mr. M. Conroy said he had no experience in this matter, but he understood that in Mr. White's apparatus wet steam was employed, and in Mr. Collier's, dry steam, which seemed far more suitable.

Mr. Collier explained that his steriliser was a large cylinder into which steam at a very high pressure was admitted, and it had a steam jacket outside, by which the interior was dried after the steam was turned off.

Mr. White said the point about this apparatus was that it was so simple. It could be used with steam from an ordinary boiler, and was always available when wanted. No outer jacket was needed, A pressure of 15 lbs. gave practically dry steam, as the temperature was above the boiling point of water. The articles came out quite dry to the hand, but about 5 per cent. of moisture could be driven off afterwards by putting them in a drying oven. He had tried to get as nearly as possible to the ideal, and though it might be satisfactory to use bags, it seemed to him that there was more liability to contamination in the transfer from the steriliser to the other parts of the hospital. Using vessels such as he had described, he should have no hesitation in using the dressings after six months, because the covers were quite germ-tight. The usual plan, which he gathered was followed at Guy's, was to run the steam in for a time, and then shut it off, and pass the steam round the outer jacket to drive off the steam from the interior. That was unnecessary with the precautions he had described.

Mr. Elborne said when he was at Nottingham some time ago, he went over the large new prison, where he saw a very large apparatus, which was used for sterilising the prisoners' clothes. It was quite a room, which you could walk round in, fitted with iron rods on which the clothes were hung. He thought there must be similar sterilisers in London. He had never had occasion to do anything of this kind, and he should like to ask whether aseptic

dressings were preferred generally to antiseptic ones. At University College Hospital they preferred antiseptic. His difficulty was that one could have no positive evidence of the dressings being aseptic, because directly they were opened they were liable to contamination. It might be worth while for pharmacists to inspect these large receptacles which must be in use in most large prisons. The person in charge told him that the clothes came out absolutely dry, and that they were submitted to very great pressure.

Mr. White said Mr. Elborne was quite correct, if he had looked he would have found steam pipes inside the chamber for drying off the clothes after they had been steamed. His apparatus consisted of one single chamber, with no coils or jackets, and it did not require an engineer to work it, but could be trusted to any labouring man. He might say that the younger surgeons for the most part supported the aseptic system, as they did on the Continent, and many would not use the Listerian system at all. Many young surgeons went to the Continent to study, and came back imbued with a belief in the aseptic system, and it was with men of that class that they would probably have to deal in future. That was why he brought the matter forward.

The President said he could endorse what Mr. White said about the aseptic method being on the increase.

THE STILL ALARM.*

BY N. CROSSLEY JONES AND P. W. JONES.

Those who are occupied in laboratories where distillation is going on from a number of stills are well aware, from, perhaps, repeated experiences, that without a tell-tale of some sort there will occasionally be an overflow from the receiver.

This arises in those numerous cases where the receiver is not large enough to take the whole of the distillate from one charge, and always means loss and other inconveniences.

In some instances a capacious receiver is not desirable, for one often wants to collect fractions apart. In others, the position of the condensing arrangement is such that only a small receiver is permissible.

Most receivers are made so as to protect the contents from exposure, and being opaque, the difficulties and anxieties of the attendant, in connection with the danger of an overflow, are still further increased. He must have his eye on the distillate every few minutes, and a moment's forgetfulness, or miscalculation of the time that may be still allowed before changing the receiver, means overflow and loss.

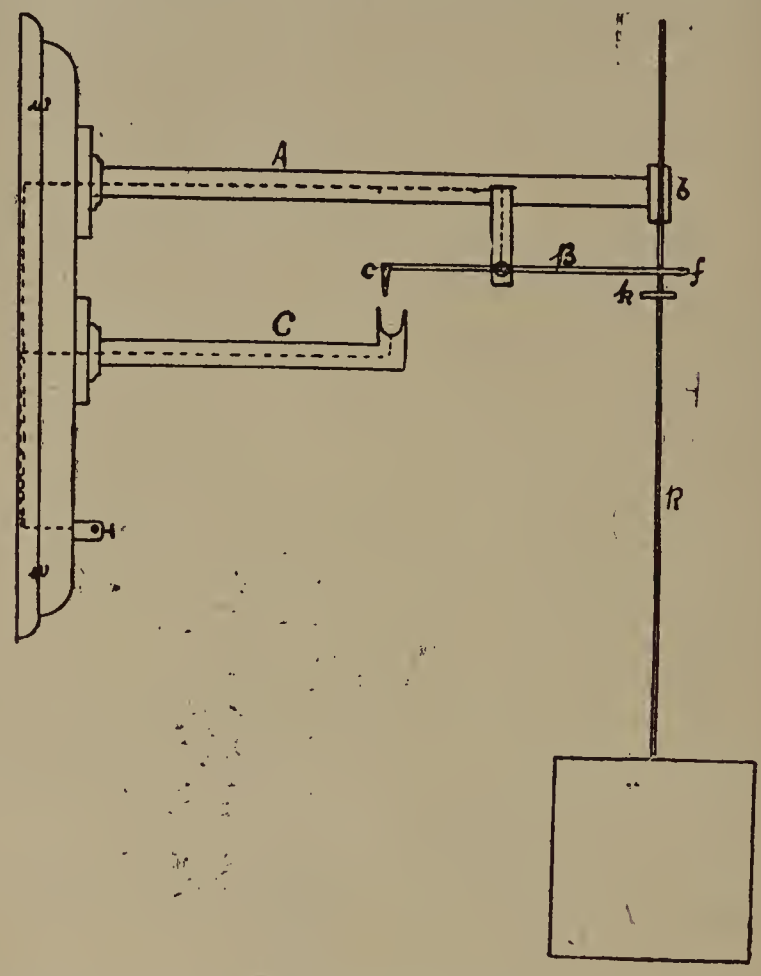
This small apparatus not only obviates these disadvantages, but permits of further indirect saving, in that the attendant is at liberty to perform other work in perfect confidence that he will be called as soon as required.

Because the device has for nearly two years worked with absolute and unfailing certainty in connection with the stills in Messrs. John Moss and Co.'s laboratories the inventors have called it "The Still Alarm," and ventured to think that, though many alarms exist, this particular form and adaptation would be sufficiently interesting to show to the Conference. Other useful applications of the device are obvious.

The Still Alarm consists of a wooden slab (w w) carrying two arms, which are the terminals of an electric circuit. The upper arm (A) finishes in a bearing or guide (b) for the vertical float rod (R), and also supports a balanced bar (B), actuated at the forked end (f) by the float rod, so that when the latter is raised to a certain height the circuit is completed by the depression of the contact end of B into the mercury cup at the end of the lower arm C.

The alarm may be fixed in any convenient position, either upon the worm tub itself or preferably on a small movable stand, which may be raised when the receiver is full enough, and so give room for it to be exchanged.

When working, the float dips into the receiver, or any adjunct to it which special conditions may render desirable. As the distillate collects, the float, which has already been adjusted to the proper



The Still Alarm.

The float attached to the rod R dips into the receiver and, rising as the latter becomes full, causes the point c to dip into the mercury cup at the end of the arm C, so making contact and completing the electric circuit.

height, in rising actuates the bar B by means of a small flange k, and so making contact, a bell rings and continues ringing until the receiver is emptied.

Perhaps it is hardly necessary to point out that one bell and battery suffice for an indefinite number of alarms, each of which may be identified by means of one of the usual indexes.

One obvious application of the alarm is to vessels which are to be filled with liquid to a definite height or volume; as soon as the point is reached a bell rings, or by a slight elaboration of the arrangement the flow may be shut off. Should an objection appertain to copper as the material for the float, aluminium or glass may be substituted for it, and of course works well; for an acid still, celluloid and ebonite are equally serviceable. Skilled labour is not required, the adjustment being simply mechanical.

The President (Mr. Martin) said he feared this paper did not lend itself to discussion, but they were much obliged to Mr. Moss for his demonstration.

Mr. Alcock asked if the alarm would be equally applicable to the evaporation of liquids, giving an alarm when they were reduced to a certain volume.

Mr. F. C. J. Bird asked if it was adjustable. It struck him as an extremely useful piece of apparatus in the present day, when men had so many things to do at once. He knew an instance of a large factory where santal wood oil was distilled in large quantities, the stills being kept going night and day, and of course a man was employed to sit up all night to watch. One night, being overcome by the heat, the watchman went to sleep, and next morning it was found that 20 or 30 lbs. of material had gone into the sewer. Such

* Described and exhibited by Mr. John Moss, at the Pharmaceutical Conference at Bournemouth.

an accident would have been prevented by the use of this ingenious apparatus.

Mr. Moss said there would be no difficulty in applying this to the purpose indicated by Mr. Alcock. You would only want a lever, one end of which fell as the liquor evaporated, and the other end would rise and sound the alarm when the desired level was reached. It might be made adjustable in any direction without difficulty.

NOTE ON TINCTURE OF LOBELIA.*

BY J. F. LIVERSEEGE, F.I.C.

The British Pharmacopœia orders for each pint of tincture "Lobelia, in No. 40 powder, 2½ ounces." I took a weighed quantity of a fair sample of the herb and attempted to reduce it to that degree of fineness, but prolonged and vigorous pounding, rubbing, etc., in a mortar failed to do so; in fact only 40 per cent. could be made to pass through a No. 40 sieve, the remainder being stems and stalks, which were flattened and split, but could not be powdered.

The British Pharmacopœia implies that the whole of the drug can and should be reduced to No. 40 powder; this may be possible for the drug grinder on the large scale, but I submit that a pharmacist cannot do it in a mortar, and will be in doubt whether he shall use 2½ ounces of the drug powdered as finely as he can do it, or take 6 ounces of the drug and use the 2½ ounces that will pass through the No. 40 sieve for one pint of tincture.

It appeared probable that a tincture of the powder would be decidedly more active than one made from the stalks; to test this, tinctures were made from each, by official proportions and method. The analysis of these and of three other tinctures is given below, the alkaloid being determined by Farr and Wright's method.

Source of Tincture.	Colour.	Specific Gravity.	Grammes per 100 C.c.	
			Extractive	Alkaloid.
No. 40 powder	Dark brown	·9354	2·89	·052
Residual stalks.....	Brownish green	·9287	1·56	·031
Calculated for herb.....	—	—	2·09	·039
Farr and Wright's average (9)	—	—	2·20	·035
Wholesale tincture (A)	Olive green	·9309	3 44	
,, ,, (B)	Brown	·9304	2·07	
Retail ,, (C)	Brown	·9346	2 24	

It will be seen that the tincture from the powder contains rather more than one and a half times as much extractive and alkaloid as the tincture from the stalks.

Tincture of jaborandi is the only other leaf tincture in which No. 40 powder is added. In the other four, belladonna, digitalis, buchu, and hyoscyamus, No. 20 powder is directed to be used.

The subject of this note is not of great importance, but I think that, for tinctures at least, the British Pharmacopœia directions should be such that the pharmacist can, with ordinary appliances, make the preparation without any doubt as to the correct course to pursue.

The President (Mr. Martin) said this was a useful note, and the author was entitled to the thanks of the meeting. Perhaps it was not altogether such an attractive subject as opium, ipecacuanha, or cinchona, but, on the other hand, lobelia was an important drug. It was one that was largely used by a class of men called Coffinites, who might have brought it into disrepute, but there were practitioners in America who used it very largely, and also in this country, and when used with a certain amount of discretion there was not the slightest doubt that it was a very valuable drug. If an equally good tincture could be made in the way suggested, the direction should be modified so that every retail pharmacist could make his tincture without so much trouble and without having to reject a large proportion of the stem which did not pass through the sieve.

* Read at the Pharmaceutical Conference at Bournemouth.

REMARKS ON THE BRITISH PHARMACOPŒIA, *

WITH REFERENCE TO SECURING THE MORE GENERAL USE OF THE WORK AND RECOGNITION OF AN IMPERIAL CHARACTER.

BY CHARLES SYMES, PH.D.

If it were absolutely necessary that a British Pharmacopœia should be perfect and complete in all its details, the task of production would be an exceedingly difficult one, and if then perfect it were made to comprise the pharmacy of all our dependencies the difficulties would be almost insurmountable. But perfection is not in the ordinary nature of things, and although a reasonable attempt to reach near to it in such an important work as the Pharmacopœia is to be commended, the delay which would be caused by an overstraining of this point is to be deprecated. The colonists are thoroughly loyal in the matter of pharmacy, and the British Pharmacopœia is now much used by them. There is, however, a large contingent of the foreign element present, and the French Codex and other pharmacopœias and works are consequently in request. Then the natives have local remedies in use, and they have different methods of preparing and using some of the remedies already existing in the B.P.

If, therefore, it is deemed desirable to extend the use of the work in these various countries, not only will it be necessary to include some additional drugs, but a number of formulæ must be added. In framing these, consideration must be given to the wants and conveniences of the various peoples. For example, concentrations, which have become rather an abomination in English pharmacy, must be maintained, and possibly their number increased on account of the fact that the facilities for transit in newer countries are not so great as in this. Now the suggestions from our medical and pharmaceutical friends in the various parts of the British possessions will help materially in this matter, but, of course, it will be impossible to include everything that is suggested, and a reasonable selection will be necessary. British influence extends far beyond British rule, and we may hope at some time to take this fact into consideration in the publication of a pharmacopœia. In Africa, not only at the Cape, but so far up country as Johannesburg, pharmacy is practised almost precisely as in England, and the British Pharmacopœia is more used than any other. In Brazil the B.P. is used but not so much as the French Codex; the 'Formulario e Guia Medica of Chernoviz' being used more than either of them. Not merely because it is published in the Portuguese language as there spoken, but on account of its containing some particulars concerning native drugs, therapeutical notes, and other matters of interest to the medical profession. Now this raises the question—Is the work to become The Imperial Pharmacopœia of Great Britain and her Colonies, and if so, what is it to comprise? Pharmaceutically, there are those who would cut it down to very small dimensions, giving the least amount of information on the smallest number of drugs and preparations; whilst others would have it not only what it now is, but a handbook of chemical analysis and a text-book for students. Medically, there are those who would be quite satisfied if the book contained nothing more than formulæ for compressed tablets; whilst others would have it a complete treatise on medicine and therapeutics. Obviously, discretion would suggest the happy mean.

The Medical Council is the body charged with the production and publication of the work, and it may be (indeed, has been) said that we as pharmacists have really nothing to do with what it should, or should not, contain. But this is merely a statement, it is not argument, and merely calls for the reiteration of what has been many times said by myself and others, viz., "That the Pharmacopœia

* Read at the Pharmaceutical Conference at Bournemouth.

Committee ought to consist partly of pharmacists." I would not advocate that the work should be rendered too voluminous, but it is worth consideration as to whether its usefulness and general adoption would not be advanced by some additions. In 1867 doses of the various drugs and preparations were for the first time appended, and this step has proved very valuable both to physicians and pharmacists. The proposal to supplement the weights and measures in the new edition by quantities according to the metric system, will be appreciated by many. May not a posologica table be added, in which the doses have their equivalents given according to this system?

It is quite a common thing for medical men to inquire what is the solubility of various substances in water, alcohol, etc. Could not a table of solubilities be added of sufficient value to justify the use of the space it would occupy? A therapeutical table would be frequently referred to by medical men, and the more they look to the work for information the more likely are they to prescribe the remedies and formulæ contained therein.

A secondary list of new drugs still under trial and old ones gradually becoming obsolete would be an acquisition. It is undesirable that too frequent changes in the body of the work should occur, but such changes could be made in the secondary list without inconvenience, and if thought desirable a new one could be published between the successive editions of the Pharmacopœia. Broadly, it may be said that additions of this kind, which will render the work more useful at home, will cause it to become more popular abroad, where it is our desire and our interest to make it so. The opening up of Africa is likely in time to enrich our materia medica. Quite recently we had to prepare fluid extracts from some African drugs sent over for that purpose, with a view to getting reliable data as to their efficacy in their native country. They were as follows:—Shagarai bark, egirah bark, ehghessy, shappo, gboyboinsha, egiatah, ghamgha, black plum, yellow plum, and finger root. Now no one would expect all of these to get into the Pharmacopœia, but if two or three of them showed evidence of undoubted value they would first appear in the secondary list, and ultimately one may get into the body of the work. Tables could be added which would make the work more useful for reference by pharmacists, but I take it that these are unnecessary, as if it is more frequently used by the medical profession, increased use by pharmacists is sure to follow.

Mr. E. M. Holmes thought one of the strongest arguments for the admission of pharmacists to the Pharmacopœia Committee was the fact that Squire's 'Companion' and Martindale's 'Extra Pharmacopœia,' were more used by medical men than their own Pharmacopœia.

Mr. F. C. J. Bird said he always thought it would be very useful if the general character of the ordinary galenical preparations were given, and the object of the different tests might be stated. It was a very high tribute to the useful work the Conference was doing to notice the number of references to papers read there in the report of Dr. Attfield to the Pharmacopœia Committee of the General Medical Council.

Mr. M. Carteighe said he had received information that the Pharmacopœia Committee of the Medical Council now sitting had appreciated the work of the Conference in every respect, and whenever any suggestion was brought before them with "B. P. C.," it was recognised at once without discussion.

Mr. M. Conroy thought one of the greatest improvements in the British Pharmacopœia would be the one suggested in the paper, viz., mentioning the solubilities of salts after their characters, he did not think it would be necessary to have a table. When working pharmacists had so often to refer to a book like Squire's or Martindale's one could understand the difficulty a medical man would have in finding out these solubilities.

Mr. Alcock said he apprehended all the doses would remain in as at present. That was of very great importance to pharmacists. He had heard it said that the doses were likely to be taken out. It seemed to him it was highly essential that they should be retained, because the pharmacists had to refer to them in cases of doubt.

Mr. Druce, after thanking Dr. Symes for his very interesting paper, said he gathered that he would rather put in the metric equivalents of the doses than leave anything out. If they were to have as an alternative the metric system in the formulæ, it would be desirable also to have the metric equivalents of the doses. He might be going over old ground, but as an examiner of the Society he might say that when he was approached on the question of the desirability of a practical examination of candidates in the metric system in conjunction with ordinary weights and measures, with the natural conservatism which he possessed he said no. He was on the side of the grains. That the metric system was a good thing no one could doubt, and few would fear its introduction. They wanted in time to get weights and measures on a metric basis, but the time would be far distant when medical men would write prescriptions in that way. At any rate for practical, scientific, and manufacturing purposes there was no doubt which system was preferable.

Mr. Collier said it appeared to him that medical men desired a Pharmacopœia which would give them practical information respecting the drugs which they could make use of in prescribing. With regard to solubility, what the medical man desired to know was how much of any particular substance he could put into the ordinary quantity which he ordered, viz, an ounce, for instance, how much chlorate of potash could be got in solution in an ounce of water. The information would be more useful if expressed in that way than if put in the tabular form.

Mr. McEwan said the great difficulty of introducing solubilities in the Pharmacopœia under the characters and tests would be that such statements thereby became available for public analysts. It was a very different thing to state that chlorate of potash was soluble 1 in 20 or 1 in 24 to a doctor, than to make a specific statement in the British Pharmacopœia, because unless you had the authorities stating it absolutely correctly, the very week afterwards the analysts would come down on them and say it was not accurate. Pharmacists ought to say what they meant when they wanted a table of solubilities. Was it a general thing which would be of assistance to dispensers rather than to prescribers (you could not expect a medical man to carry a Pharmacopœia with him), or should the statement be made in the nature of the character of the substance which was to be taken, along with other characters, as a proof of its purity or otherwise?

Mr. Bowman suggested that in the case of suppositories it made a great difference whether they contained a light drug like tannin or a heavy one like mercurial ointment. In order to get uniformity they should be made up to a certain weight.

The President (Mr. Martin) said this was a valuable paper. Whatever the Pharmacopœia contained or did not contain he could assure Mr. McEwan that there was certain to be somebody somewhere who would come down on those who had to do with its production. It was the common fate of books of that kind to be criticised very largely. The 1885 Pharmacopœia was criticised very severely indeed by himself amongst others; perhaps the next one he might not feel quite so much inclined to criticise, for in the ten years which had elapsed since 1885 an immense amount of knowledge had accumulated which might or might not make its appearance in the new Pharmacopœia. If it did not it would be only fair to criticise the new one. Notwithstanding all that was said against the 1885 Pharmacopœia the Americans had largely copied it, they had adopted the preparations for standardising, and in many ways they copied some of the features of the 1885 Pharmacopœia, and he always maintained in face of the American pharmacists, who claimed to know very much and to teach Englishmen, that that book was very creditable to English pharmacy and medicine. With regard to the secondary list our own Pharmacopœia had not favoured a secondary list, but the Formulary Committee had, by suggesting formulæ for menstrua, strength of spirit, and so on, done useful work in that way, and he felt quite sure from what he knew of English pharmacy and medicine that the new Pharmacopœia or Imperial Pharmacopœia, whichever it was called, when it did appear would be a worthy successor of that of 1885, and he hoped it would contain features which would cause it to be purchased and used by as large a proportion of medical men as it had been by pharmacists. Of the 14,000 copies sold of the last edition the majority of them had gone to pharmacists, and only a very small percentage to medical men. Now there were 35,000 medical men on the

Register, and if this book was to be the guide for medical men to prescribe and the authority which the pharmacists were to adopt, both medical men and pharmacists should possess copies.

Dr. SYMES, in reply, said he thought the Pharmacopœia Committee should consist partly of pharmacists. Mr. Carteighe had called attention to the recognition which the Medical Council had given them in the fact that they were very useful to them in preparing their work, and that they recognised freely anything in the B.P.C. formulæ. That was the best argument why they should be actually represented and should constitute part of the Pharmacopœia Committee. His interest was too closely allied with the medical profession to say anything to hurt their feelings, but he must protest against the fact that the law provided that a body of medical men alone should publish a work of this kind; the bulk of the work was not medical work—scarcely anything, except the doses; it was pharmaceutical and chemical work, and yet no pharmacist or chemist as such had any official representation on the body which produced it. If the Medical Council could make graceful compliments, and found pharmacists so exceedingly useful, why should the latter not be officially recognised? It at first occurred to him that it would be more convenient if the statement as to solubility occurred after the description of the drug, but Mr. McEwan had answered that suggestion by stating that if the solubility were placed after the drug it might be taken as a test when not so intended. There was a little word in the Pharmacopœia very much abused, but a very useful one, the word "about," and if they had a table at the end giving the solubilities he should be inclined to recommend that the word "about" should be placed there. The figures would be sufficiently accurate for medical purposes, and could not be taken as tests of the substances, and he could not help thinking that if Dr. Attfield did not use the word scientifically, at any rate he used it wisely in many cases.

SYRUP. HYPOPHOS. CO., B.P.C.*

BY W. A. H. NAYLOR.

At the Oxford meeting of the Conference last year a paper entitled "Laboratory Notes" was read by Mr. F. C. J. Bird, in which the statement was made that the sulphuretted odour sometimes emitted by syrup. hypophos. co., B.P.C., resulted from the reduction of sulphates by the free hypophosphorous acid present in the preparation. To me the statement was a startling one, but my inability at the time to disprove it by reference to experiments of my own or those of others induced me to refrain from comment. The desire to prevent the fixation of what I believe to be a wrong impression must be my apology for presenting this simple note. To arrive at a decision on the question, the following experiments have been made:—

(*a*) Potassium sodium and calcium sulphate were dissolved separately in a 15 per cent. solution of hypophosphorous acid in the proportion of 20 grains to the fluid ounce. To detect faint traces of sulphuretted hydrogen or sulphurous acid, the operation was conducted in the apparatus to be presently described for the testing of phosphuretted hydrogen, the reagent (cup content) in this instance being starch iodide or free iodine, V.S. At the moment of mixture no odour was recognisable, and during the month the several solutions were under observation the liquid in the cup did not become decolorised. In a second series of the same solutions coils of filter paper impregnated with lead acetate and kept continuously moist were suspended for five weeks. At the end of that period no discoloration of the lead paper had taken place in any of the solutions. On the addition of 0·2 per cent. of sodium sulphite to any one of the solutions, evidence was shortly afforded of the liberation of sulphuretted hydrogen.

(*b*) Ten grains each of potassium, calcium, and manganese hypophosphite, and the equivalent of ferrous hypophosphite in solution, all of which contained small quantities of sulphates, were severally shaken up with ½ drachm of hypophosphorous acid (30 per cent.), 3½ drachms of water, and 1½ ounce of syrup. No sulphuretted odour could be detected either at the time or during the period it was set aside.

(*c*) Alkaline sulphates were dissolved in a 15 per cent. solution of hypophosphorous acid and boiled, with the result that neither sulphuretted hydrogen nor sulphurous acid gas was evolved nor was sulphur precipitated.

(*d*) Syrup. hypophos. co., B.P.C., made from ingredients containing small quantities of sulphates, but free from sulphites, afforded no trace of sulphurous acid or sulphuretted hydrogen.

These results distinctly negative the idea that sulphates are reducible by hypophosphorous acid under conditions that would be likely to exist in the making and storing of syrup. hypophos. co., B.P.C.

If the bad odour occasionally emitted by the syrup be not traceable to the reduction of sulphates by hypophosphorous acid, to what is it due? My experience points distinctly to sulphites as the incriminating substance. When to an alkaline sulphite in aqueous solution is added an excess of hypophosphorous acid, sulphurous acid, and then sulphuretted hydrogen, are formed and can be recognised by their smell. After the solution has stood for a time it will be found that all unpleasant odour has disappeared, sulphur has deposited, and an equivalent portion of hypophosphorous acid has become converted into an alkaline acid phosphite.* Pondorf has shown that dry sulphur dioxide reacts with hypophosphorous acid in the manner indicated by the equation—

$$2PO_2H_3 + SO_2 = 2PO_3H_3 + S$$

the principal product being phosphorous acid and free sulphur. He further remarks that at the same time hydrogen sulphide is evolved and some phosphoric acid is formed.

It may be mentioned as the result of direct observation that 1 grain of sodium sulphite in 1 pint of syrup. hypophos. co. suffices for the production, to a pronounced degree, of sulphuretted hydrogen.

I have not met with a sample of a hypophosphite which contained a sulphide or hyposulphite or any impurity other than a sulphite to which a sulphuretted odour could be referred.

As a phosphuretted is not dissimilar to a sulphuretted smell, and as the presence of one or the other could not be identified by the nasal organ in a mixture of both, it seemed desirable to apply some chemical test by which this recognition could be effected. The required test, the efficiency of which has been repeatedly verified by me, is based upon the ready solubility of reduced silver and the insolubility of silver sulphide in dilute nitric acid. It may be advantageously applied in the following way: To a strong aqueous solution of a hypophosphite in a wide mouth glass stoppered bottle add a little diluted sulphuric acid and shake vigorously. If after standing a bad odour develops, the glass stopper is replaced by a sound cork. In the centre of the under surface of the cork there has been inserted a narrow glass tube, the opposite end of which is bent upwards and shaped like a small cup. Into this cup a few drops of silver nitrate solution have been placed. By this means the test solution is brought into immediate contact with the vitiated atmosphere above the liquid. After a short time the blackened contents of the cup are collected on a filter, washed free from soluble silver salt, and treated with dilute nitric acid. If the liquid (filtrate) responds to the test for silver it must be assumed that phosphuretted hydrogen was present, if the deposit remained insoluble, or was only partly soluble in diluted nitric acid, and if sulphur separated when it was treated with nitric acid, it must be inferred that sulphuretted hydrogen was present.

* Read at the Pharmaceutical Conference at Bournemouth.

* *Journal of the Chemical Society*, 1877, i., page 275.

Of a number of samples of hypophosphites which I have recently examined, not one gave when suitably treated an odour that could be traced to phosphuretted hydrogen.

The results of my examination of commercial samples may be conveniently presented in tabular form:—

Sample.	No.	Sulphates.	Sulphites.	Phosphates.	Phosphites.	Chlorides.	Calcium.
Potassium Hypophos. ..	1	traces	absent	absent	present	absent	traces
,, ,, ..	2	,,	,,	,,	,,	,,	,,
,, ,, ..	3	,,	,,	,,	,,	traces	,,
,, ,, ..	4	,,	,,	,,	,,	absent	,,
,, ,, ..	5	,,	present	,,	present very small	traces	,,
Sodium Hypophos.	1	fair qty	absent	,,	present	,,	present
,, ,, ...	2	traces	present	,,	,,	,,	,,
,, ,, ...	3	,,	,,	,,	,,	,,	traces
,, ,, ...	4	fair qty	absent	,,	,,	absent	,,
,, ,, ...	5	traces	present	,,	,,	present	,,
Calcium Hypophos.	1	fair qty	absent	present	mere trace	absent	—
,, ,, ...	2	traces	,,	traces	absent	,,	—
,, ,, ...	3	,,	,,	present	present very small	,,	—
,, ,, ...	4	,,	,,	,,	,,	,,	—
,, ,, ...	5	,,	,,	,,	absent	,,	—
Manganese Hypophos...	1	fair qty	,,	absent	present	present	absent
Barium Hypophosphite	1	traces	,,	,,	,,	,,	,,
Hypophosphorous Acid	1	,,	,,	,,	0·232 p.c. H_3PO_3	traces	fair qty

It will be observed that phosphites were present in every sample save two. To detect phosphites an aqueous solution of the hypophosphite was acidified with acetic acid, precipitated with lead acetate, and the washed precipitate decomposed either with sulphuretted hydrogen or diluted sulphuric acid, the latter reagent being the more convenient. To the clear filtrate, from the lead sulphide or sulphate, was added a slight excess of mercuric chloride, and the whole was heated for about an hour to 80° C. The precipitate in every case was tested and proved to be wholly or in part mercurous chloride. In testing for chlorides the Pharmacopœia of the United States requires that after heating 10 C.c. of a 5 per cent. aqueous solution of sodium hypophosphite with 1 C.c. of nitric acid, the solution should remain clear upon the addition of silver nitrate T.S. For the direction "after heating" I would substitute "after heating in a test-tube in a water bath for an hour." By following this more definite instruction the object in view is attained.

The above table shows that the precipitate thrown down by lead acetate is not necessarily a single compound, but that it may consist of lead sulphite, sulphate, phosphite, and phosphate respectively, or of a mixture of two or more of these, and possibly other impurities. As a test it is severely exclusive, but is lamentably lacking in discriminative qualities.

One word on the keeping properties of syrup. hypophos. co., B.P.C. When made with commercially pure ingredients the syrup can be stored in bulk in glassware for three or four weeks without becoming cloudy or depositing. It must not be forgotten that its tendency to change is inherent, and that upon its natural instability or the facility with which it decomposes its value as a remedy is understood to depend. If it be desirable to prolong the period during which the syrup ordinarily remains bright, this may be done by adding to the present formula potassium citrate in the proportion of 80 grains to the pint.

The President (Mr. Martin), said this was an extremely valuable communication. The experiments made were very exhaustive, and Mr. Naylor seemed to have traced very conclusively the cause of the disagreeable smell that sometimes arose.

Mr. F. C. J. Bird said he personally felt very much indebted to Mr. Naylor for having got to the bottom of this interesting point. He did not know really whether the presence of sulphate might not be to some extent a measure of the presence of sulphite. A sample of calcium hypophosphite which contained sulphate would be likely to contain sulphite, and, therefore, if they found the sulphite they would reject the sample accordingly. He should like to know how Mr. Naylor explained the production of the sulphuretted odour when the syrup was made with beetroot sugar. He had always found that however careful you might be in making the syrup, if you used beetroot sugar, you always got the sulphuretted odour. The addition of citrate of potassium in the syrup seemed to him to be a decided improvement. The deposit generally consisted of ferric hypophosphite, and potassium citrate was a powerful solvent of that substance. From some experiments he tried some time ago he could quite corroborate what Mr. Naylor said about the preservative effect of citrate of potassium. In examining a number of samples of commercial hypophosphite, he generally found calcium hypophosphite most impure, and manganese came next. Potassium hypophosphite was generally the purest of all.

Mr. J. C. Umney said he had recently had occasion to make experiments on the subject alluded to by Mr. Naylor, and he examined the hypophosphites supplied by three principal manufacturers, and in every case he found phosphites present in the calcium hypophosphite. He communicated with all of them, and they all said they had made every endeavour to free them from phosphite, and had the matter now under consideration, but had not succeeded. With regard to keeping this syrup he found solution of ammonium citrate even more convenient than potassium citrate.

Mr. Grose said this was a very interesting paper. The retail pharmacist often got into difficulty with regard to this preparation. He might make a batch all right, and the next day on dispensing it find sulphuretted hydrogen given off. If any means could be devised by which that could be prevented, and they could make small quantities with more confidence in their keeping qualities, it would be a great advantage.

The President said the paper was so exhaustive that it did not need an elaborate discussion. They were much indebted to the author.

Mr Naylor said he did not quite follow Mr. Bird's remark that the calcium sulphate was the measure of the calcium sulphite.

Mr. Bird said the point was that if calcium sulphite were present the sulphate would probably also be present.

Mr. Naylor said the samples he examined all contained traces of sulphate. If beet sugar were used, and if a sulphuretted hydrogen odour then appeared, it must be due to some impurity in the beet sugar. It might be due to something which had been used in purifying the sugar, such as ultramarine, or to sulphite in some form. Mr. Umney remarked that citrate of ammonium was more convenient than citrate of potassium. It was not a question of convenience or expense, but would it keep better? He had had no experience of it. He had simply used citrate of potassium. He should say the moral of the paper was—reject all samples of hypophosphites which contained sulphites. By doing so he did not think they would meet with the development of this sulphuretted hydrogen odour. There was one paper which he had entirely overlooked, but had been pointed out to him recently. It was written many years ago on this very question by Mr. Gibson. As far as he could make out, Mr. Gibson was the very first to suggest that sulphates were decomposed by hypophosphorous acid into sulphurous acid, and then by the further reduction of the hypophosphorous acid upon sulphurous acid, sulphuretted hydrogen was given off, and eventually sulphur precipitated. It would be found that wherever one got a sulphuretted hydrogen odour one eventually got a very slight precipitate, or the steely appearance which very finely precipitated sulphur presents.

Cats and Diphtheria.—Observant practitioners have so frequently recorded the appearance of diphtheria in the families of their patients simultaneously with, or subsequent to the illness of the "harmless (?) necessary cat" with an obscure throat affection, that the coincidence can hardly be regarded as accidental. Dr. Williams again notes a series of cases, in one of which the three cats in the household died with symptoms of throat desease, were nursed by the children, who almost immediately developed symptoms of diphtheria. It would seem to be desirable to examine the household cat when diphtheria makes its appearance (*British Medical Journal*, 2, 95, 74).

GYCERIN TINCTURE OF CINCHONA.*

BY FREDERICK DAVIS.

The purport of this paper is merely to show by experimental data that a better tincture of cinchona may be prepared by using glycerin with spirit for the exhaustion of the bark than by employing spirit only.

In each sample of tincture estimated the spirit employed was as recommended by Farr and Wright, namely, 70 per cent. by volume, but in addition, 10 per cent. of glycerin was employed.

I have tabulated as clearly as possible the results obtained which speak much more forcibly than words.

The bark was in all cases estimated for total alkaloids by the B.P. process, whilst the respective tinctures obtained therefrom were estimated gravimetrically.

The bark was reduced to No. 60 powder, and each estimation was conducted three times, the resulting average being tabulated. The specific gravities of the tinctures varied from ·921 to ·964.

Comparative Table of Cinchona Tincture and Glycerin Cinchona Tincture.

No. of Sample.	Percentage of Alkaloids in Bark.	Percentage of Alkaloids in Spirit Tincture.	Percentage of Alkaloids in Glycerin Spirit Tincture.	Percentage of Extractive from Spirit Tincture.	Percentage of Extractive from Glycerin Spirit Tincture.
I.	5·3	1·17	1·2	7·54	7·62
II.	4·7	·92	·96	5·17	5·26
III.	6·2	1·29	1·33	8·02	8·32
IV.	4·9	·93	·95	5·18	5·25
V.	5·4	1·15	1·22	7·53	7·38
VI.	5·2	1·20	1·27	6·01	6 28
VII.	5·8	1·19	1·22	5·98	6·07
VIII.	6·9	1·31	1·35	8·09	8·18
IX.	5·8	1·21	1·29	6	6·4
X.	5·6	1·18	1·17	7·32	7·30
XI.	5·9	1·21	1·25	7·52	7·55
XII.	4·8	·95	·99	5·12	5·28

It will be observed from the foregoing that if bark of known strength in total alkaloids be employed, the results as tinctures are fairly constant, although in one or two cases a slight discrepancy may be seen, due in all probability to experimental error.

Mr. J. C. Umney said he did not catch the percentage, was it 70 per cent. by volume of alcohol and in addition 10 per cent. of glycerin, or 10 per cent. of glycerin and 100 parts of alcohol?

Mr. Ransom said it was 10 per cent. additional, as far as he could understand the paper.

Mr. J. C. Umney said as far as he could understand it there was practically no difference in the product, beyond the result of experimental error.

Mr. Alcock said the whole thing was based on what Mr. Umney said. If Mr. Davis added glycerin after he made his tincture they would come out precisely the same, so that the glycerin did not influence the result at all.

Mr. Moss said of all the tinctures of the British Pharmacopœia the one which formed the subject of this note was one which required most of all to be standardised after it was made. According to his experiments on cinchona bark he found different barks treated with the same menstruum gave very different results dependent upon the nature of the bark. They might each of them contain 5 per cent. of alkaloids, but they did not all give up the same proportion of alkaloids to the solvent. The alkaloids appeared to be in some cases in different forms of combination which the solvent action of the spirit was unable to break up. Mr. Davis had in nearly every instance got out about the same proportion of alkaloids. In some instances, if he heard correctly, the proportion of alkaloids got from the bark was greater than that contained in the bark. He did not find any such result in any of his experiments and should be glad to know how it arose. It was possible that some misunderstanding or error had crept into the paper, and that Mr. Davis would be able to explain it after his attention had been drawn to the matter.

Mr. Bird thought it was proposed in the new Pharmacopœia to standardise tincture of cinchona in regard to alkaloidal contents, and also the compound tincture.

The President (Mr. Martin) said they were indebted to Mr. Davis for the note, but there appeared to be a discrepancy* as Mr. Moss pointed out, and it was possible that arose from the note being so brief, and not containing all the information with regard to the tincture that was desirable. Perhaps the author might rectify that deficiency. When he saw it on the agenda he thought that it might have dealt with the use of glycerin in tinctures. They knew that glycerin was a very valuable substance, but personally he did not care to introduce it into any solution unnecessarily; especially in any preparations that had to be assayed or standardised afterwards.

* Read at the Pharmaceutical Conference at Bournemouth.

NOTE ON A SAMPLE OF SPURIOUS TOLU BALSAM.†

BY J. OLDHAM BRAITHWAITE.

Although the appearance in commerce of abnormal samples of balsam of tolu has been noticed from time to time,‡ the abnormal characters of a consignment of the drug which has reached the London market *via* New York during the last few months may be worth recording.

This spurious balsam does not differ very materially from the genuine in appearance or consistence, although it is somewhat darker and more tenacious; the odour, however, is less fragrant, and the taste decidedly weaker.

No crystals are visible when a small portion is warmed and pressed out under a cover glass on a glass slip, and only a few scattered crystals are discernible when examined under the lens with the polariscope.

When treated with warmed bisulphide of carbon it is found that a very large portion is dissolved, and further, on evaporating off the solvent, the residue consists of a dark somewhat viscid resin, becoming harder on prolonged heating. Genuine balsam of tolu so treated gives a varying amount of soluble matter, the residue left on evaporating the solvent is, however, quite distinctive, rapidly forming a mass of white or pinkish crystals. Upon determining the "saponification number" of this carbon bisulphide esidue some interesting figures were obtained, the resin from the spurious sample requiring a markedly less quantity of potash for its saponification than the crystalline residues obtained from the others.

The following are the results of the examination of various samples, a portion of an authentic specimen of the balsam from the Museum being kindly furnished me by Mr. Holmes, who informs me that it is more than twenty years old.

For the determination of the saponification number of the portion soluble in carbon bisulphide, 5 grammes of each sample are treated with two successive portions of 25 C.c. and 10 C.c. respectively of pure CS_2 warmed gently with constant agitation for ten minutes, the solvent decanted into a wide-mouthed flask, removed by distillation, the residue cautiously dried and weighed; it is then saponified with excess of standard alcoholic potash solution by boiling under a reflux condenser. In the final titration of the unused potash by standard acid, it is found preferable to use phenolphthalein paper to determine the saturation point; the end of the reaction is thus more sharply visible than in the dark solution than when the indicator is employed in the usual way.

* See letter by Mr. Davis in last week's Journal (p. 136).
† Read at the Pharmaceutical Conference at Bournemouth.
‡ Naylor, 'Year-Book,' 1878, 261. Cripps, 'Year-Book,' 1889, 182.

Sample.	Character.	Per cent. sol. in CS_2.	Characters of CS_2 residue.	Saponification No. of CS_2 residue.
No. 1	Museum Specimen.	30·7	Pinkish white crystals.	320
„ 2	Spurious.	64·1	Bright resinous, resembles dark Canada balsam.	216·4
„ 3	„	76·36	„ „	211·1
„ 4	„	77·26	„ „	226·1
„ 5	„	75·8	„ „	214·5
„ 6	„	65·28	„ „	224·7
„ 7	„	67·24	„ „	217
„ 8	Genuine.	22·86	Crystalline mass.	303·5
„ 9	Doubtful.	45·6	Partly crystalline.	286·5
„10	Genuine.	17·78	Crystalline mass.	352·7
„11	„	33·8	„ „	331
„12	„	20·14	„ „	340
„13	„	27·1	„ „	364

The results obtained indicate the value of the "saponification equivalent" in the testing of samples of tolu balsam. This figure for the carbon bisulphide residue should certainly not fall below 300. The weight of the residue itself would appear to vary considerably in genuine samples.

In the next edition of the Pharmacopœia it might be desirable to add to the present characters and tests some such details as follows:—

"When 5 parts are gently warmed with two successive portions of 25 and 10 parts of carbon bisulphide, and the solvent decanted into a tared flask, the residue on distilling off should be distinctly crystalline, and each 1000 parts of this residue should require for its saponification not less than 300 parts of potassium hydrate.

Although the source of the resin soluble in carbon bisulphide has not been determined, it is somewhat significant that the saponification equivalent of a freshly prepared sample of copaiba resin was found to be 204.

Mr. Alcock asked if the proportions were given of the solubility and the material dissolved.

Mr. Moss said Mr. Braithwaite had done exceedingly good work in making these tests. It often happened in the London market that one was in doubt from the appearance of a lot of balsam of tolu whether it was genuine or not. Recently there had been a few cases of genuine old-fashioned balsam of tolu on sale, and most of the large houses succeeded in getting a small quantity of it. To have a test like this which distinguished very readily between what was spurious and evidently made up and that which was a genuine product, was an exceedingly good thing, and the thanks of manufacturers and wholesale druggists, as well as retailers, would be given to Mr. Braithwaite for having devised these tests.

Mr. Holmes said the specimen used by Mr. Umney from the Museum was taken out of the original tin which was there when he went there twenty-three years ago, so that it must have been more than twenty years old. Balsam of tolu being a drug which occasionally came to the market and then disappeared, naturally gave rise to substitutions, and more than once he had seen false specimens offered in the market. The specimens now referred to had sufficient odour of balsam to deceive a great many not constantly handling the drug, and one could easily understand that considerable quantities were purchased. When they were put on their guard in this way great service was done to the drug trade. The easiest way, as far as he knew, of determining readily whether balsam of tolu was genuine was simply what Mr. Umney mentioned, to take a little, warm it on a microscopic slide, put another slide on top, and examine the specimen with a lower power. If it were not full of crystals it might be decided that it was a bad one.

The President (Mr. Martin) said thanks were due to Mr. Braithwaite for this note. It must often happen that other people besides New Yorkers tried to substitute drugs. The wholesale druggists in the City were the first to come in contact with anything spurious, and no doubt for the sake of their own reputation they kept a sharp look-out, but they laid pharmacy under an obligation when the scientific men working in their laboratories took the trouble to write such notes.

Mr. J. C. Umney said the proportion of solubility was given in the table. With reference to what Mr. Holmes said, they were always on their guard, for this particular consignment was sold to a great many wholesale druggists, without giving a sample, as genuine balsam, for cash on receipt of documents. In consequence of that, a considerable quantity had been rejected, amounting to nearly £1000 worth.

MICROSCOPICAL NOTES.

To Detect Tubercle Bacilli.—A new method of examining sputum for tubercle bacilli, by digestion, is given by Carl Spengler in the *Zeit. f. Hyg. und Inf.*, 1894, heft, 2. The sputum is put into a conical precipitating glass with a little distilled water and well stirred with a glass rod. The mixture is now made alkaline by the addition of a few drops of concentrated solution of sodium carbonate; a small amount of pancreatin powder (as much as will lie on the point of a penknife) is added, and the whole mixed well by stirring. The conical tube is now covered with a piece of glass and exposed to a temperature of 35° to 40° C. for sixteen to eighteen hours. After this time (or in some few cases after twenty-four hours) the sputum is ready for examination. On the bottom of the conical glass a sediment will be seen, over which is a light yellow opalescent cloudy liquid, which contains the albumin bodies, and gives a strong biuret reaction. For examination, a drop of the sediment is placed on a cover glass, spread out, and dried gently over a spirit-lamp; the nit is fixed in the usual way by being passed three times through the flame. The tubercle bacilli are then stained by any of the recognised methods (*Pharm. Centr.*, xxxvi., 260).

New Embedding Material for Vegetable Tissues.—Brunotel recommends the following gelatin medium, which can be used for cutting any tissue containing water without subjecting it to the action of heat. Dissolve 20 parts of gelatin in 100 parts of distilled water by the aid of heat, filter through linen, and add 30 to 40 parts of glacial acetic acid and a trace of mercuric chloride. Thus prepared the medium has the consistence of a thick syrup at ordinary temperatures. To imbed the material a small quantity of the medium is poured into a suitable mould and the object inserted in it. The whole is then immersed in alcohol, which hardens the mass of gelatin. Where alcohol cannot be used without injury to the cell contents, picric acid, bichromate of potassium, or chrome alum may be employed, but these require longer to harden. The sections can be mounted, as soon as cut, in gelatin or in glycerin (*Journal de Botanique*).

Rapid Staining of Fresh Tissues.—Fresh animal tissues can be stained within fifteen minutes of removal from the body, by a method described by Cullen (*Cent. f. allge. Path.*, through *B. M. J.* Epit., August 3, 1895). The sections cut from the frozen material are immersed in 50 per cent. formalin solution (aqueous) for five minutes, then in 50 per cent. alcohol for three minutes, and absolute alcohol one minute. Wash in water and stain and mount as usual.

Staining the Ringworm Fungus.—The editor of the *Practitioner* recommends the following method as at once easy and efficient:—A suspected hair is steeped for one to two minutes in a mixture of 5 per cent. alcoholic solution of gentian violet, 10 parts, and aniline water, 30 parts. It is then dried and afterwards treated for one or two minutes with aqueous solution of iodine and potassium iodide. Dry again, treat with aniline oil and pure iodine, then clear with aniline oil, wash in xylol, and mount in Canada balsam.

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NEW PHARMACY LAW FOR ILLINOIS.

Illinois druggists are said to be jubilant over the passing of a pharmacy bill, which, it is claimed, will place Illinois far ahead of any other State in the American Union in matters of pharmaceutical legislation. A survey of the sections of the new law gives the impression, however, that so far as protection of material interests is concerned, Illinois pharmacists, and by inference American pharmacists generally, are perhaps not yet so well off as their British brethren. For, though at the outset it is specified that it shall be unlawful for anyone (except a registered pharmacist) to open or conduct any pharmacy, it is provided that nothing in the Act "shall prevent any person or persons from owning a drug store or pharmacy who shall employ or place in active and personal charge of the same a registered pharmacist." Much depends, of course, upon the interpretation that may be given to this proviso. It seems to be clearly intended that unregistered persons may derive profit from pharmacies, but should the interpretation be in favour of the principle that none other than a registered pharmacist may control the working of a pharmacy, then the Act may prove to be somewhat in advance of British law, the more especially as some of its subsequent clauses enforce a much more satisfactory state of affairs than at present exists in this country.

A very important clause is that which renders it unlawful for the proprietor of any drug store or pharmacy to allow any person in his employ, "except a registered pharmacist or registered assistant pharmacist, to compound, recommend, dispense, or sell at retail drugs, medicines or poisons, or except an apprentice under the immediate supervision of a registered pharmacist." Registered pharmacists must have had four years' practical experience in compounding drugs in drug stores where physicians' prescriptions are compounded, must also have passed a satisfactory theoretical and practical examination before the State Board of Pharmacy, and have attained the age of twenty-one years. Registered assistant pharmacists must be not less than eighteen years old, of good moral character and temperate habits, and have served three years with a registered pharmacist, or shall have passed an examination before the State Board of Pharmacy that shall show competency equal to such service. Licences may also be granted by the Board permitting unregistered persons to sell the usual domestic remedies and proprietary medicines, in villages or other localities where there is no drug store or pharmacy.

A novel but important point is the requirement that registered pharmacists employing apprentices shall report to the Board such facts regarding their schooling and preliminary qualifications as may be required for purposes of registration. An annual registration fee must also be paid for re-registration by every pharmacist, and he is required to expose his certificate of registration conspicuously in the pharmacy to which it applies. Last, but not least, no drug, medicine, or poison is to be retailed without being labelled with the name of the article and the name and place of business of the registered pharmacist supplying it, physicians' prescriptions alone being exempted from this condition.

PHYSICIANS AND PHARMACISTS IN NEW JERSEY.

A mutual code of "ethics" has been agreed to by a joint committee of the physicians and pharmacists of New Jersey, as a guide in the relations of members of the sister professions with each other and with the public. According to this code, physicians are not to discriminate in favour of any particular pharmacist, to receive gratuities for patronage from the same, deposit secret formulæ with him, or jeopardise his professional reputation by word or deed. They are also to depute all dispensing to the pharmacist. The latter, in turn, must not recommend drugs or medicines for specific remedial purposes, diagnose disease or prescribe for patients, and must abstain from supplying physicians with printed matter setting forth the therapeutic indications for the use of drugs or medicinal preparations. The joint duties of both physician and pharmacist towards the public are to protect the latter from "the nostrum maker, the preudo-scientific 'pharmacist,' the sectarian 'physician' and drug vendor. They should also, as far as possible, limit the multiplication of manufactured proprietary compounds, and conserve the best interests of the patient by respectively practising rational therapeutics, and supplying the demands of experimental and clinical teaching with eligible and trustworthy preparations. Success will be wished to this well-meant attempt to remove difficulties of everyday occurrence, as the world will be all the better for the speedy adoption of some such rules of conduct as those briefly summarised above.

STUDENTS' NUMBER.

The number of the Journal to be published on September 14 will appeal specially to pharmaceutical students. Information will be given respecting the examinations of the Pharmaceutical Society, and special practical articles will be contributed on subjects of immediate educational interest. In addition it is proposed to publish a complete list of schools in Great Britain where special instruction is provided for pharmaceutical students, and to that end the principals or secretaries of such schools are requested to communicate the necessary information without delay.

PHARMACEUTICAL EDUCATION AT NOTTINGHAM.

Particulars of the classes arranged by the Nottingham and Notts. Chemists' Association are already being sent out by the honorary secretary, Mr. Albert Eberlin, 2, Chapel Bar, Nottingham, with praiseworthy promptitude. The classes are open to associates of the Association only, and the courses arranged for the session 1895–6 include lectures in pharmaceutical and elementary organic chemistry, materia medica, and physics.

REVIEWS AND NOTICES OF BOOKS.

AN APOTHECARIES' GARDEN.

Le Jardin des Apothicaires de Paris. 1895. Par G. Planchon. 8vo, pp. 132. (Paris: Marpon et Flammarion.)

The brochure published under this name is a reprint of a series of papers that have appeared in the *Journal de Pharmacie et de Chimie*, 1893-1895. The author has given a very full account of the history of the garden from the earliest times to the present day. The amount of trouble that he has taken in consulting ancient documents and manuscripts has resulted in the discovery of some hitherto unpublished facts, which, however, are chiefly of local interest.

The garden in the first place formed only a part of a charitable institution, established by a philanthropist named Nicolas Houël in 1576, who belonged to the corporation of Épiciers-Apothicaires. The charity was intended for the benefit of a certain number of orphans, who were to be educated first in religion and general education, and then in the art of the apothecary, in order that they might furnish to the miserable (*honteux*) poor of Paris medicaments and remedies, for the preparation of which, as well as for the education of the orphans, the necessary herbs were to be grown in a garden attached to the institution. Like most other botanical gardens in early times, it was, therefore, originally a garden of simples. But the complex nature of the charity led after a time to difficulties between the clerical and scientific authorities in the establishment, each of whom endeavoured to obtain the entire control or the management of the funds. The interference of royal edicts gave to the institution a very chequered career, throughout which, however, the corporation of apothecaries appears to have practically held the garden, and in 1624 was allowed to legally "enjoy" and possess it. From this time forward various alterations and additions were made, and in connection with it a "Séminaire de simples" was soon established. The épiciers, or spice merchants, at first claimed an interest in the house and garden, on account of their forming a part of the same corporation as the apothecaries, but as they had not participated in the expenses this claim was disallowed in the legal proceedings that took place. In 1779 the College of Pharmacy was created and the garden remained its property. In 1791 all corporations were suppressed, but the College only changed its name, becoming the "Société libre des pharmaciens de la Seine" with the addition of its "École gratuite." This school was dissevered ultimately from the garden by the continuation of the Rue des Feuillantines through the garden in the time of Baron Haussmann (1868), the money allowed in compensation being ultimately utilised to remove the school to the Luxembourg in 1886. The larger part of the garden then became the property of the Institut Agronomique, and another portion was devoted to the Laboratory of Medicine of the College of France. So far the history of the garden.

The second half of the brochure refers more particularly to the arrangement of the plants contained in the garden, and to the course of teaching in connection with them. The history of the botanical teaching is very similar to that of botanical schools in this country. First came the teaching of the uses of plants, then systematic botany in its various forms, including those of Tournefort, Linnæus, Jussieu, and De Candolle. Then physiological and morphological botany were added, and two professors were employed, the systematic botanist making large use of "herborisations," or botanical excursions, as a method of inculcating a knowledge of plants, which in the hands of Professor Clarion seems to have been very successful, whilst Professor Guiart seems equally to have enchanted his pupils with his lectures on physiological botany Finally under Professor Chatin vegetable histology began to assume the importance in pharmacy that is now beginning to be attached to it in this country. The teaching of vegetable histology commenced in 1874, and held an important place in the examinations in 1878. For French pharmaciens this brochure has a special interest as indicating the gradual development of the École de Pharmacie from the philanthropic action of an épicier-apothicaire, the severance of the apothecary or pharmacien from his connection with spice merchants, and the gradual development of botanical knowledge through the instrumentality of the garden. Throughout its history the perseverance and resources of the apothecaries connected with it, during a long period of opposition and of legal and monetary difficulties, afford a most instructive lesson. One of the most amusing instances of self-denial that occurred in the history of the garden was when in 1626 the apothecaries desired the candidates for examination, who were in the habit of inviting the members of the corporation (who constituted the jury) to a banquet, to contribute the money instead to the payment of the debts of the garden. The idea might be commended to the apothecaries of this country, whose garden at Chelsea seems to be at present a kind of white elephant, and in need of similar self-denial if it is to be placed on a proper basis.

PRENTICE ON THE EYE.

The Eye in its Relation to Health. By Charles Prentice, M.D., of Chicago. 8vo, pp. 214. (Bristol: John Wright and Co., 1895.)

Dr. Charles Prentice, of Chicago, who has thought it expedient to publish an English edition of his book, wishes to assert that a large number of serious diseases affecting both sexes, and having apparently so little in common as diabetes on the one hand and inflammation of the ovaries on the other, are alike due to what he calls unsuspected "eye-strain." His doctrine appears to be that whereas the muscles which guide and move the eyes should work as a group in perfect harmony, this harmony is apt to be disturbed by excessive or defective action of one or more of the group, or by loss of normal equilibrium between them. In such circumstances, the maintenance of a correct relative position of the two eyes is said to involve a fatiguing (though unconscious) effort, which cannot be relaxed without the production of double vision, and cannot be maintained without exhausting and "depleting" the nerve "centers" by which the muscles in question are controlled. From such "depletion" proceed nearly all the evils to which flesh is heir. Acting on this hypothesis, the writer professes to cure diabetes and inflammation of the ovaries, as well as many other maladies, by relieving the eye-strain, sometimes by the use of prismatic spectacles, sometimes by operations for dividing or advancing the eye muscles, the treatment, in either case, requiring to be continued for long periods of time. There is no accurate account of the tests by which the existence of previously unsuspected eye-strain may be discovered; and, although the operations referred to are said to be performed by much improved methods, no one could adopt these methods from the vague descriptions of them which alone are given. The book is a tissue of unsupported assertions and inconsequent conclusions, interspersed with records of so-called cures of much the same character as those which may be found on the wrapper of any bottle of quack medicine. It would appear that Dr. Prentice must have formed an exaggerated estimate of the credulity of the English people. It is undoubtedly great, but it may be trusted that it is hardly equal to the demands which "unsuspected eye-strain" would make upon it.

NOTES AND NEWS.

Edinburgh Summer Meeting. — The ninth session of the Edinburgh Summer Meeting commenced on the 5th inst., and will continue until the 31st. The place of meeting is the Normal School, Johnston Terrace, and as in former years, the first and second fortnights' courses may be attended separately. Among the courses which are most likely to be of interest to readers of this Journal are those on everyday Chemistry, by Dr. W. W. J. Nicol, and Botany applied to the Field and Garden, by Mr. R. Turnbull. A course of five lectures will be given by Professor Geddes, on the Evolution of Cities as illustrated in Britain. Further information can be obtained from Dr. Riccardo Stephens, Secretary Summer Meeting, University Hall, Edinburgh.

American Pharmaceutical Association.—The annual meeting of this Association commences this week, the first general session at Denver, Colorado, and the reception by the Colorado Pharmaceutical Association being held on Wednesday, the business meetings, excursions, etc., on Thursday, Friday, and Saturday. According to the official programme, Sunday will be devoted to "special religious services, visiting, etc."; on Monday and Tuesday pharmaceutical education and legislation will be under consideration; and the final general session will be held on Wednesday next, at 10 a.m. The programme is a very full and varied one, and as usual with our American cousins, everything is on a very extensive scale. An invitation for the Association to meet at Montreal in 1896 has been forwarded by the Council of the Quebec Provincial Association, in the hope that the meeting may prove of great benefit, not only to those attending, but to Canadian pharmacy generally.

World's Exposition of Pharmacy and Hygiene.—Chicago is shortly to be the seat of yet another exhibition, the Chicago Retail Druggists' Society having arranged to hold one devoted to pharmacy and hygiene exclusively, during the early part of September. Manufacturers, distillers, brewers, and all others engaged in the production of matters that come within the scope of the exhibition are being appealed to for support.

Science Progress.—In *Science Progress* for August, Professor James Walker leads off with a statement of the problems involved in the subject of chemical affinity, insular floras receive further attention from W. B. Hemsley, and Professor Reynolds Green summarises the results of another mass of investigations concerning the reserve materials of plants. The space relations of atoms are considered in an introductory article by Dr. Arnold Eiloart, and H. A. Miers deals with systems of classification of minerals.

Pure Food and Medicines for St. Louis.—A sort of pure food, medicine and chemical agitation has been started in St. Louis, U.S.A., by the Board of Health, remarks the *Pharmaceutical Era*. Some time ago, Dr. Merrell, a member of the Board, introduced a resolution, which was adopted, directing the City Chemist to make analyses of all foods, medicines, chemicals and other supplies furnished to the Health Department of St. Louis and to the institutions under its control. The resolution required further that the superintendents of the institutions and officers of the Health Department co-operate with the City Chemist in carrying out the order. The City Chemist is to make a report of his examinations as soon as possible. The action of the Board is said to have caused considerable comment.

The Art of Disinfection.—A writer in the *Practitioner* shows that the more popular disinfectants are not always effective as germicides. Thus in the presence of much organic matter potassium permanganate is reduced before any germs present are affected, but the writer is not justified in stating, as a fixed rule, that "if enough oxidisable matter be present the permanganate vanishes and there is no disinfection at all." Disinfection will have taken place in proportion to the oxidation that has occurred, if the organic matter present were of an obnoxious nature. Whilst a germicide will kill bacteria but nothing more, a true disinfectant, in addition to killing the bacteria if present in sufficient quantity, should also remove the power of the dead organisms for mischief by decomposing them rapidly, *i.e.*, by oxidising their constituents. The measure of a true disinfectant, therefore, must needs be its oxidising power. At the same time, the fact remains that as usually employed the best disinfectants—permanganates, chlorine, sulphurous acid, etc.—fail as germicides. Microbes floating in the air are certainly not likely to go out of their way to visit saucers containing disinfectants, nor will they trouble about forcing a way through sheets suspended outside the doors of rooms so long as there is a free way around the edges of the sheets.

The Proper Way to Sterilise Milk. — Mr. Malcolm Morris (*Practitioner*) gives the following directions for sterilising milk:— Place the milk in a clean bottle and plug the mouth with clean cotton wool. Then stand the bottle in a suitable metal vessel so that it is raised about half an inch from the bottom, pour cold water into the outer vessel until it attains the level of the milk, and heat slowly on a stove until the temperature of the water reaches boiling point. Now take the vessel from the fire and cover over loosely with a piece of woollen cloth for half an hour, at the expiration of which remove the bottle and store it in a cool place.

Serum in Tuberculosis.—The *Standard* reports portions of a paper read at the Medical Congress at Bordeaux on Monday, by Professor Maragliano, of Genoa University. In this he describes the treatment of tuberculosis by serum taken from dogs, donkeys, and horses. Of the patients experimented on, "all those who followed the treatment methodically and completely might, in the end, be considered as cured." Eighty-three cases, in all, were treated, and sixty-one are said to have derived real benefit. Further particulars of the treatment will be eagerly looked for.

Classification of Imports in America.—The United States Treasury Department is said to have rejected the contention of a Chicago dealer that violin resin was a medicine, and therefore liable to 10 per cent. instead of 20 per cent. duty. Commenting on this decision, a contemporary remarks that the department was less successful in regard to flute "swabs" or cleaners. The officials refused to consider the "swabs" as "parts of musical instruments," and triumphantly classed them as "hair brushes."

Sulphur Mining in Japan.—The *Financial News* observes that in the industrial development of Japan, sulphur mining is likely to play an increasingly important part. In 1868, when Japanese statistics in relation to customs made a beginning, the exportation of sulphur was only 131 tons; in 1890 this quantity had increased to 21,274 tons. There was a slight drop in 1891 and 1892; but in 1894 no less than eighty-four sulphur mines were being worked, and thirteen of them produced upwards of 100 tons apiece in the course of the year.

ENGLISH NEWS.

[Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.]

Lord Halsbury on Research.—The members of the Devonshire Association for the promotion of Science, Literature and Art, recently held their annual meeting at Okehampton, and Lord Halsbury, who was unavoidably absent, in his address, which was read to the members, said the true spirit of research was just what was wanted to remove the reproach of too readily accepting manufactured antiquities. He did not say that the spirit of research was infallible, or that some of its professors did not make very absurd blunders. All human learning might err. Research was not knowledge, neither was it like the supernatural power of seeing a great deal in nothing which some of their modern fiction attributed to the professional detective, but it was, nevertheless, a clue to the labyrinth of confused tradition, a guide through the mist of party misrepresentation and national prejudices, a light which had no colour, and therefore, cast no shade of its own over the facts which it disclosed; or, to change the metaphor, it was more like the subtle tests of the analytical chemist who was able at once to detect the admixture of alloy, even in its minutest form, in the mingled ores of base metal and true. What was done by associations such as theirs was to cultivate that spirit and to take each theory in turn propounded for acceptance, and expose it in that furnace of criticism in which all that was not genuine melted, and left behind it the firm basis of historical and scientific truth.

West of England Dentists' Meeting.—At the Guildhall, Barnstaple, on Friday, August 2, the members of the Western Branch of the British Dental Association held their annual meeting, Mr. A. Kendrick, L.D.S., Taunton, the outgoing president, occupying the chair. Mr. J. J. H. Sanders, L.D.S.I., of Barnstaple, the president for the year, in his address of welcome to the Association, congratulated the members on the great advancement which had taken place in dentistry during the past twenty years. The improvement in the status and prospects of the profession had been remarkable, and they owed a debt of gratitude to the public-spirited men to whose foresight and persistence and strategy they owed the passing of the Dental Act, which gave dentistry the recognition it deserved, and prepared the way for the upward progress, which had since been consistently maintained. He thought they should agitate with a view to securing dental representatives on the General Medical Council. With regard to dental education and training, there were great advantages, both educational and social, attaching to the system adopted at Guy's Hospital, where medical and dental students were trained under the same roof. The system must tend to the development of mutual feelings of interest and respect, and he should like to see it extended. But the principle might be carried too far, and it would be a waste of power and time if a higher standard of medical training than was at present provided for were demanded of the dental student. They could have no objection to medical gentlemen practising as dentists, providing they duly qualified themselves. But they were entitled to demand that the possession of the requisite knowledge was not simply assumed as a matter of course.

The Recent Phenacetine Case.—It is stated that legal proceedings will probably be taken in the case which recently occurred, where Mr. Harrop, a manufacturing chemist, of Birmingham, was poisoned by taking a phenacetine powder, which on analysis proved to contain strychnine. The claim of the deceased's relatives is for three thousand pounds.

Sale of Poisons.—The *British Medical Journal* says that the necessity of statutory regulations of the sale of poisons was manifested in a striking manner by the facts brought out in evidence at the Mansion House, when Messrs. Spiers and Pond were charged with having infringed the Pharmacy Act by selling an article described as "weed-killer," and containing sufficient arsenic to kill six thousand persons. The prosecution was instituted by the Pharmaceutical Society, whose duty it is, under the Act, to take proceedings in each case. The nature of the article sold was proved by Dr. Stevenson and Mr. Eastes, and the case was so clear that the possibility of defending it was scarcely conceivable, though in point of fact it was attempted to contend that the article was not a poison within the meaning of the Pharmacy Act. In face of the evidence given as to the amount of arsenic present in the "weed-killer," and Dr. Stevenson's opinion that it was to be regarded as a preparation of arsenic, the contention of the counsel for the defence was too much for the Lord Mayor to accept, and he decided that the Act had been infringed, inflicting a penalty of £5, with costs. That no other result was anticipated may be gathered from the circumstance that the directors of Spiers and Pond had, previous to the hearing of the case, decided to discontinue the sale of the "weed-killer." But it is none the less evident, as the Lord Mayor remarked, that it is the duty of the vendors of such proprietary articles to make inquiry as to their nature before supplying them in the ordinary course of business, and it must be added that it is equally the duty of the manufacturers of such poisonous articles to provide against their unlawful sale by labelling them in accordance with the requirements of the Pharmacy Act.

Cornwall and Somerset House Analyses.—At a meeting of the Cornwall County Council on Tuesday, August 6, reference was made to certain unsatisfactory replies which had been received from Somerset House in regard to analyses, and it was suggested that the matter should be taken up by some State Department with a view to the weeding out of the incompetents. On the motion of Mr. Digby Collins, seconded by Mr. Trevail, it was resolved "that a Committee of this Council be appointed to confer with the Association of Analysts, with the view to some common action being taken by the County Council's Association for the removal of the recurring difficulties in the administration of justice, under the Adulteration of Food and Drugs Acts, arising out of the conflicting results of analyses arrived at by the county and borough analysts on the one hand, and by the authorities at Somerset House on the other, the Committee to consist of Lord Mount-Edgcumbe, Messrs. W. C. Pendarvis, G. J. Smith, Digby Collins, and Silvanus Trevail.'

Meeting of Junior Chemists at Plymouth.—The monthly meeting of the junior section of the Plymouth, Devonport, Stonehouse, and District Chemists' Association was held at the Foresters' Hall, Octagon, Plymouth, on Thursday evening, August 8, when the fifth of a series of lectures on "Materia Medica" was delivered by Mr. John D. Turney. Mr. E. T. Cock occupied the chair, and there were also present Messrs. Waldron, Buckner, Barber, Vickery, Sleep, Darke, and H. O. Westcott (hon. sec.). Like those previously given, the lecture was both interesting and instructive, and at the close of the proceedings Mr. Turney received a hearty vote of thanks.

"Prescribing Chemists."—Under this incorrect heading, the daily newspapers report that at the Limehouse Town Hall, on August 12, Mr. Wynne Baxter held an inquiry respecting the death of George William Clark, aged 13 months, the son of a bargeman, living in Galt Street, Bromley.—Hannah Eliza Clark, the mother, stated that the deceased, and also another of her children, had been suffering from measles. Witness sent her sister to a chemist, on Thursday, for some medicine, but he told her he would come and see the child. He did. He looked at the child, and told them to fetch some medicine. They did so. At the same time he gave them a white powder. He called again at ten o'clock the same night and sent some more medicine. The following morning the child seemed worse, and witness sent again for the chemist, but he refused to come, and said, "Put my medicine out of sight, and go for Dr. Haddock, and don't mention a word that I have been here." Witness sent for Dr. Haddock, but the child died before his arrival. Witness and her husband thought the chemist was a qualified man, and first heard of him through his attending a woman next door for rheumatic fever, and other patients in the street. Witness understood the name of the chemist to be Willmott or Willmer, and he lived in Salmon's Lane.—John Charles Perdue, of Salmon's Lane, Limehouse, stated that he was a chemist and druggist's assistant, and had never passed any examination. He was employed by Mr. Willmer, a registered chemist and druggist. Mr. Willmer knew he went out to see patients. Witness added that he had attended the sick and dying and bereaved for six years in ten different districts in London.—The Coroner: Then the sooner you give it up the better for everybody. Are you aware that through any want of skill on your part you would stand at the Old Bailey for manslaughter?—Witness: I

am fully aware of it.—The Coroner: Then in the face of such a statement I am sure no one would have any mercy on you.—Witness denied that he told the mother to hide the medicine, but on being confronted with Mrs. Evans he hesitated in denying it.—The Coroner: Who, then, is telling the lie, you or her?—Witness: Not me.—The Coroner: Well, I tell you plainly, I believe her, not you.—Witness added that he never charged anyone for anything, and got his living by his skill.—The Coroner: What is that, pray?—Witness: Converting tea leaves into anything. It would surprise any one to see what I make out of tea leaves.—The Coroner: But that does not give you the right to pass as a doctor.—Witness: I know what I am doing, and I live only to do good for others. If I do wrong I will stand the risk.—The Coroner: Then you are a silly young man.—Witness: Public opinion I care not for; but before I go I leave this (throwing 5*s.* on the table) for the husband. He's been out of work for weeks and needs it.—The Coroner: Do you make your medicine of tea leaves?—Witness: No, sir.—Coroner (smelling the bottle): Why, this smells strongly of tea.—Dr. Haddock deposed that the child died of bronchitis. The medicine given appeared to be very simple and harmless.—The Coroner, in summing up, said the Jury could do very little in this case, as Dr. Haddock could not say any harm had been done by the medicine. According to the law anyone may prescribe, but they do so at their own risk. The law does not prevent them from attending and giving medicine.—The Jury returned a verdict of "Natural Death," and requested the Coroner to write to Mr. Willmer calling his attention to the risk his assistant was daily running.

The British Institute of Public Health.—At the Congress at Hull on August 9, the Municipal and Parliamentary Section was presided over by Sir A. K. Rollit, M.P., who said he was glad that municipalisation was gradually, but surely, substituting for wealth as the objective of human life and activity the higher and nobler one of the welfare of mankind, and was justly claiming that the good of the community was entitled to at least equal consideration with that of its individual members, the interest of the community being, indeed, only an expression for the sum of the individuals composing it. Amongst things to be left to the municipalities was the better and more sanitary housing of the working classes in town and country and the reduction of overcrowding.

Lieutenant-Colonel R. Pringle, M.D., London, then opened a discussion on the subject of "Cholera Prevention Expenses." He said he had seen the cholera in its endemic home, and had seen it decimating a country. It was a strange, mysterious disease, beyond their comprehension. That pure water was a necessity they all knew; but still, when they were threatened with an invasion of the disease, they should stand to their guns and treat it also as an atmospheric foe. He contended, however, that Hull and other ports had no more right to bear all the cost of keeping the scourge at bay than they had to pay for the gunboats that watched our shores.

A paper on "Public Water Supplies for Rural Districts" was afterwards given by Sir A. J. Russell, Edinburgh.

The President of the Preventive Medicine Section, Dr. J. Spottiswoode Cameron, Medical Officer of Health, Leeds, in his opening address said the names of Lister and of Koch had marked an epoch not only in the surgery of wounds, but also in the history of preventive medicine. The growth of feeling in favour of the prevention of communicable diseases had induced the health authorities in many towns to obtain Parliamentary sanction for a system of disease notification. In one town of which he knew something, every house was examined in this systematic manner, and without claiming that the whole or even the chief part of the improvement in the health of the town was due to such examination, he would remark that the death rate, which had averaged for the five years preceding this house-to-house examination 22·3, had averaged during the last five years only 18·6, an improvement of more than 16 per cent. Had the authority insisted on the removal of all sanitary defects so discovered the improvemeut would probably have been even greater. Was it not, he repeated, rather their duty systematically to visit all houses, all workshops, and ascertain beforehand whether the conditions there present were those which favoured or destroyed the health of those they were intended to shelter and protect?

Dr. W. G. Willoughby read a paper on "Etiology and Prophylaxis of Typhoid Fever." He touched upon the absolute necessity of the removal of all infectious matter for thorough destruction, the desirability of every infectious disease having its incineration, the treatment of each dejectory separately, and the admission of all enteric cases in hospitals, which should be made adaptable for all, whether poor or rich.

The subject of compulsory notification also occupied attention during the sitting, the speakers being Drs. Willoughby (Eastbourne), J. R. Kaye (Huddersfield), Sir James Russell, etc.—A resolution was passed that notification of infectious diseases should be made compulsory in all the towns of the country.

Mr. R. Bannister, of Somerset House, London, presided over the section of chemistry and climatology, and read a paper on "The Food Products Adulteration Committee and its Work."—Mr. Wolf Defries, of London, read one on "The Examination of Water Filters," and Mr. F. W. Richardson another on "The Bacteriology of Waters."

In the afternoon a large number of the delegates visited Tranby Croft, and were entertained at a garden party by Mr. and Mrs. Arthur Wilson, and an excursion was also taken to Beverley. In the evening a banquet took place at the Royal Station Hotel, Hull.

Success of a Mexborough Student.—Mr. Leonard Shields, son of Mr. R. J. Shields, chemist and druggist, Mexborough, has been successful in passing the intermediate examination for the degree of Bachelor of Science, which has just been held at London University.

Chemical Instruction in Devonshire.—Chemical instruction forms an important subject in the technical education scheme of the Devon County Council, and in their report for 1894–5 the Technical Education Committee of that body state that a new chemical laboratory at Barnstaple and new science buildings at Tiverton have been in use during the past session, and have been found very great aids to the proper conduct of the science work. Commenting on the work of the evening continuation schools, the Committee said that, considered in its relation to the study of mensuration, physics, chemistry, and such subjects, the deficiency of arithmetical skill and knowledge was, and must be, a source of discomfiture, if not a fatal obstacle. It was noteworthy that the number of classes in every subject (except shorthand, physiology, and agriculture, in which trifling decreases had to be recorded) had increased, and in the case of mensuration, wood-carving, geography, bookkeeping, chemistry, and cookery the increase was very remarkable. The classes in agriculture were, on the whole, not very satisfactory. This was doubtless due to the fact that the elements of the numerous parent sciences (chemistry, botany, and geology) must be acquired both by teachers and scholars before the former could undertake to give, or the latter to receive, instruction in a subject which extended over a wide field. Chemistry had been copiously illustrated by experiments carefully selected and ably performed.

Chemistry and botany are among the subjects now being taken in the summer course for elementary teachers of Devon and Somerset, at Torquay, chemistry being most popular with the students.

SCOTTISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Smashing a Chemist's Window.—On Friday, 8th inst., a vagrant named James Stewart called at the shop of John K. Nicol, 139, High Street, Edinburgh, in the evening and asked for a pennyworth of methylated spirit. On being refused, because he could not pay the price, he went away, but returned after the shop was closed for the night and broke a large pane of plate glass, valued at £6, and two large window carboys, valued at £1 each. At the City Police Court on the following day Baillie Sloan sent the offender to prison for twenty days.

The Feelings of Medical Men.—Professor Coats, in addressing the medical graduates at Glasgow recently, said that in the medical profession the best work was often the worst paid, and it was so because it was most real and most interesting. That was not altogether a misfortune, however, but was testimony rather to the inherent interest of the work, and it was a mean spirit that took advantage of the medical man's devotion and neglected to pay his bill. The great secret of success in their profession was the power of taking pains and of attending to small things. There was

sometimes a kind of accusation made against medical men that they regarded their patients too much as cases, and that they were so concerned with the physical problems as to forget that there were any others. He did not fear that they would ever lose the feeling of kindly humanity. It was a false and unworthy calumny that the experimenter who watched in animals the vital processes, even though he was inflicting pain in subjecting an animal to observation, got hardened in human feeling. He spoke from knowledge when he said the contrary was the case. Still less was it true that familiarity with human suffering made medical men hard and indifferent. It was precisely the opposite. There was no more tender-hearted man than the experienced and thoughtful physician.

DR. EDMUND M. SMITH, M.D., C.M., Edin., D.P.H., Cantab, of York, has been awarded the Milner Fothergill Gold Medal in therapeutics of 1895 (University of Edinburgh) for his essay on the Digestive Ferments. This medal is a special biennial award, and is valued at £20.

DICK GOLF CHALLENGE MEDAL.—This medal, for last month, has been won by Mr. J. Greig (J. Mackay and Co., Edinburgh). The competition was postponed till August 9 and 10 on account of rain. The T. and H. Smith Trophy was won by Messrs. Garvie and Sutherland, having a walk over from Messrs. Wilson and Welsh in the final.

VITRIOL THROWING IN GLASGOW.—While Constable W. Cadger was standing on his beat in Candleriggs, Glasgow, on Saturday, 10th inst., a woman named Margaret Thomson came up behind him and threw a quantity of vitriol, contained in a gill bottle, about his face and neck, burning him severely. The woman, who is now in custody, did not escape uninjured herself, a quantity of the acid falling on her face.

NARROW ESCAPE OF THE EDINBURGH CITY ANALYST'S LABORATORY.—About twenty minutes past 11 o'clock on Sunday night, 11th inst, a man rushed into the Central Fire Office, Edinburgh, and announced that a large building in Chambers Street was on fire. It was found that the fire had originated and was then burning fiercely in the midwifery museum, belonging to Dr. Halliday Croom, at Minto House, which is situated between Tron Free Church and the Heriot Watt College, and in which are conducted some of the most important extra-neural medical cliniques in Edinburgh. The museum contained a collection of specimens gathered during twenty-five years by Dr. Croom, and these have been irreparably lost. In the same room a valuable collection of microscopical specimens belonging to Dr. Croom's co-worker, Dr. Haultain, and a valuable series of diagrams have also been destroyed. By strenuous exertions the firemen fortunately succeeded in confining the fire to the room in which it originated. A large window in the apartment was blown out with a loud report when the flames were at their worst, and the room has been entirely gutted. On each side is another museum, but these escaped with slight damage to the woodwork and glass of the cases, the specimens being intact. The specimens of Mr. A. N. Macalpine in the botanical museum underneath were seriously damaged by smoke and water. Immediately above the seat of the fire are the chemical laboratories of the City Analyst, Mr. J. Falconer King, F.I.C., F.C.S., which, except by smoke, were almost uninjured. Had the flames extended to the chemicals in store, much more extensive damage would certainly have resulted. The origin of the fire is unknown, everything being in order when the caretaker examined the premises at 8 p.m. The damage, covered by insurance, is less than £1000, but the specimens cannot be replaced.

PERMANGANATE OF POTASSIUM IN OPIUM POISONING.—Dr. Nathan Raw, of Dundee, fully confirms the experience of Dr. Moore of New York, as to the value of permanganates as antidotes in cases of opium poisoning. He records five cases, four of which recovered, the one lost being that of a chemist who had taken more than a pint of laudanum some hours before being treated. The treatment consisted in washing out the stomach with warm solution of Condy's fluid (two drachms to a pint) until the washings were colourless. This was followed by two drachm doses of liquor potassii permanganates every hour as long as narcosis was evident (*B. M. J.*, 2, 95, 76).

IRISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

FANNIN AND COMPANY apparently do not intend to content themselves with a window display of the poisons for which they were fined, as they have appointed a pharmaceutical chemist—Mr. Samuel J. Smith, M.P.S.I.—as one of their assistants.

PHARMACEUTICAL SOCIETY OF IRELAND.—On Wednesday, the 7th inst., the monthly meeting of the Council was held at 67, Lower Mount Street, Dublin, at 3 o'clock. The President, Mr. William Hayes, occupied the chair, and the other members of Council present were Messrs. J. J. Bernard, Lyons (Belfast), Murray (Clones), Whitla (Monaghan), Downes, Charles Evans, Hodgson (Treasurer), Conyngham, and G. M. Ryan. A letter from Mr. W. B. Galway, who was solicitor for the Society in the prosecution of Messrs. Marshall at Dungannon for illegal compounding, reported the result of the proceedings, viz., that Mr. R. C. Marshall had been fined £5, with £1 costs, and that three other summonses had been dismissed without evidence being heard.

A discussion ensued, in the course of which the Registrar mentioned that Mr. R. K. Clay, the Society's solicitor in Dublin, had intimated that he did not think it would be worth while to take any further legal steps in the case; and with the authority of the Law Committee he (Registrar) had written to Mr. Galway to that effect in reply to a letter from him asking for instructions. In a case of Williams heard in the Dublin Police Court, the magistrate, Mr. Swifte, fined the defendant on a plea of guilty for the separate offences of keeping open shop and selling.

The President: I suppose the Council approves of the reply sent to Mr. Galway?

Mr. Downes said they should not let the matter drop as regarded Mr. R. C. Marshall. This was his second offence. He (Mr. Downes) moved that the Lord Lieutenant and Privy Council be requested to remove Mr. R. C. Marshall's name from the Register of Druggists and that a statement of the facts be forwarded to His Excellency.

Mr. Whitla said he seconded that motion with much pleasure.

The Registrar mentioned that on both of the two occasions on which proceedings were taken against Mr. Marshall he gave guarantees that he would not offend again.

Mr. Conyngham thought it would be rather a severe punishment to have Mr. Marshall's name taken off the Register.

Mr. Whitla said that if they were to let this matter pass it would be trifling with the administration of the Act.

The motion of Mr. Downes passed unanimously.

A letter from Mr. Richard Bremridge, Secretary of the Pharmaceutical Society of Great Britain, informed the Council that the Board of Examiners of the English Society did not deem it expedient to accede to the request of the Council of the Irish Society, that their "Preliminary" should be accepted in lieu of the "First" examination of the Society of Great Britain.

Mr. Bernard: I was the only one who opposed the giving away of the birthright of our members, and I thought that it would be mere huxtering to ask those gentlemen to do anything for us. You now see the result. I was proud of my vote and I am proud of it still.

On the motion of Mr. Conyngham it was resolved that the papers of the two examinations should be referred to the Examiners of the Pharmaceutical Society of Ireland, with a request that they would report as to whether there was any difference between them in favour of the British Society's examination.

The District Inspector of the Royal Irish Constabulary at Ballymoney reported that the magistrates there had dismissed a summons against Dr. R. C. Miller, of Dervock, for selling laudanum without properly labelling it, because the witnesses could not swear as to whether or not at the time the bottle was received from the defendant it had a label.

Mr. Lyons said it was quite a common thing in some country districts to send out laudanum without a label.

A donation was announced from the Pharmaceutical Society of Great Britain of forty specimens of materia medica.

On the motion of Mr. Evans, seconded by Mr. Downes, the best thanks of the Council were accorded to the donors.

The results of the recent examinations were reported by the Examiners.

The President said he had the authority of the Examiners for the licence for stating that they never had before them a better lot of men than at the last examination.

Mr. T. W. Robinson was re-elected Examiner in Practical Pharmacy, and Dr. Ninian Falkiner was re-elected Professor of Botany and Materia Medica—both for one year.

Two new members were admitted, one gentleman was nominated for election as an associate druggist, and five were nominated for membership of the Society.

Other business having been disposed of, the Council separated.

Pharmaceutical Chemists' and Apothecaries' Assistants' Association of Ireland.—The opening weekly meeting of this Association was held in the XL Café, 84, Grafton Street, Dublin, on Friday evening, the 9th inst., at 8 p.m., Mr. J. B. Alister, L.P.S.I., President, in the chair.

Mr. John Long, L.P.S.I., was introduced to the meeting by the President, and returned thanks for his appointment as Secretary.

Some routine business having been transacted, the following assistants were elected as members:—Messrs. Healy, Taylor, O'Connor, Harwood, Hackett, Wilkins, Farrington, and Coffey. Mr. W. C. Hinchy, M.P.S.I., Kilmallock, was elected as an honorary member.

A discussion on one of the rules was declared out of order and discontinued, as no rule can be amended except at a special meeting.

The following motions were put and carried unanimously:—

Proposed by Mr. O'Sullivan, seconded by Mr. Parker:—"That the Secretary write to those journals connected with the pharmaceutical profession, petitioning the favour of those papers containing reports of their meetings. Such papers to be placed on the table at all meetings of the Association for reference if necessary."

Proposed by Mr. McCarthy, seconded by Mr. Kelly:—"That the Secretary be instructed to write to the Council of the Pharmaceutical Society, petitioning the grant of a room in which the meetings connected with the Association might be held."

Some other matters having been attended to,

The President delivered his inaugural address, in which he directed the attention of the members towards the aims and objects for which the Association had been inaugurated, and the manner in which these were to be accomplished successfully. Mr. Alister's remarks were instructive and practical, and appeared to be much appreciated by those present.

Mr. Alister, in responding to a vote of thanks for his address, mentioned that it was expected that at the following weekly meeting an Address would be delivered by Dr. Ninian Falkiner, Professor of Materia Medica to the Pharmaceutical Society of Ireland.

A cordial vote of thanks having been passed to Mr. Gilligan, reporter, for the great interest displayed by him towards the Association, and suitably responded to by that gentleman, the proceedings terminated.

Irish Pharmacy Prosecution in Dublin.—On Friday, the 9th instant, Mr. Swifte, the presiding magistrate in the Southern Divisional Police Court of Dublin, pronounced his judgment in the case of the Pharmaceutical Society of Ireland *v.* Mrs. Emma H. Barnes, of 3, Harcourt Road, Dublin, who had been summoned by the Society under Section 30 of the Irish Pharmacy Act, 1875, for having, on June 10 at No. 1, Charlemont Street, in the same city, compounded a medical prescription for an inspector of the Society, she not being duly qualified. At the hearing evidence was given that Mrs. Barnes purchased No. 1, Charlemont Street from the widow and administratrix of R. D. Atkinson, a registered druggist; that her solicitor, Mr. Walker, employed John Frederick Corcoran as an assistant, and that Corcoran admitted having made up and sold the prescription on the day alleged for 1*s.* 3*d.*

Mr. Swifte, in the course of his judgment, said he believed letters written by Mr. Walker to Corcoran at the time of his engagement warning him not to contravene the Pharmacy Acts, and afterwards inquiring whether he was adhering to that injunction, were *bonâ fide;* and that a witness who wrote in reply to Mr. Walker as Corcoran did, that he was acting in accordance with the first letter, on the very day on which he made up the prescription in question, was unworthy of credit. Since the hearing he (Mr. Swifte) had inspected the outside of 1, Charlemont Street, and he saw gushing invitations in four different places to the public to come in and have their "prescriptions compounded"; whilst the only name over the door was "R. D. Atkinson, L.P.S.I." The defendant's excuse for not removing or concealing those flaming announcements, namely, that she intended to re-model the premises, was totally inadequate. He (Mr. Swifte) had no reason to believe Mr. Walker to be other than an honourable member of an honourable profession, and he acquitted him of any improper conduct or motive in the matter. It was clear, also, that his client had no intention of breaking the law. But, on the other hand, both the defendant and Mr. Walker were guilty of culpable negligence in allowing the outside of the shop to remain as it was in Mr. Atkinson's time. Though the general principle of the law was that a person could not be convicted in a criminal proceeding without a guilty mind, or *mens rea*, the Legislature had enacted otherwise in certain instances, such as the Pharmacy Acts and the Sale of Food and Drugs Act, and absolutely prohibited the doing of certain acts. The language of Section 30 of the Irish Pharmacy Act was absolutely prohibitory, and on the best consideration he had been able to give to the case, he held that Corcoran, having been in sole charge of the shop at the time he made up the prescription, was acting "within the scope of his employment," and that Mrs. Barnes was responsible for his act. He therefore fined her £3, awarding £3 costs to the complainants.

New Pharmacies in Belfast.—In Belfast the increase of pharmaceutical establishments continues. They have been growing in numbers of late in the densely populated suburbs—not only in the fashionable districts but in the localities occupied almost entirely by the working classes—as well as in the leading thoroughfares of the city. One of the finest of these new pharmacies is that of Mr. W. Armstrong Lynass, in Ann Street, within a few doors of Arthur Square where the Theatre Royal is situated. That is one of the busiest arteries of traffic. The establishment is being fitted up in really elegant style. Everything is being supplied in a way that at once indicates no expense is being spared in order that the equipment may be most complete, and both internally and externally its appearance will be most attractive. Its doors will be open for business almost immediately.

FOREIGN NEWS.

[*From our Special Correspondents.*]

Protection Against Cutting.—At the annual meeting of the Société de Prévoyance it was proposed that a syndicate of manufacturers of specialties should be formed to protect the retail chemist and remedy the injurious system now so prevalent of cutting prices. In France the manufacture and proprietorship of specialties is restricted to pharmaciens, and they as a rule have a retail pharmacy where full prices are always obtained, it is therefore very annoying to them to find that the public can buy their specialties at the cutting chemists at a reduction of about 25 per cent. The following is a *résumé* of the rules drawn up by the Syndicate, and they might be advantageously adopted by manufacturers of specialties in England. All specialties are to be sold wholesale at the retail prices marked, with the exception of 5 per cent. to wholesale houses. Attached to each article is a ticket with the usual discount of 25 per cent. marked in plain figures, which is detached at the time of sale by the retail pharmacien. Every three months these tickets are sent up to the various manufacturers, who refund the discount plus the interest of the 25 per cent. Before participating in this privilege every pharmacien undertaking to fulfil the conditions must sign an agreement to the effect that he will not undersell. In case of any infringement of this agreement the defaulting pharmacien forfeits all right of participating in the quarterly discounts. In conclusion, the manufacturers are asked to give to the Benevolent Fund all extra profits accruing to them from the forfeit or loss of tickets.

Contaminated Ice.—Parisians are having their eyes opened to the dangers attendant on the consumption of ice obtained from doubtful sources. The prevalent idea that microbes could not exist in frozen water has been dispelled by the action of the Municipal Laboratory in making analyses of ice obtained from the most frequented cafés of the boulevards. The bacteriological analysis gave 1,085,000 colonies per cubic centimetre, and according to Chantemesse and Widal, the microbes of typhoid fever, the

bacillus anthracis, and the staphylococcus pyogenes did not undergo any modification after repeated freezings, the number of the colonies did not decrease, and the virulence of the cultures had not in the slightest degree diminished.

POISONING CASES AND INQUESTS.

Phosphorus.—Patrick Stewart, aged 52, died on Saturday, July 27, in the West London Hospital, from the effects of phosphorus, self-administered. Verdict: "Suicide whilst of unsound mind."

Ammonia.—Martha Ann Whittaker, aged 57, died on Thursday, July 18, at 44, Market Street, Bacup, from the effects of ammonia, self-administered. Verdict: "Deceased died from the effects of drinking ammonia at the time when she was of unsound mind."

Oxalic Acid.—An old woman named Hallows died on Tuesday, July 30, at Heywood, from the effects of oxalic acid, self-administered.

Oxalic Acid.—Hannah Gwilliam, aged 64, died on Saturday, July 27, at 14 court, 6 house, Benacre Street, Birmingham, from the effects of oxalic acid, taken in mistake for Epsom salts. Verdict: "Death from misadventure."

Carbolic Acid.—Florence King, aged 19, of 21, Cumberland Market, died on Monday, July 29, in the Temperance Hospital, London, from the effects of carbolic acid, self-administered. Verdict: "Suicide during temporary insanity."

Laburnum Seeds.—Gertrude Potter, aged 6, died at Whitby from the effects of having eaten some laburnum seeds. At the inquest, held on Friday, August 2, a verdict of "Death from poisoning by laburnum seeds" was returned.

Opium.—Edward Voight, aged 73, died at 5, Stamford Hill, London, from the effects of an overdose of opium taken to induce sleep. At the inquest held on Tuesday, August 6, the jury found that "Deceased took the overdose inadvertently."

Spirit of Salt.—Elizabeth Jeffrey, aged 47, of 11, Little Goodge Street, London, died in the Middlesex Hospital from the effects of spirit of salt taken in mistake for lemon water. At the inquest held on Saturday, August 3, the jury returned a verdict of "Death through misadventure."

Spirit of Salt.—Elizabeth Sullivan, wife of a plasterer, of Kingsgate Street, Holborn, died from the effects of spirit of salt, self-administered. At the inquest held on Tuesday, August 6, the jury returned a verdict of "Suicide during temporary insanity."

Laudanum.—Charles Joseph Kervin, an infant, whose parents live in Cheltenham Road, Manchester, died on August 5, from the effects of laudanum contained in an "infants' preservative." Verdict: "Death from illness aggravated by the administration of 'infants' preservative' containing poison."

Cyanide of potassium.—Howard J. Goldsmid, aged 28, of Vyse Street, Birmingham, committed suicide on August 7, by taking cyanide of potassium.

PUBLICATIONS RECEIVED.

Anatomischer Atlas der Pharmakognosie und Nahrungsmittelkunde. Von Dr. A. Tschirch und Dr. O. Osterle. No. 8. Price 1*s.* 6*d.* each part. (Williams and Norgate. London.) From the Publishers.

Liebig and Kopp's Jahresbericht über die Fortschritte der Chemie for 1889. Edited by F. Fittica. Part 7, pp. 2881–3219. (Friedrich Vieweg und Sohn, Braunschweig, 1895.) From the Publishers.

A Bird-Haunted Pine Grove. By W. J. C. Miller. Reprint from *Nature Notes.*

Mathematical Questions and Solutions. By W. J. C. Miller, B.A. Reprinted from the "Educational Times." (London: Francis Hodgson, 89, Farringdon Street, E.C.)

COUNTRY NOTES.

Applying Plant Food.—A bulletin of the Cornell Experimental Station says that in a general way the following rules may be of some aid in applying plant food. Reclaimed lowland that is rich in vegetable matter is likely to be also rich in nitrogen, but deficient in phosphoric acid. Well-drained highland, particularly in exposed situations, is more likely to be deficient in nitrogen than in phosphoric acid. Where crops have small growth of leaf and stalk under otherwise favourable conditions, nitrogen is likely to be deficient. When plant maturation is conspicuous rather than luxuriance of stem and leaf, it would indicate an abundance of phosphoric acid and a comparative deficient amount of nitrogen. An abnormal development of leaf or stem, with but little tendency to seed formation, indicates an insufficiency of potash, but abundance of nitrogen. As a rule, plants having the most leaf development require the most potash food. Good farmyard or stable manures are rich in nitrogen, consequently soils that have recently been treated with liberal applications of these are not likely to be deficient in nitrogen. High-class commercial fertilisers generally give more plant food for their cost than low grade manures. Pure sodium nitrate (Chile saltpetre) contains 16½ lbs. of nitrogen per 100 lbs.; pure ammonium sulphate gives for a like quantity 21·2 lbs. nitrogen; pure potassium chloride contains 63·5 per cent. actual potash; pure potassium sulphate, 54 per cent. Kainit should contain 12½ per cent. potash, and 10 per cent. magnesia. Pure potassium phosphate should yield 32½ per cent. of potash and 37½ per cent. phosphoric acid. Potassium nitrate contains about 12·7 per cent. of nitrogen and 45·2 per cent. of potash. More than 300 analyses of wood ashes gave a mean result of 5·3 per cent. of potash, 1·5 per cent. phosphoric acid, 33 per cent. lime, and 3 per cent. magnesia. The best results with nitrates, sulphate of ammonia, and all similar concentrated manures are secured by frequent applications of small amounts given to the growing plant as a top dressing (*Gard. Chron.*, xvii., p. 648).

Horse-Chestnuts in Pulmonary Emphysema of Horses.—Benjamin, at the meeting of the Société Centrale de Médecine Vétérinaire de Paris, resumed, referred to the therapeutic value of horse-chestnuts in the "roaring" of horses. Doses of 100 to 300 grammes a day of horse-chestnuts, cut up fine and mixed with bran, give good results in the treatment of pulmonary emphysema. The author states that the name horse-chestnut, *hippocastanum*, was given to the tree because at Constantinople in early times the seeds were given to horses in powder to cure or prevent roaring. It was, moreover, noted that the first horse-chestnut tree was introduced into France in 1615. The action exercised by horse-chestnuts on the horse is the more interesting since it is stated by Corvenu that they are poisonous to sheep, pigs, dogs, and ducks (*L'Union Pharm.*, xxxvi., 262).

The Use of Potash in Fruit-growing.—Professor W. E. Britton, in the *American Agriculturist*, calls attention to the use of potash fertiliser in orchards. Potash and phosphoric acid promote the vigour of the tree and increase the quantity and quality of the fruit, while excess of nitrogen tends towards an increased growth and wood production at the expense of the crop of fruit. The experience of many large fruit growers favours the use of potash in manuring orchards. It is most commonly applied in the form of potassium chloride, from 200 to 300 lbs. per acre being considered an economical dressing if the orchard is so treated annually. Kainit may be used instead, but double the quantity must be used. The author considers that the practice of applying potash or phosphoric acid is sometimes carried too far, and considers that if a complete fertiliser were used it would in many cases give better results. The result of experiments in New Jersey on fertilising peach orchards shows that the best results were obtained with a mixture of potassium chloride and sodium nitrate. One of the best sources of potash for orchards is wood ashes, from forty to fifty bushels of dry ashes per acre; but the chloride is a more reliable and constant form of applying the alkali. An apple orchard in full bearing may receive as much as 1000lbs. per acre, but it is noted that in some soils a much better effect is obtained from potash than in others; a small portion of the orchard should therefore be treated experimentally before applying the potash or potash and nitrate dressing to the whole (*Gard. Chron.*, 3, xviii.,6).

NEW REMEDIES.

[*The notes given under this heading embody recent suggestions in therapeutics. They cover both new drugs and preparations, and old ones under new aspects. The word "parts" is used to represent parts by weight, both for solids and liquids.*]

Carbolic Collodion and Liniment for Pruritis.—Carbolic collodion may be prepared by the following formula:—Carbolic acid, castor oil, of each, 1 part; collodion, 2 parts. For pruritis use the following lotion: Carbolic acid, 4 to 8 parts; solution of potash, 4 parts; linseed oil, 30 parts (*Rev. Internat. Méd., Chirur.*, vi., 204).

Preparations used in the Treatment of Acne.—(1) Apply every evening to the affected part a thin coating of this ointment: Sublimed sulphur, starch, of each 1 part; soft soap, 2 parts; lard, 6 parts. Allow this to remain on the skin for two hours, then wash off with warm water and dust with wheat or rice starch. (2) Wash night and morning with warm soap and water, then apply a thin coat of sulphur iodide, 3 parts; lanolin, 100 parts. (3) After warm soap and water, apply the following ointment: White precipitate, 2 to 5 parts; oxide of bismuth, sublimed sulphur, of each 10 parts; lard and vaselin, of each 25 parts; balsam of Peru, 2 parts. (4) Every evening apply with a pledget of absorbent cotton, and allow to dry on the affected part; flowers of sulphur, camphorated alcohol, of each 30 parts; boiled water, 200 parts. In the morning on rising, apply with a shaving brush a lotion composed of benzoic acid and borax, of each 3 parts; milk of almonds, 200 parts. (5) Night and morning apply with a brush the following lotion: Borax, 1 part; glycerin, 200 parts; rose water, 1000 parts. (6) Twice or thrice daily apply hyposulphite of soda, 4 to 8 parts; potash alum, 4 to 8 parts; eau de Cologne, 12 parts; rose water, 180 parts. Dissolve and filter. (7) Apply night and morning subnitrate of bismuth, 4 parts; cold cream, 30 parts. (8) Morning and evening wash with this lotion: Concentrated acetic acid, tincture of benzoin, camphorated alcohol, of each 6 parts; strong spirit, sufficient to make up to 100 parts. If the skin becomes wrinkled make only one application a day. (9) Apply continuously until inflammation is produced, the following paste: Resorcin, zinc oxide, starch, of each 10 parts; vaselin, 20 parts. (10) Applied daily for a quarter, or at the most, half an hour one of these pastes. (*a*) β-Naphthol, finely powdered camphor, vaselin, prepared of chalk, each 5 parts; soft soap, 15 parts; precipitated sulphur, 50 parts. (*b*) β-Naphthol, 10 parts; vaselin, soft soap, of each 20 parts; precipitated sulphur, 2 parts (*Rev. Intern. de Méd. Chirur.*, vi., 224).

Treatment of Warts.—Cover the warts twice daily with the following solution: Mono- or tri-chloracetic acid, 9 parts; absolute alcohol, 1 part: or acid salicylic, 1 part; acid lactic, 1 part; collodion, 2 parts (*Rev. Inter. Méd. Chirur.*, vi., 224, after *Giorn. de Farm.*).

Treatment of Acute Alcoholic Intoxication.—Sallard recommends the immediate injection of trinitrine, $\frac{1}{60}$ grain; atropine, $\frac{1}{100}$ grain; tincture of digitalis, 10 minims. The stomach is then washed out first with tepid water, then with a mixture of water and oil, 120 grammes of each, with the addition of 4 grammes of salt. An hour later $\frac{1}{25}$ grain of sulphate of strychnine is injected, which may be repeated every three hours (*Rev. de Thérap.*, lxii., 381, after *Med. Week.*).

Mercurial Traumaticin for Syphilitic Affections.—Paroni, of Turin, employs traumaticin, 4 parts; calomel, 1 part; applied with a brush to the affected parts three times weekly (*Rev. de Thérap.*, lxii., 391).

Pharmacy of Iodic Acid.—For external use, iodic acid may be dispensed in aqueous solution thus: Iodic acid, 5 to 10 parts; distilled water, 95 or 90 parts. In an ointment for nasal affections it is combined with lanolin: iodic acid, 2½ to 5 parts; lanolin, 50 parts. In vaginal bougies for menorrhagia it is dispensed thus: Iodic acid, 15 milligrammes; boric acid, 5 centigrammes; cacao butter, 2 grammes. A 10 per cent. aqueous solution allowed to stand for some time throws a portion of the acid out of solution. Pure undiluted iodic acid cannot be used externally because of the acute pain its application causes. Reducing bodies, but not chlorine water, energetically liberate the iodine it contains (*Bull. Gén. de Thérap.*, cxxviii., after *Merck's Bulletin*).

NOTES AND QUERIES.

Local Anæsthetic in cases of Whitlow.

Spray the affected finger with the following mixture:—Chloroform, 10 parts; ether, 15 parts; menthol, 1 part. This (says the *Novidades Medico-Pharmaceuticas*) causes a complete insensibility lasting three or four minutes, that is to say, longer than is necessary to finish the operation.

To Preserve Colours in drying Botanical Specimens.

A German chemist has found a method of preserving the colours of dried flowers, even those of delicate poppies. Flowers lose their tints in drying through ammonia in the air (*Philadel. Ledg.*). The inventor presses his specimens between sheets of paper, which have previously been saturated with a solution of 1 per cent. of oxalic acid in water.

Disinfection of Cesspools.

Vincent recently reported to the Academy of Sciences at Paris, the results of experiments for the purpose of determining the best disinfectant for rendering fæcal matter innocuous. He required of each disinfectant that it should kill all pathogenic microbes, including the bacillus coli communis, and the bacteria of putrefaction. His experiments showed that the best of all disinfecting agents for the destruction of fæcal matter in vaults and cesspools is sulphate of copper with one per cent. of sulphuric acid. The quantity of sulphate of copper required was one pound for every three cubic feet of fæcal matter, mixed with urine. Half this quantity was found sufficient to destroy the cholera bacillus. It was found necessary that the disinfectant should remain in contact with the infectious material for at least twelve hours (*Mod. Med.*, iv., 91).

Malted Milk.

To a pint of milk add one tablespoonful of malt and heat to a temperature of 60°. Afterwards bring to boiling point and boil for twenty or thirty minutes to check the further action of the malt. This method of peptonisation is said (*Modern Medicine*) to be much preferable to the employment of animal substances.

Influence of Soap upon Cholera Germs.

By an extensive series of experiments Jolles has shown (*Mod. Med.*, iv., 148) that soap is possessed of excellent disinfectant properties. An eight per cent. solution of potash soap disinfected perfectly in three minutes at a temperature of 60° F., and a one per cent. solution killed cholera germs completely in thirty minutes. The experiments showed little difference between the different kinds of soap.

Preparation of Petroleum from Blubber.

The probable origin of petroleum from animal remains is illustrated by Lobry de Brun (*Chem. Zeit.*) in an interesting lecture experiment. A piece of combustion tubing is bent to an elbow-joint, one part half filled with blubber, and both ends carefully sealed up. The limb containing the substance is enclosed in a piece of gaspipe and packed with sand so that the glass does not come into contact with the iron of the tube. The tube is then heated strongly by means of a Bunsen burner with three branch jets; water and petroleum distil over into the cool limb; the presence of the former may be shown by introducing before sealing up, a little soluble dye, such as water blue. After completion of the experiment, the heated end contains a brown residue, but carbonisation does not take place. The other portion contains petroleum, water, and inflammable gases. The whole system forms, in fact, a miniature petroleum spring. On opening the tube, the nature of the contents may be exhibited. No acrolein is formed as when dry distillation takes place in the atmosphere.

Cleaning Rusty Instruments.

Brodie gives the following as an effective method of cleaning rusty instruments (*Jour. Brit. Dent. Assoc.*, xvi., 407): Fill a suitable vessel with a saturated solution of chloride of tin in distilled water, immerse the rusty instruments, and let them remain over night. Rub dry with chamois after rinsing in running water, and they will be of a neat silvery whiteness.

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

Communications for the Current Week's Journal should reach the Office not later than Wednesday Morning. Telegrams can be Received on Thursday Morning. All Communications respecting Editorial matters must be Addressed "Editor, 17, Bloomsbury Square, London," and not in any case to individuals supposed to be connected with the Editorial Staff of the Journal.

All Instructions from Members, Associates, and Students of the Pharmaceutical Society, respecting the transmission of the Journal, must be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London, W.C.

Business communications—including advertisements, orders for copies of the Journal, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Cheques and money orders should be made payable to "Street Brothers."

Correspondents who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for illustrations should be done with pen and Chinese ink, and consist of clean, sharp lines, without shading by washes. They should also be prepared twice the desired size, so as to allow for reduction.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Queries addressed to the "Editor" will be replied to as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries."

Reprints of articles cannot be supplied unless authors communicate with the Editor before publication.

LETTERS.

Dispensing Difficulty.

Mr J. F. Brown, Pharmaceutical Chemist, Dover, thinks the cause of the precipitate in the quinine mixture which had been dispensed by Mr. S. Jones (*ante*, p. 36), must be looked for in the sparing solubility of citrate of quinine. "When sulphate of quinine is mixed with citric acid and water, it is probable that the reaction is represented thus—

$$[(C_{20}H_{24}N_2O_2)_2H_2SO_4]_2 15H_2O + H_3C_6H_5O_7H_2O + H_2O$$

equals

$$2C_{20}H_{24}N_2O_2H_2SO_4 7H_2O + (C_{20}H_{24}N_2O_2)_2H_3C_6H_5O_7 3H_2O.$$

and that 894 parts of citrate of quinine will be produced from 1762 parts of the sulphate, or 15·2 grains from ℥ss. The solubility of citrate of quinine in water is given as 1 in 1000 in the 'Agenda du Chimiste,' and as 1 in 1600 by Squire's 'Companion,' where it is further stated that it is not soluble in lemon juice, so that the solubility is not increased by excess of acid. The 15·2 grains then, would require $15{\cdot}2 \times 1600 = 24{,}320$ grains of water to dissolve them, while the measure of the whole mixture is only 10 fluid ounces, and I submit that the separation of the precipitate is thus fully accounted for."

The Revision of the Pharmacopœia.

Mr. J. C. Hyslop, of 39, Church Street, Marylebone, N.W., writes as follows:—In the Journal for July 27, page 79, there is a formula for carbolic acid ointment which I think would prove to be a worse one than that of the present B.P. It is proposed to dissolve the crystallised acid in twice as much olive oil, and then add paraffinum molle. Now to some who have not had the painful experience that we have had as to the repulsiveness of paraffinum in any of its forms to almost everything that has earned a good name for its success as a medicament, this looks very nice, and truly there is no likelihood of the acid crystallising out over the surface as it does when a mixture of the hard and soft paraffins is used—this stuff being too "messy." From the first moment of finishing, however, the acid may be detected in a state of progressive elopement with the olive oil; you may catch them as a bedewment on the inside of a bright metallic lid that closes tightly the top of the containing vessel.

Re *Camphor, Chloroform, and Lime Waters*.—There seems to be some more hair-splitting and angelic beings playing at leap-frog on needle-points with respect to these formulæ amongst which—"bubble, bubble, toil, and trouble"—fundamentally important facts are in danger of being ignored. The rage for automatons—offspring of idleness and vanity—seems to be spoiling what is best and most useful everywhere. It spoils our distilled water so that a man is obliged to pay ten shillings a year to keep a still and prepare it himself; our ointments, pill-masses, and tinctures, all are suffering, as poor people's babies do, simply because those responsible for their welfare do not, cannot, or will not, bestow upon them that undivided and ungruding attention which is their due.

Camphor Water was never yet known to be too strong; then why not keep it always ready at any temperature, with some camphor at the bottom to ensure saturation as nearly as may be?

Chloroform Water having become such a favourite in so short a time should also be kept at its present strength, prescribers are well acquainted with its characters, and are in the habit of writing their prescriptions accordingly. Introduce a weaker preparation, and in a few years' time we shall be worried about its instability.

Lime Water is by far the most important of the three. Blessed the pharmacist whose substantial knowledge of chemistry enables him to prepare and store this of proper and uniform strength. He takes, say, three Winchester quart bottles A, B, C; into A he puts an ounce of pure lime hydrate, fills it about three-fourths with distilled water, shakes them together for about two or three minutes twice, then transfers the milky liquid to bottle B, which is filled up with water and well shaken; the lime having subsided, he has a stock of about three pints that can be poured out carefully as required without disturbance of the sediment. He fills bottle C in the same manner, and lastly bottle A, and thus has a good stock to meet all requirements; these are kept on the shop floor and shaken up periodically one at a time only. His 3 oz. of lime will furnish some thirty pints in all, the bottles now being more than two-thirds empties, and a stratum of liquid always protecting the sediment, the main point being to see that the lime is well shaken into the successive charges of cold distilled water.

And the truth is that it is not so much the exact temperature, a few degrees higher or lower, that matters with respect to these waters, so much as evenness of temperature. The fluctuations of the temperature of the shop is what largely spoil our goods, and it is worth special notice that this fluctuation increases with every inch of elevation from floor to ceiling. The moral is plain; many articles must be kept in cupboards on the floor, some may do very well half way up, and a few only towards the top.

ANSWERS.

"Secundus."—1. *Galeopsis tetrahit;* 2. *Rumex acetosella;* 3. *Stellaria uliginosa;* 4. *Polytrichum piliferum;* 5. *Sagina apetale;* 6. *Lamium purpureum.*

J. I. Halstead.—No class interests of any description were represented on the Committee.

F. Oram.—To a certain extent you must exercise your discretion on such points. If the strict letter of the law seems to require registration in any particular case, chemists are unwise to shirk the duty which is, as a matter of fact, one of their chief protections against legally unqualified persons.

Gamma.—There is no such gargle in the St. Thomas's Hospital Pharmacopœia. Probably the mistura potassii chloratis, which is also used in that institution as a gargle, is what you require—chlorate of potassium, 10 grains; hydrochloric acid, 2 minims; water, to 1 ounce.

J. T. Davy.—The odour is evidently due to the soap employed, and it is therefore difficult to see how it can be removed under the circumstances.

Qæro.—We understand a five per cent. solution of guaiacol in olive oil was employed by Dr. Lucas-Champonnière, in the investigations referred to on page 134.

Colvin Gates and Frank Smith will find attention more readily directed to the matters concerning which they write if they will take the trouble to read the instructions to correspondents printed on this page, and act in accordance therewith.

T. W. Picken.—There are no restrictions in the matter. All readers are entitled to the free use of the Exchange column, so long as they do not send advertisements which ought to be paid for.

H. S. Hankinson.—Write to the Secretary of the Institute of Chemistry, 30, Bloomsbury Square, W.C., and to the Secretary of the Royal College of Surgeons, 40, Lincoln's Inn Fields, W.C., asking for copies of the regulations.

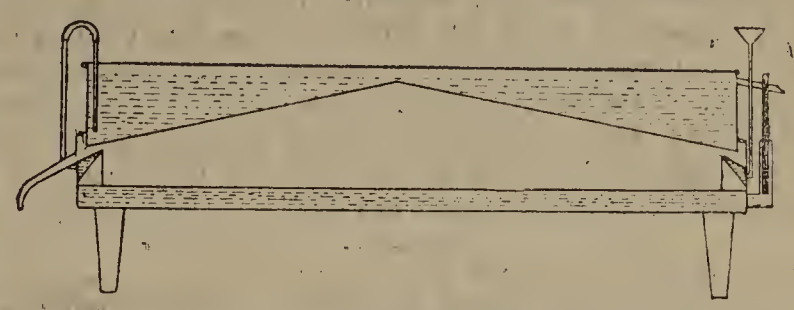
Communications, Letters, etc., have been received from Messrs. Bingley, Bird, Blanchford, Boorsma, Braithwaite, Carruthers, Compton, Davies, Delchevalerie, Durrant, Gill, Green, Halstead, Harrison, Hill, Holloway, Holmes, Keenan, Kellett, Lescher, Lloyd, Marshall, Millard, Morris, Moss, Nathan, Naylor, Parker, Peck, Reeve, Reynolds, Settler, Shields, Simmonds, Smith, Spence, Spurge, Thompson, Umney, Ward, Warden, Wilson, Wright,

THE RECOVERY OF ALCOHOL FROM TINCTURE MARCS.*

BY F. C. J. BIRD.

The complete recovery of the residual alcohol from the exhausted marcs of pharmaceutical preparations is an operation which has hitherto presented considerable difficulty, both on the large and small scales, chiefly on account of the imperfect methods in use for effecting the purpose. Loss by evaporation during the process of manufacture can, to a great extent, be guarded against by the employment of air-tight percolators, etc., many excellent types of which have been devised by practical pharmacists during the last decade. It is in dealing with the alcohol retained by the marc that the greatest loss is experienced, and to overcome this the processes of displacement by water, pressure alone, and pressure followed by distillation, are relied on in the practice of the laboratory. Mr. R. H. Parker, in a paper read at the Oxford Conference, ably discussed the method of displacement by water, and showed that in certain cases it was a thoroughly practicable one in competent hands, although requiring considerable care and attention for successful working. There is, however, more loss than is at first apparent in the experiments he mentioned, as the volume of tincture obtained does not consist entirely of spirit but contains the extractive of the drug as well. Mr. Parker also gave several instances in which displacement was inapplicable, the deficiency of product being too great. In such cases pressure alone or, on the large scale, pressure followed by distillation, is the only alternative method. Distillation is carried out in two ways. Either the pressed marc is stirred up with water, and after standing transferred to a percolator and more water passed through until the alcohol is extracted, the percolate being subsequently distilled, or the marc is placed directly in a capacious still with sufficient water, and by means of a mechanical agitator passing through the still head, thoroughly stirred up from time to time during distillation. It is essential to add sufficient water to the marc to form a comparatively thin liquid, otherwise ebullition only takes place where the marc is in contact with the interior surface of the still; whilst, from the non-conducting nature of the thick magma, the temperature near the centre remains low, and the spirit there is not driven off. Marcs containing much starchy or mucilaginous matter require a large quantity of water, and are the most difficult to deal with. The distillate is much weakened by the water which comes over with it, and redistillation is generally necessary in order to concentrate it, thus involving further labour and loss. From these considerations it is obvious that if a marc could be treated directly without the intervention of water, the spirit would be recovered of its normal strength and in a fit state for use in the same or a subsequent preparation.

If a tincture marc be spread out on an evaporating dish heated on a water bath, alcohol vapour rises and is dissipated in the atmosphere, a moderate continuance of the heat sufficing to drive off the whole of the moisture and completely dry the marc. A polished cold surface held a short distance above a marc so heated immediately induces condensation of the alcohol vapour, and small streams of liquid trickle in various directions over the glass. It was thought that this principle of surface condensation might be usefully applied to the subject under consideration, the only essential being a permanently cold surface over the material, and suitable provision for the collection and carrying away of the condensed vapour. Professor W. G. Gregory, in 1889, described in the *Pharmaceutical Record* an application of this principle to a pharmaceutical still, the special feature of which was a grooved cooled surface above the liquid, and a trough for the condensed distillate, the usual condensing worm being dispensed with altogether. An illustration also appeared some little time ago (I think in an American journal) of a still, in which Professor Gregory's condenser instead of being rectangular with a grooved bottom was made circular and with the bottom cone-shaped. This particular form of condenser appeared likely to lend itself to the construction of an apparatus capable of evaporation at a low temperature, such as is necessary in the recovery of spirit from marcs without the intervention of water and, in accordance with this idea, I had a water bath made and fitted with what may be termed a condensing cover. The details will be readily apparent from the subjoined sectional sketch.



The lower part of the apparatus forms the water bath; it is of large area and very shallow, and is furnished with a side tube for a thermometer. The condensing cover is a circular water tank, having the bottom dished up in the form of a cone, the edge of which terminates above a V-shaped trough round the inner edge of the water bath. This trough is cooled by a cold water jacket underneath, and is inclined so that all liquid runs out by the exit tube leading from it. The water pipes are so arranged that the current of cold water passes first round the water-jacket of the collecting trough and then into the condensing cover, which rests on a flange in the water bath. This joint is secured by luting. It will be noticed that the condensing surface is very near the material to be desiccated and the whole construction of large area and shallow, the dimensions being: Diameter, 18 in.; depth of water bath, 2 in.; height of cone in centre, 3 in.

The marc having been spread evenly over the bottom of the water bath, the condensing cover luted on, and a small stream of cold water turned into the apparatus, the application of heat is quickly followed by condensation of spirit. This takes place at a remarkably low temperature. When dealing with a proof spirit marc, for instance, a fairly rapid succession of drops falls from the delivery tube at 80° F., and at 140° F. the greater part of the spirit may be recovered. A known quantity of rectified spirit may be mixed with a dry marc, and practically the whole of it separated, but it is in dealing with those preparations containing weaker spirit, which are not amenable to displacement and show a loss on pressing, that the apparatus will probably prove of value. As an illustration of its capabilities I give details of two experiments. I.—24 oz. marc from tinct. aurant., B.P., was placed in the water bath, the false bottom filled with water at 180° F., and the condensing cover with cold water. Left undisturbed overnight, the receiving bottle next morning contained 7 fl. ozs. spirit at 21° over-proof. II.—80 fl. ozs. tinct. rhei co., B.P., was prepared by macerating the ingredients with a portion of the spirit, draining in an air-tight percolator and percolating with the remainder of the spirit. The tincture which passed through measured 60 fl. ozs. The contents of the percolator were then transferred to the water bath and heat applied. The spirit recovered measured 21 fl. ozs. at proof strength, giving a total product of 81 fl. ozs. from the 80 ozs. taken, the increase being, of course, due to extractive. The dry marc weighed 8½ ozs., having lost 2½ ozs.

* Read at the Pharmaceutical Conference at Bournemouth.

may mention that the only object of this experiment was to show the amount of spirit that could actually be recovered from a tincture marc. The condensing water bath seems specially applicable in the production of fluid extracts by repercolation, as practically the whole of the spirit can be recovered from each percolator as it becomes exhausted without either pressing or displacement, and used in place of fresh menstruum for the succeeding percolator. It is obviously very suitable for the recovery of other volatile solvents, as chloroform and ether, and the distillation of alkaloidal preparations like those of belladonna, where a low temperature is essential.

A description of an excellently designed still, under the name of Dicker's patent still, appeared a short time ago (vide *P. J. Supplement*, March 16, 1895), and from this I gather that the makers consider the cone arrangement of condenser to be patented. This form, however, is one which should be widely known and will probably find many applications in pharmacy; doubtless therefore the controllers of the patent will be willing to put an apparatus such as I have described on the market.

Mr. J. C. Umney asked if the authorities would not regard this as a still and require a licence for its use. If so, that would be a drawback to its use on a small scale.

Mr. M. Conroy said this was very useful as a practical paper, and so far as he could see it would be a great improvement on the process generally adopted by manufacturers in recovering their spirit, inasmuch as the spirit was recovered at such a low temperature that it would contain much less of the volatile principles of the drug than by the process now adopted. If it were suitable on a large scale no doubt it would be a great help to large manufacturers, but he feared the size of the still required to deal with a marc from many gallons of tincture would have to be very large indeed. He understood the marc had to be spread very thinly over the bottom.

Dr. C. Symes said the principle of condensing by cold water on the top of the still had been in use for several years, and was adopted in an apparatus for repercolation which he showed at Bloomsbury Square some years ago. They were much indebted to Mr. Bird for bringing forward a small apparatus which would enable pharmacists to recover spirit from marcs. It had this advantage that it would enable pharmacists to be less dependent upon manufacturers, and to take an interest in the manufacture of their own products. One thing which prevented the pharmacist from doing so was the loss which he sustained in the marc. If you attempted to distil the spirit from the marc with an ordinary still, you immediately wanted some mechanical arrangement for keeping the marc moving. There was all the difference in the world between attempting to distil spirit from a marc by keeping it quite still, and keeping it moving, and generally a mechanical agitator was adopted on a large scale.

The President (Mr. Martin) said they were much indebted to Mr. Bird. The value of the apparatus described, no doubt, was its usefulness on a small scale. Although he had no disposition to pit pharmacists against manufacturers or make any distinction between them, it was desirable that the pharmacist should be able to make a pint of tincture if he wished, and to do it economically. That was the object of the Pharmacopœia and of the Conference. If he liked to spend time in doing so, a piece of apparatus like this was very valuable.

Mr. Bird said he had great pleasure in bringing the apparatus forward, because he thought it would be of real service. No doubt the Excise authorities would regard it as a still, but most chemists kept a still, and he did not suppose that would be a great bar to its use. Mr. Conroy was rather under a misapprehension as to its capacity. The one shown would take about 2 lbs. of dry marc—sufficient for one to two gallons of tincture, which was as much as the pharmacist would prepare. The marc might be spread to the thickness of an inch and a quarter. He had brought down some marc with him, and was prepared to show the apparatus, but, unfortunately, there was no convenience for applying heat, and therefore he could not put it to work. With respect to Dicker's still, he understood the cool trough was the part patented. Before he had this apparatus made he was in doubt whether to have the cool trough in the top part or the bottom, but he thought it would be more convenient to have it at the bottom. Still, it could be easily made in the top, and then he did not think it would infringe the patent.

ACETIC EXTRACT OF IPECACUANHA.*

BY F. C. J. BIRD.

The loss of alkaloid which occurs when acetic extract of ipecacuanha is prepared by the process of the present Pharmacopœia has been frequently commented on by pharmaceutical writers, and anyone who is in the habit of making this article must have been struck by the disproportion which always exists between the percentage of alkaloid in the root used and the alkaloidal value of the finished extract. The recent researches of Paul and Cownley have demonstrated that both emetine and cephaeline are affected when their acetic solutions are evaporated to dryness and exposed to the temperature of a water bath for any length of time, and it is evident that in the manufacture of the acetic extract the period of evaporation should be shortened as much as possible. In Dr. Attfield's recent report to the Pharmacopœia Committee of the Medical Council, certain improvements in the formula are suggested which will doubtless tend to decrease the amount of alkaloid destroyed. One of these consists in the evaporation of the percolate in separate fractions, a departure from the letter of the official directions of which probably all manufacturers have been guilty for a long time past, and another lies in the reduction of the quantity of acetic acid to one-fourth of the present proportion. This latter, especially, will probably have a very decided influence on the yield of alkaloid, as it is apparently the tenacity with which the pectinous matter of ipecacuanha retains acetic acid which is responsible for the long-continued heat necessary to render the extract sufficiently dry for powdering.

Before seeing Dr. Attfield's report I had made some experiments with a semi-alcoholic extract, and thinking they may be of interest to the Conference, I give the details below. Twenty-four ounces of Brazilian ipecacuanha was reduced to No. 20 powder, and divided into three equal parts of 8 ozs. each: A, B, and C.

A was macerated with 8 fl. ozs. acetic acid and an extract made exactly as directed in the Pharmacopœia, the only divergence from the official instructions being that the percolate was evaporated in fractions.

B was macerated with 4 fl. ozs. acetic acid and 8 fl. ozs. S.V.R., percolation being continued with S.V.R. to exhaustion. The marc was then removed from the percolator and stirred up with 4 fl. ozs. acetic acid and 4 fl. ozs. distilled water. After standing twelve hours the marc was returned to the percolator, and exhausted with distilled water. The aqueous extract having been evaporated to dryness, the spirit was distilled from the alcoholic percolate, the resulting syrupy liquid added to the dry aqueous extract, and the whole dried and powdered. The effect of this was disappointing, as the aqueous residue appeared to re-absorb acetic acid, and evaporation took much longer than was anticipated.

C was reduced to No. 60 powder and macerated with glacial acetic acid, 1 fl. drachm, and S.V.R., 8 fl. ozs., percolation being continued with S.V.R. to exhaustion. The liquid was then distilled and the syrupy residue evaporated to dryness. The marc having been treated with acetic acid, 4 ozs., and distilled water, 4 ozs., and allowed to stand twelve hours, was returned to the percolator and exhausted with more distilled water, the aqueous percolate evaporated to dryness, mixed with the dried alcoholic extract, and the whole powdered.

In working on any quantity by the above process the spirit in

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* Read at the Pharmaceutical Conference at Bournemouth.

the marc would, of course, be recovered before treatment with water. The alkaloid in the three extracts was estimated by Ransom's process, as modified by Braithwaite and Umney, with the following results :—

Percentage of alkaloid in the powdered root used (by Ransom's method of assay) 1·63 per cent.

	Quantity of extract from 8 ozs. root.	Yield of extract per cent.	Calculated percentage of alkaloid in extract if no loss occurred.	Actual percentage of alkaloid in extract.	Loss of alkaloid per cent.
A	B. P. process 582 grains.	16·6	9·82	7·18	26·8
B	Alcoholic, 413 grs. / Aqueous, 219 grs. } 632 grains.	18·06	9·02	7.93	12·08
C	Alcoholic, 398 grs. / Aqueous, 269 grs. } 667 grains.	19 05	8 56	7·8	8 96

2·5 grammes of the powdered extract C, after treatment with 50 C.c. distilled water, left a residue of ·3 gramme undissolved.

No difficulty was experienced in percolating C in 60 powder with water, after exhaustion with spirit, and the second percolation with acid continued to remove alkaloid, even after apparent exhaustion of the marc with rectified spirit.

The process C certainly effects a considerable reduction in the loss of alkaloid, and it might, I think, be still further improved by spreading the syrupy alcoholic extract on glass plates and drying at a low temperature like a scale compound. The bulk of the alkaloid is taken up in the first percolation with spirit, and this at no time is exposed to a very high temperature, and, moreover, is very quickly dried. The powdered extract differs but slightly in appearance from the B.P. product, and has a much more decided odour of ipecacuanha.

The standardisation of ipecacuanha wine will probably become authoritative in the next Pharmacopœia, and in connection with this recommendation to the Medical Council it will be noticed that the wine alone is to be standardised, a constant strength being ensured by the use of a quantity of powdered extract containing a stated amount of alkaloid. Would it not be better to fix a definite strength for the extract itself, and direct any variation from that standard to be adjusted by the addition of some harmless diluent, as sugar of milk? Acetic extract of ipecacuanha is a regular article of commerce, and it seems desirable, in the interests of convenience and the prevention of errors, that such a preparation should always be of the same alkaloidal strength, and be capable of being used in unvarying proportion for the production of ipecacuanha wine.

Mr. F. Ransom said they were much indebted to Mr. Bird for this very practical paper. No doubt the present method of preparing ipecacuanha wine was far from satisfactory. Quite recently Paul and Cownley had shown how much loss of alkaloid there was in the drying of the extract, and it would be of great advantage to show, if possible, how the drying process could be avoided altogether. At any rate, this showed the necessity for a standardised preparation. Whether acetic acid was really necessary for the extraction of the alkaloid was a point hardly settled. They also required rather more information as to the characteristics and properties of emetine and cephaeline. Messrs. Paul and Cownley were still doing valuable work on the subject, and they hoped soon to have an authoritative statement as to the value of these two alkaloids physiologically.

Mr. Moss said if he remembered rightly, when Messrs. Paul and Cownley read their paper they showed that the loss of alkaloid did not take place during the actual evaporation, that a fairly dried extract just after evaporation contained about as much alkaloid as it had done previously, but that the subsequent drying to drive off the strong odour of acetic acid, and also so as to get it brittle enough to powder, caused the degeneration in alkaloids and consequent loss. Acetic acid, much too powerful, was used in making this preparation. Acetic acid during evaporation had the faculty of becoming concentrated. It did not dissipate and leave a weaker acid until a certain strength was attained, when the acetic acid helped to break down the alkaloids present in the extract. It seemed to him the present process for making the acetic extract was by no means scientific, but the reduction of acid to one-fourth, though it might be empirical, was not a very scientific suggestion. It might be that one-fourth was enough—he had not tried—and not too strong. It seemed to him they wanted more experience before deciding on what proportion of acetic acid was proper for any particular batch of ipecacuanha root.

Mr. J. C. Umney said he was glad to find that Mr. Bird's results confirmed those they had obtained previously as to the loss of total alkaloids in heating the acetic extract to get it brittle enough to powder. But in his last experiments the yield of alkaloid compared to the theoretical yield even now showed a loss of 8 per cent., which was not so near as results he had obtained with liquid extract made with rectified spirit and other means. If he read Dr. Paul's recent paper aright, he found hydrochloric acid had no decomposing effect on the emetine. If it were necessary to use an acid for the preparation of the wine, he saw no reason why they should not use hydrochloric acid.

The President said it was very undesirable to submit organic products to a prolonged contact with heat if it could be avoided. If they could get a menstruum which would exhaust the drug wholly without the intervention of heat, they would obtain a preparation much more satisfactory, and less liable to the alterations which heat produced in organic products. Especially was that the case in a substance like acetic acid, which became concentrated and was finally heated with the extractives and the alkaloids. In many respects the latest form of vinum ipecacuanha, from the acetic extract, was an improvement on the old preparation, but no doubt most pharmacists who supplied medical men still had inquiries for the old-fashioned vinum ipecacuanha made by direct percolation with the wine. If they could extract the alkaloids without acetic acid, and get the whole therapeutic properties into the wine without the necessity of evaporation and re-solution, it would be decidedly better. He always thought they should avoid as far as possible too much manipulation in arriving at the solution finally used in medicine.

Mr. Bird in reply said he did not put this process forward as perfect, for 10 per cent. loss was far from perfection, still, it was better than 30 per cent. The most perfect process was that for the liquid extract by Mr. Braithwaite and Mr. Umney, but it did not seem that people would have it, and as far as he could judge, in the new Pharmacopœia an acetic acid process would be official, and while that was so the powdered extract would be sold in preference to the liquid. At the same time the liquid preparation was the most perfect yet devised. He was pleased to see that ipecacuanha had become the focus of so much attention on the part of many observers, and they would probably at no distant day know as much about its chemistry as they did about that of the cinchona barks.

NOTES OF A RESEARCH UPON IPECACUANHA.*

BY R. A. CRIPPS, F.I.C.

At the Cardiff meeting of the British Pharmaceutical Conference, in conjunction with A. Whitby, I read a paper showing the general results of the proximate analysis of a sample of ipecacuanha, this being intended as the first part of a research upon that drug.

Having thereby obtained sufficient data to indicate the lines of future research, it had been my intention to examine each of the important constituents, operating upon a larger quantity. From various causes this research has been several times unavoidably suspended; and, were it not that, being the recipient of a grant from the Executive of this Conference, I feel it imperative that I should contribute some facts to the present meeting, I should not now appear before you with a contribution of so unfinished a character.

For the more detailed examination 800 grammes of ipecacuanha were exhausted by successive percolation with ether (sp. gr. ·717)

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* Read at the Pharmaceutical Conference at Bournemouth.

and rectified spirit. The solvents were recovered by distillation, in the latter case under reduced pressure.

1. *Ether Extract.*—0·44 per cent. of root. By petroleum ether this was almost entirely dissolved, and on removal of that solvent the residual oily matter was found to be mostly soluble in alcohol, yielding a fluorescent solution, which by titration indicated acidity equivalent to 0·22 per cent. of oleic acid, by direct weighing 0·205 per cent. was obtained. The fatty acids were converted into lead salts, and treated with ether, whereby oleate of lead was obtained equivalent to 0·15 per cent. of oleic acid. This ethereal extract contained a trace of an alkaloid, but no glucoside, and no salicylic acid or salicylate.

The actual results obtained were :—

Oleic acid	0·15 per cent.
Palmitic (?) acid	0·055 ,,
Neutral fat	0·14 ,,
Wax	0·04 ,,
Resin	0·025 ,,
Alkaloid	Mere trace.

2. *Alcoholic Extract.*—As on the former occasion the residue from distillation of the solvent was dissolved in water, filtered, and the filtrate extracted by agitation with chloroform whilst still acid, and then successively by ether and chloroform after rendering alkaline by ammonia.

The Acid Chloroform Extract contained some alkaloid, but this has not yet yielded results of value for publication.

The Alkaloid Extracted by Ether from alkaline solution was dissolved in 25 C.c. absolute alcohol; 25 C.c. of ether (·717) added—the solution remaining clear—then 50 C.c. of ether containing about ·25 per cent. of hydrochloric acid gas, whereby a nearly white precipitate was formed, which passed into a tenacious mass; the clear liquid was poured off, and more ethereal HCl. added in portions of 50 C.c., until the whole of the alkaloid was precipitated, the various fractions *a*, *b*, *c*, *d*, *e*, and *f*, being obtained.

Each of these alkaloidal salts was dissolved in 100 C.c. of distilled water, and portions set aside, only one "*b*" formed crystals of the hydrochlorate.

The compound "*f*" was very small in quantity, "*a*" and "*e*" were therefore chosen for conversion into gold and platinum double salts. The filtrate from each of these compounds was treated with sulphuretted hydrogen, filtered, and the filtrate agitated with ether after rendering alkaline by ammonia. The traces of alkaloid so obtained were weighed, and the weight deducted from the original amount taken, for calculation of the percentage present in the double salts.

Platinum Salts (anhydrous at 100° C.).

	Alkaloid "*a*."	Alkaloid "*e*."
Platinum	21·30 p. c.	21·57 p. c.
Alkaloid	55·24 p. c.	53·81 p. c.

The formulæ for Paul's alkaloids require—

	Emetine m. w. 248.	Cephaeline m. w. 234.
Platinum	21·46 p. c.	22·15 p. c.
Alkaloid	54·78 p. c.	53·34 p. c.

Kunz's formula (m. w. 508)—

Platinum	21·18 p. c.
Alkaloid	55·38 p. c.

Gold Salts (dried at 49° C., decomposed at 100° C.).

	Alkaloid "*a*."	Alkaloid "*e*."
Gold	32·44 p. c.	32·20 p. c.
Alkaloid	40·95 p. c.	41·01 p. c.

Paul's formulæ require—

	Emetine	Cephaeline.
Gold	31·45 p. c.	33·22 p. c.
Alkaloid	40·96 p. c.	39·56 p. c.

Kunz's formula requires—

Gold	32·13 p. c.
Alkaloid	41·55 p. c.

The gold salts of these two alkaloids are practically identical in composition, and the figures agree closely with those required by emetine (Paul), neither corresponding with cephaeline nor with Kunz's formula for emetine. Neither of the platinum salts corresponds with that of cephaeline, that of "*a*" agrees fairly with either Paul's or Kunz's emetine, and the amount of platinum in "*e*" compound is near that required for Paul's emetine; the low figure for alkaloid is in this case probably due to experimental error.

These being extreme fractions of the original alkaloidal substance (except the very small amount of "*f*"), it is reasonable to conclude that each of the other fractions is of the same composition, and therefore that this sample of ipecacuanha contains no cephaeline, but only emetine, in the ether-soluble alkaloid.

When the alkaloid from either of the fractions "*a*" to "*e*" is dissolved in chloroform, and the solvent allowed to evaporate spontaneously, the residue obstinately retains chloroform. This compound fuses at about 50° C., but does not lose its chloroform even at 60° C., at which temperature about 14 per cent. is retained. When cold the compound is quite hard, and the addition of dilute hydrochloric acid causes the separation of chloroform in drops. At 82° C. the chloroform volatilises, leaving the alkaloid pure.

A solution of either of these fractions in water does not yield quite the whole of the alkaloid when agitated with ether and ammonia. In every case a trace of alkaloid was left, which readily dissolved in chloroform to a yellowish fluorescent solution, just as was observed when treating the original solution of the alcoholic extract of the root. This is worthy of further research, for it leads to the suggestion that the chloroform-soluble alkaloid may be produced by the action of the alkali upon emetine. Had this occurred only in one or two of the fractions, it might have been due to impurity, but its universal production would seem to negative such an explanation.

The figures for platinum salts given above are those formed in the presence of an excess of platinic chloride; when the alkaloid is in excess the proportion of metals is only 16·45 per cent.

The Alkaloid soluble in Chloroform.—I have not yet obtained any results from this alkaloid, of a nature suited for publication, without further work.

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Whilst this inquiry has been in progress, I have also carried out a few experiments bearing upon points of interest connected with the chemistry and pharmacy of ipecacuanha.

1. Arndt having published further information with regard to his volatile alkaloid, which he states to be identical with choline, I have repeated his process, using 100 grammes of the root, but have been unable to detect any trace of volatile alkaloid.

2. Arndt has described a process for the determination of ipecacuanha alkaloids based upon his researches on the volatile alkaloid. He treats the powdered root with sodium carbonate and ferric chloride in presence of boiling methyl-alcohol (60 per cent.) under an inverted condenser, filters, and evaporates the filtrate, whereby choline is dissipated; he then takes up the residue with dilute ammonia, and agitates with chloroform to extract the alkaloid. This solution is separated, agitated with dilute acid, and the aqueous liquid finally titrated with Mayer's solution. I can confirm Arndt's statement that this process yields lower results, having obtained 1·32 per cent. of alkaloids from a sample which yielded to Lyons' process 2·45 per cent. The working of Arndt's process is very tedious.

3. As already published, I have compared Keller's process of assay with that of Lyons; at the same time I found that titration with hydrochloric acid, using iodeosine as indicator, yields

excellent results, the alkaloidal residue from Lyons' process or my acetic ether process yielding almost theoretical results. Keller's alkaloids (by original process), as might be anticipated, being less pure. The following figures are examples :—

Process.	Alkaloid weighed.	Alkaloid titrated. Equiv., 254.	Alkaloid titrated. Equiv., 248.
Lyons (1)	39·3 Mg.	39·5	38·6
(2)	43·0 „	42·0	41·0
Keller (1)	102·0 „	87·0	85·0
(2)	111·0 „	95 9	93·6
Acetic ether ...	31·1 „	31·0	30·3

Methyl-orange gives results almost equally good.

4. It has been stated that if a weaker acid be used for extraction in the preparation of ipecacuanha wine, a more satisfactory product results. I can confirm this statement. Two portions of the root, each of half a pound, were exhausted, the one by the official process, the other by percolation with dilute acetic acid 1–20. The extract from the latter was more readily dried and pulverised than that of the former. They weighed, B.P., 900 grains ; weak acid extract, 803 grains ; alkaloids, 8·24 per cent. and 10·6 per cent., corresponding to 73 grains and 85 grains respectively.

The PRESIDENT (Mr. Martin) regretted that the author of the paper was not present to answer questions, but he was sure he would be pleased to receive criticisms upon it.

Mr. F. C. J. BIRD said he had been much interested in the statement that the use of weaker acid produced better results in the preparation of extract of ipecacuanha. That was almost self-evident to anyone experienced in the preparation of large quantities, and in a paper communicated by himself he had described experiments confirming that view. With regard to the larger yield given by Lyons' process of estimation as compared with that given by titration with Mayer's solution, he had not any experience of the former process, having generally worked the process devised by Mr. Ransom, but the difference was certainly very great, generally amounting to about 30 per cent. of alkaloid. He should be glad if anyone who had had experience of the two processes could throw any light on the cause of the discrepancy.

Mr. F. RANSOM said he could confirm what Mr. Bird said, that it would be desirable to use a weaker acid if the extract were to be retained at all, and was glad to see this was recommended by Mr. Cripps. With regard to the Lyons' process for estimating the alkaloid, he always considered that it gave too high results—higher than those given by almost any other published process, and he was very doubtful if it was to be relied on.

Mr. J. C. UMNEY said he had tried Lyons and Keller's methods on the same sample, and found twice as much total alkaloid in the case of Keller's process as in the case of Mr. Ransom's process. He did not know anything about the volatile alkaloid referred to. Some time ago Dr. Paul found a second alkaloid in ipecacuanha, and gave a process for the separation of the two. Working recently on a large scale, he (Mr. Umney) came across what possibly might be the explanation. After first percolating with spirit to make the liquid extract, it was subsequently mixed with slaked lime and repercolated, and on recovering the spirit from the marc it was found to be strongly alkaline. He tried to separate from the recovered spirit the body which gave this alkaline reaction, but up to the present had not succeeded in doing so. On mentioning the matter to Dr. Paul he asked him to give him all the residues after neutralisation, and he believed he was now working on the subject.

Mr. F. C. J. BIRD said the odour possessed by the spirit recovered from the distillation of lime and ipecacuanha always seemed to him to resemble that of trimethylamine.

The PRESIDENT said Mr. Cripps was entitled to a vote of thanks for this contribution. It was very satisfactory to find that he with his platinum and gold salts confirmed so closely the results that Paul and Cownley had arrived at with regard to emetine and cephaeline.

OIL OF SCOTCH FIR (*PINUS SYLVESTRIS*), AND OTHER PINE OILS.*

BY JOHN C. UMNEY.

In a recent paper on the principal essential oils† I called attention to the great variation in the oils met with in trade under the name of ol. pini sylvestris, and stated that no single sample examined possessed the characters of the oil of the leaves of the true Scotch fir (*Pinus sylvestris*) as described by Bertram and Walbaum,‡ who distilled a small quantity of the oil for experimental purposes in the laboratory of Messrs. Schimmel and Co., of Leipzig. The terpene constituents of the oil have also been described by Tilden § and Wallach.‖ Since the time of my previous paper, having failed to obtain the oil in commerce, I distilled about 3 cwt. of the young leaves and cones of true Scotch fir (*Pinus sylvestris*, Linn.), collected by the kindness of Mr. E. M. Holmes, in the neighbourhood of Sevenoaks, in June last. The material was crushed and distilled with water, and yielded less than ½ per cent. of essential oil, of a pale greenish yellow colour. The odour of the oil is highly characteristic, and the taste distinctly recalls that of blackberries.

The preliminary physical examination of this oil showed marked deviation in one respect from the sample distilled by Bertram and Walbaum already referred to, being lævo-rotatory (−19), whilst the latter was dextro-rotatory (+10). The specific gravity of the oil was ·8855 at 15° C., that distilled by Bertram and Walbaum being ·886.

Fifty grammes of the oil was fractionated from a glycerin bath and yielded the following percentages boiling between :—

157–167° C.	8 per cent.
167–177° C.	27 „ „
177–187° C.	20 „ „
187–197° C.	3 „ „
197–240° C.	7 „ „
240–252° C.	6 „ „
Residue	29 „ „

It will be noted that the proportion boiling below 167° C., consisting principally of pinene, is very small, while a very large percentage distils above 197° C., in direct opposition to the results obtained by fractionation of very many of the turpentine-adulterated oils sold as "ol. pini sylvestris," many of which yield 60 to 70 per cent. boiling below 167° C.

Reference was made in the previous paper on essential oils to the estimation of the ester-content of these oils expressed in terms of bornyl-acetate, which is stated to be the odorous constituent of many, if not all, the oils of pinus, abies, etc. The amount of ester indicated by this saponification process was 3·5 per cent., calculated as bornyl-acetate.

In order to free the oil from esters, which by decomposition during distillation might hinder the separation by fractionation of the various terpenes present, 50 grammes of the oil was saponified with alcoholic potash, thoroughly washed, dried with chloride of calcium, and distilled over sodium. By repeated fractionation the following fractions were obtained :—

157-162° C.	10 per cent.
162-165	22 „
165-171	25 „
171-175	13 „
Residue.....	30 „

The fraction boiling from 157 to 162° C. had a sp. gr. of ·8552 at 15° C., was lævo-rotatory to the extent of −13 in a 100 Mm. tube, and possessed all the properties of lævo-pinene. It is

* Read at the Pharmaceutical Conference at Bournemouth.
† *Pharmaceutical Journal* [3], xxv.. pp. 946, 977 1039
‡ *Archiv der Pharmacie*, 1893, p. 290.
§ *Ph. J.* [3], viii., 539. *Ph. J.*, xix., p. 61.

noteworthy that Bertram and Walbaum obtained from the oil, distilled by them from material collected in December, dextro-pinene, this being the principal constituent by which the rotation of the oil is affected, whilst the oil examined by Tilden was also dextro-rotatory.

The fraction boiling from 165° to 171° C. possessed a sp. gr. of ·8518 at 15° C., but gave no indication of phellandrene by the nitrite test, and was almost inactive optically. The fraction boiling from 171° to 175° C. was dextro-rotatory to the extent of +0·75, had a sp. gr. of ·8518 at 15° C., and corresponded in its principal characters with dipentene. The reaction which Wallach has stated to be characteristic of sylvestrene (a terpene believed to exist in various pine oils), viz., that its solution in acetic anhydride gives a purple coloration with sulphuric acid, could not be obtained from any of these fractions, although the oil before saponification yielded this coloration without difficulty.

It seems possible, therefore, that the reaction may be due either to some other body present in the oil, such as abietic acid,* or that the treatment referred to causes a modification in the sylvestrene, even if it be originally present.

It was found extremely difficult to separate the alcoholic constituent, the ester or esters of which appear to give the characteristic odour to the oil, owing to the small proportion existing therein, —several characters, however, point to the fact that the alcohol is not wholly borneol.

In order to compare the characters of bornylacetate or the other esters present in this class of oils, a considerable quantity of the oil of spruce (*Abies canadensis*) was treated with alcoholic potash, as already described, 29·4 per cent. of ester being indicated.

The saponified oil possessed the characteristic camphoraceous odour of borneol, and yielded on distillation a considerable quantity of that body. The fraction distilling above 200° C. solidified immediately in the condensation tube, precisely as in the fractionation of many samples of English rosemary oil, and melted at 206° C., the melting point of borneol. The saponified oil of *P. sylvestris*, however, does not possess the odour of borneol, but distinctly recalls that of *Artemisia abrotanum* (southern-wood). It yielded on fractionation no portion boiling above 200° C., neither could any indication of borneol be obtained. The acid obtained from the saponification of the oil appeared to contain valerianic or iso-valerianic in addition to acetic acid, but the quantity at my disposal was too small to make its separation and identification possible.

It may be gathered from these results that (1) the rotation of true oil of Scotch fir may differ, either according to the period of the year at which the material for distillation has been collected, or to the conditions of climate and soil under which the fir has grown; although it should not exceed 20° in either direction in a 100 Mm. tube. (2) That the specific gravity of the oil should not fall below ·880 at 15° C. (3) That a very considerable portion should distil above 185° C. (4) That not more than 15 per cent. should distil below 170° C.

If, moreover, the new edition of the British Pharmacopœia includes this oil, then these or similar stringent characters and tests must be framed, which will ensure the user obtaining the true oil, even if at very considerably advanced prices as compared with those now ruling for the substituted oils.

Other Pine Oils.

In the course of the examination of the true ol. pini sylvestris it has been found necessary to experiment with the oils distilled from various species of Pinus and Abies in order to characterise more especially their ester constituents.

* *Journ. Chem. Soc.*, July, 1895, abs., p. 384.

The oil of *Abies canadensis*—spruce oil—has already been referred to as containing a very large proportion of the acetic ester of borneol, although its odour is quite different to that characteristic of the oil of Scotch fir.

The oil examined has a sp. gr. of ·9026 at 15° C. and a rotation of −25 in a tube of 100 Mm.

By fractionation the following percentages were obtained:—

Below 165° C.	29 per cent.
165–177° C.	22 „ „
177–185° C.	14 „ „
185–215° C.	29 „ „
Residue	6 „ „

The oil indicated by the saponification process, 29·4 per cent. of ester, calculated as bornyl-acetate, and by fractionating another portion of the saponified oil, a considerable quantity of borneol was obtained between 200–210° C., which solidified in the condensation tube as already described.

The acid separated from the saponified oil was proved to be acetic acid by the analysis of its silver salt.

The oil gave no indication of sylvestrene by Wallach's reaction, either before or after saponification.

These results agree closely with those obtained by Bertram and Walbaum (*loc. cit.*), with the exception that the sp. gr. of this sample is lower and its rotation slightly greater.

The oil of the young cones of *Abies excelsa* has already been referred to by me (*loc. cit.*) as being the one now frequently offered as "genuine pine-needle oil."

Its characters, however, distinguish it readily from the true oil for which it is substituted. It is much lower in sp. gr., usually from ·855 to ·865 at 15° C., and is lævo-rotatory to the extent of about −70 in a 100 Mm. tube. A sample submitted to fractionation yielded the following percentages, lævo-limonene (b. p. 173° C.) constituting a very considerable proportion of the oil:—

Below 165° C.	2 per cent.
165–175° C.	74 „ „
175–200° C.	14 „ „
Residue	10 „ „

It indicated 2·1 per cent. of ester by the saponification process but after such treatment no borneol could be obtained from the oil by fractionation.

A small quantity of the oil of *Picea vulgaris* has been distilled specially for me in Germany and possessed in my opinion the most pleasant odour of all the pine oils examined, somewhat similar, however, to that of *Pinus sylvestris*. It was yellowish in colour, had a sp. gr. of ·8806 and an optical rotation of −37 in a tube of 100 Mm.

It yielded the following percentages on fractionation:—

163–173	41 per cent.
173–176	16 „ „
176–185	13 „ „
185–220	14 „ „
Residue	16 „ „

The ester content determined by the saponification process was found to be 9 8 per cent., no difficulty being experienced in obtaining borneol from the saponified oil from the fraction boiling above 200° C. The first and second fractions afforded distinct evidence of phellandrene by the nitrite test.

The oil of *Pinus pumilio* (mountain pine), as met with in trade, possesses fairly constant characters, and examination has been made of many samples, the specific gravities of all of which fall between ·865 and ·870 at 15° C., or somewhat lower than the sp. gr., viz., ·871 at 17·5° C., recorded by Bertram and Walbaum.

A sample of the oil selected for examination possesses the following characters:—Sp. gr. at 15° C., ·8694. Optical rotation in a tube of 100 Mm. at about 15° C.—7·5.

Two hundred and fifty grammes of the oil was repeatedly refractionated from a glycerin bath, and yielded the following percentages.

Boiling between	(1) 155–165° C.	2 per cent.
	(2) 165–180° „	59 „ „
	(3) 180–200° „	21 „ „
	(4) above 200° „	18 „ „

This oil yielded 6·4 per cent. of ester by the saponification process, but by distillation of the saponified oil no fraction could be separated boiling above 196° C., and no precise indication of borneol obtained.

Mr. E. M. Holmes said there had been for some years a genuine specimen of the oil of *Pinus sylvestris* in the Museum; one of his reasons for thinking it was genuine, was that some years ago, when in Bournemouth, he tasted some of the leaves of the tree, and found they had the peculiar blackberry taste Mr. Umney spoke of. Since then, a number of people had seen the specimen in the Museum, and did not recognise it, and thought there must be some mistake about it; but the reason, no doubt, was that the article in commerce was not, as a rule, the oil of *P. sylvestris* at all. On this account he asked Mr. Umney to look into the matter and see whether oil of *P. sylvestris* could not be made as pure as the *pumilio* oil. He had brought specimens of the *P. sylvestris* and *P. maritima* with him; they were very much alike at a distance, and as the two were commonly grown together, it occurred to him that possibly they had been mixed when the leaves were distilled for the oil. The Scotch fir might be recognised by the short cones and the reddish-brown bark; the bark of the other was grey right up to the top, its leaves were longer, and its cones larger and in clusters. He was under the impression that the oil of commerce was obtained in the manufacture of wood pulp for paper; on distilling the residue, an oil came over, which he understood was sold as that of *P. sylvestris*. He was glad the matter had been looked into, because when a product which had a pleasant odour like the oil of *P. sylvestris* was once brought into notice, physicians ordered it, and then after a time it fell into disuse simply because an inferior article was substituted. It was, important, therefore, to have a standard, and he hoped this paper would receive consideration from the framers of the new Pharmacopœia.

Mr. W. A. H. Naylor said some years ago a very fine specimen of the oil of *P. sylvestris* was shown him by Mr. Bullock, who interested himself very much in the question, and went over to Germany to see the pine needles gathered and distilled, and brought back specimens of the oil with him that they might be tried by Sir Morell Mackenzie, and it was that gentleman's recommendation which led to its introduction into the Throat Hospital Pharmacopœia. He was unable to detect any resemblance to a blackberry aroma in that oil. He should like to know whether oil obtained from Germany, which was known to be genuine, was very similar, not only in specific gravity or rotatory power, but in general physical characters and taste. It had been known for some time that this oil had been very much adulterated, and possibly the one most in vogue to-day was the one which had a taste of rosemary more than anything else.

Mr. J. C. Umney said it was finding such a difference in the oils distilled in Germany and in England which led him to write to Messrs. Schimmel, in whose laboratory the experiments were carried out, and they sent him the sample upon which they worked.

Mr. S. R. Atkins said this investigation revealed a serious discrepancy between the commercial article and the theoretically correct article. There was also an important question as to what were the best conditions for the preservation of these oils, which were so liable to oxidation. Evidently if this oil had to be produced by the method described, the product would be costly, and the best means of preservation would be all the more important.

Mr. John Moss said there seemed to be a peculiar fitness in a paper like this being read at Bournemouth, where they were told that one of the chief attractions was that the atmosphere was saturated with pine oil; no doubt it was so, but he certainly had not noticed the peculiar aroma which he had been led to expect. This paper was one which contained instruction rather than matter for criticism, and they could only thank Mr. Umney for having settled some of the debateable points concerning these oils. Their knowledge about all these essential oils seemed to be only at the beginning, and the more they were studied the more they seemed to require investigation. In this paper the author had started several important questions, which would take some time and many experiments to settle.

Mr. P. McEwan said Mr. Naylor's remarks recalled to him a circumstance, which, bearing on Mr. Umney's statement, raised another question of considerable interest. He understood from the paper that the oil of *P. sylvestris* contained a fairly large amount of bornyl-acetate, and that the oil which they had been accustomed to call ol. pini sylvestris was really the oil of *Abies excelsa*, which contained a comparatively small amount of bornyl acetate. About sixteen years ago one of their regular customers in Dundee was a sister of Sir Morell Mackenzie, and it was mainly through her that a local physician took up the Throat Hospital inhalations, but she used to complain that the vapour of the oil of *P. sylvestris* which they gave her was not the same as she got in London. Presumably she had got it from Mr. Bullock, and, of course, that was a totally different article. Now the therapeutic effect of oil of *P. sylvestris*, as generally used, seemed to be based upon the use of oil of *Abies excelsa*; therefore that oil was, apparently, a good therapeutic agent, and the question was whether they ought to replace it by the true oil.

Mr. W. Jones (Bournemouth) said, as an old assistant of Mr. Bullock's, he knew that the oil which was used at that time was quite different from the ordinary commercial oil of *P. sylvestris*. He should like to know why the change had taken place abroad and one oil had been discontinued on the market in favour of the other; there must be some reason for it.

Mr. Holmes said a few days ago he was told by a chemist that he had examined a specimen of ol. pini sylvestris a few months previously and found it dextro-rotatory, and some time afterwards he found it lævo-rotatory, If that were actually the case, it would seem tc show that the rotatory power of the oil was of no value as a test. It would be very interesting to know, from a chemical and physical point of view, whether such a change did take place, and when, and he hoped Mr. Umney would make some further experiments in that direction. With regard to the keeping of essential oils, his experience was that if kept in small bottles, quite full and not exposed to light, they kept fairly well; it was also advisable to dry them with chloride of calcium to get rid of a small quantity of water which otherwise appeared at the bottom of the bottle after exposure to a low temperature, and led to oxidation of the oil.

Mr. M. Conroy said the Conference was much indebted to Mr. Umney, who had shown how they had gone on using the wrong essential oil for years without knowing it. He did not know why the manufacturers substituted one kind for another, and feared it was not always substitution, but sometimes adulteration. Another important point which came out, was that too much reliance must not be placed on the rotation. No doubt the oil from Messrs. Schimmel was genuine, and yet its rotation was directly opposite to that of the oil distilled by Mr. Umney himself.

The President (Mr. Martin) said this was an excellent paper, and it had evoked an interesting discussion, which was one of the benefits to be derived from such meetings. The essential oils of the Pharmacopœia were almost the least satisfactory things the retail chemist had to handle. They were indebted to Mr. Umney, not only for this paper, but for a previous one, published in the *Pharmaceutical Journal*, which showed that he was doing a large amount of work on these oils, which would be of the highest value to pharmacy and medicine. It was rather disappointing to find that perfectly genuine oils varied so much that one had a dextro-rotatory power of 20°, whilst another had a lævo-rotatory power to the same extent, and this seemed to discredit the polarimeter altogether, though it had been hitherto regarded as a very important instrument in determining the constitution of such bodies.

Mr. Umney, in reply, said he had recognised the difficulty with reference to the optical indications by stating that the oil might be either dextro- or lævo-rotatory, although not strongly in either direction; the result of his own experience and that of the chief German chemists was that the other characters were quite sufficient to distinguish it from other oils and from turpentine. The specific gravity was ·885, whilst that of oil of *Picea excelsa* was about ·863, and sometimes as low as ·859. The oil of *Picea* contained about 70 to 80 per cent. of limonene. He did not know until he came into the room that he had had an opportunity of examining the particular oil Mr. Holmes referred to. That oil when first examined was said to have a lævo-rotation of 10°; it was put into his hands to examine, and he found some three or four months ago that it was then dextro-rotatory to the extent of only 1°, and since then it had not changed at all. Whether it had got to the end of its

tether he did not know, but he was not inclined to think that oil would change by keeping from dextro to lævo, or that it would even lose so much of its rotatory power. Reference had been made to the difficulty of preservation, and the same held good in the case of oils containing terpenes; oil of juniper berries, oil of savin, etc., were all subject to the same kind of change, which could only be avoided by keeping the bottles full, so as to keep the air from them, and seeing that they were free from water, as Mr. Holmes had pointed out. Mr. McEwan had referred to the percentage of bornyl-acetate, but he was not satisfied that that acetate was present in the true oil at all. The oil of *Abies canadensis* contained 30 per cent. of bornyl-acetate, and its aroma was quite different with regard to the oil upon which the reputation of this article was founded. No doubt a good deal of the oil of commerce was from *Picea excelsa*, but that only applied to about one-fifth, the other four-fifths was principally turpentine with a little acetic ether, and some with a little oil of *Pinus pumilio*. The difficulty which came in now at each step was the question of price. No doubt if stills could be put up in the neighbourhood of the materials, say, in the Sevenoaks district, the oil could be distilled cheaply. The oil of *Picea excelsa* cost 16*s.* or 17*s.* a lb., but pharmacists would not mind paying any price if they could get what they wanted, and he had brought the matter forward in the hope that they would be able to get what they wanted.

THE VOLUMETRIC SOLUTIONS OF THE BRITISH PHARMACOPŒIA.*

BY WILLIAM ELBORNE, B.A.,

Pharmacist and Demonstrator of Materia Medica at University College Hospital.

In a recent memorandum issued by the Therapeutic Committee of the British Medical Association in reference to the approaching revision of the British Pharmacopœia is the following:—

"*Tests for Purity.*—The tests for the recognition of the purity of drugs in the Pharmacopœia are in need of complete revision. Chemistry has made considerable advances since some of them were introduced, and it is desirable that they should be replaced by others in accordance with present chemical knowledge." And in this, in so far as the volumetric test solutions are concerned, the Committee is right.

The British Pharmacopœia being intended to constitute "one uniform standard and guide whereby the nature and composition of substances to be used in medicine may be ascertained and determined" (Preface to B.P., 1867), it would appear consistent that the nomenclature and preparation of its volumetric test solutions should conform with the established principles of chemical science, for "in the production of the present edition pains have been taken to bring the whole of the matter up to the existing state of knowledge" (Preface, 1885).

Yet, in the sense adopted at all the chemical schools throughout the country, these volumetric solutions, frequently alluded to as "Standard Solutions," are as a group not quite entitled to that designation, inasmuch as in their preparation the nomenclature and standard of chemical equivalence generally accepted are not uniformly adopted.

Now by Faraday's general law (involving no theory) that equal quantities of electricity on passing through different electrolytes require equivalent quantities of the ions for their support, if an electric current be passed through a series of electrolytes in the same circuit, then the quantities of hydrogen or metals liberated, as well as those of the acid radicals, are in equivalent proportions; if, for example, the current be passed through solutions of silver nitrate, cupric sulphate, and antimony trichloride, in series in the same circuit, the quantities of metal simultaneously deposited are in the proportion of 108 of silver to $\frac{1}{2}63{\cdot}3$ of copper to $\frac{1}{3}120$ of antimony, and of the acid radicals, NO_3, $\frac{1}{2}SO_4$, and $\frac{1}{3}Cl_3$, the standard being hydrogen = 1. A standard solution for purposes of chemical analysis therefore possesses a definite composition, and is prepared in conformity with, or normal to, the standard; and the definition of a volumetric normal or standard solution, as accepted by chemists, is, therefore, as follows:—A normal solution contains in 1000 C.c. the equivalent in grammes of the active substance; a solution of one-tenth the strength is called a decinormal solution $\left(\frac{N}{10}\right)$, and one of one-hundredth a centinormal solution $\left(\frac{N}{100}\right)$.

Volumetric Solution of Soda, NaHO = 40.—One litre of the B.P. solution contains 40 grammes of NaHO. In this solution the active substance is sodium, the equivalent of which is 23. Since 40 grammes of NaHO contain 23 grammes of sodium, the resulting solution contains the gramme equivalent of sodium per litre, and is consequently normal; this preparation should consequently be entitled "Normal Volumetric Solution of Soda."

Volumetric Solution of Oxalic Acid, Crystallised oxalic acid, $H_2C_2O_4,2H_2O = 126$.—The B.P. solution contains 63 grammes per litre. In this solution the active substance is the oxalic acid radical; being bivalent, its chemical equivalent is $\frac{1}{2}C_2O_4$. Half the gramme molecular weight of the crystallised acid consequently contains the gramme equivalent of the acid radical; this solution should therefore be entitled "Normal Volumetric Solution of Oxalic Acid."

Volumetric Solution of Nitrate of Silver, Silver nitrate, $AgNO_3 = 170$.—The B.P. solution contains 17 grammes per litre. In this solution the active substance is silver, the equivalent of which is 108, and one-tenth of the gramme molecular weight of $AgNO_3$ (17 grammes) consequently contains one-tenth of the gramme equivalent of silver; the solution should be entitled "Decinormal Solution of Silver Nitrate."

Volumetric Solution of Bichromate of Potassium, Potassium bichromate, $K_2Cr_2O_7 = 295$.—The B.P. solution contains 14·75 grammes $K_2Cr_2O_7$ (*i.e.*, $\frac{1}{20}K_2Cr_2O_7$) per litre. Bichromate solution is used in presence of excess of dilute acids as an oxidising agent (officially for the oxidation of ferrous to ferric salts); in this solution oxygen is regarded as the active substance, the chemical equivalent of which is 8. In acid solutions a gramme molecule of $K_2Cr_2O_7$ may be regarded as acting thus, liberating $3 \times 16 = 48$ grammes of oxygen available of oxidation purposes:—

$$\begin{matrix} K_2Cr_2O_7 \\ (K_2O{\cdot}Cr_2O_6) \end{matrix} \begin{cases} K_2O + 2HCl = 2KCl + H_2O. \\ Cr_2O_6 + 6HCl = Cr_2Cl_6 + 3H_2O + 3O. \end{cases}$$

$$\begin{cases} K_2O + H_2O{\cdot}SO_3 = K_2O{\cdot}SO_3 + H_2O. \\ Cr_2O_6 + 3H_2O{\cdot}SO_3 = Cr_2O_3{\cdot}3SO_3 + 3H_2O + 3O. \end{cases}$$

and with ferrous salts the oxygen acting thus—

$$6(FeO{\cdot}SO_3) + 3H_2O{\cdot}SO_3 + 3O = 3(Fe_2O_3{\cdot}3SO_3) + 3H_2O.$$

Consequently—

6×56 Iron = 48 Oxygen = 295 Bichromate,
or 56 „ = 8 „ = 49·1 „

49·1 grammes of bichromate therefore contain the gramme equivalent of oxygen, and this quantity of $K_2Cr_2O_7$ dissolved in water up to a litre would constitute a normal solution. Might not a "decinormal solution of potassium bichromate" (viz., 4·91 grammes per litre) be adopted?

Decinormal Solution of Potassium Permanganate, $K_2Mn_2O_8 = 316$.—In the estimation of iron by bichromate solution an external indicator of potassium ferricyanide is requisite, whereas by using volumetric solution of permanganate no indicator is required, the solution being run in until the characteristic red colour of permanganate after agitation becomes permanent. Like bichromate it is used for iron in acid solution, and a gramme molecular weight may be regarded as behaving as follows:—

$$\begin{matrix} K_2Mn_2O_8 \\ (K_2O{\cdot}Mn_2O_7) \end{matrix} \begin{cases} K_2O + H_2O{\cdot}SO_3 = K_2O{\cdot}SO_3 + H_2O \\ 2MnO + 2H_2O{\cdot}SO_3 = 2MnO{\cdot}SO_3 + 2H_2O \\ 5O \text{ available oxygen} \end{cases}$$

* Read at the Pharmaceutical Conference at Bournemouth.

and with ferrous salts the oxygen acts thus—

$$10\,FeO{\cdot}SO_3 + 5H_2O.SO_3 + 5O = 5(Fe_2O_3{\cdot}3SO_3) + 5H_2O.$$

Now the gramme molecular weight of $K_2Mn_2O_8$ yields $5 \times 16 = 80$ grammes of available oxygen, or $\frac{80}{8} = 10$ gramme equivalents; therefore, $\frac{K_2Mn_2O_8}{10} = 31\,6$ is the quantity of potassium permanganate in grammes to be dissolved in a litre of water to constitute a normal solution, and for a decinormal solution 3·16 grammes, and 1 C.c. of decinormal permanganate or bichromate = 0·0056 grm. Fe.]

Volumetric Solution of Iodine, I = 127.—The B.P. solution contains 12·7 grammes of iodine per litre; the equivalent of iodine being 127, it is consequently a decinormal solution, and should be entitled "Decinormal Volumetic Solution of Iodine."

Volumetric Solution of Hyposulphite (Thiosulphate) of Sodium, $Na_2S_2O_3,5H_2O = 248$.—The B.P. solution contains 24·8 grammes per litre and is used in the estimation of iodine ($2Na_2S_2O_3 + 2I = 2NaI + Na_2S_4O_6$). The iodine here acts as an indirect oxidising agent, which might be expressed as follows:—

$$I_2 + H_2O = 2HI + O$$
$$2Na_2S_2O_3 + O = Na_2O + Na_2S_4O_6$$

The hydriodic acid is of course neutralised by the soda. Two gramme molecular weights of sodium thiosulphate expressed in terms of oxygen or iodine become, therefore,

$2Na_2S_2O_3 = 16$ grammes oxygen $= 2 \times 127$ grammes iodine.
$Na_2S_2O_3 = 8$ „ „ $= 127$ „ „

In this case a normal solution of $Na_2S_2O_3,5H_2O$ would contain 248 grammes per litre. The B.P. solution is consequently decinormal and should be entitled "Decinormal Solution of Sodium Thiosulphate."

The PRESIDENT (Mr. Martin) said it was a little difficult to discuss this paper, but when printed it would be read with a great deal of interest. It was highly desirable that these volumetric solutions should be on as scientific a basis as possible and be as accurate as possible, because if the standard of measurement were not absolutely accurate, the measurements themselves were of much less value.

THE DETECTION OF SULPHATES, SULPHITES, AND THIOSULPHATES IN THE PRESENCE OF EACH OTHER.

R. Greig Smith recommends the following method for the satisfactory separation of these compounds. The presence of thiosulphate having been indicated in the preliminary test, to a dilute solution of the substance solutions of barium and ammonium chlorides in excess are added, the latter for the purpose of facilitating the filtration of the barium sulphate. Hydrochloric acid is then added drop by drop, until it is evident that all the barium sulphite and thiosulphate are in solution, and only the sulphate remains. The solution is then filtered through a second moistened double filter paper. The filtrate must be perfectly clear. If it becomes opaque the solution should be thrown out, and a more diluted one used. To half the filtrate iodine solution is added until a permanent yellow tinge is formed; a white percipitate then indicates a sulphite, which has been oxidised by the iodine to sulphate, traces being more apparent by comparing the treated and untreated halves of the filtrate. They are then mixed, and more iodine having been added if necessary, bromine water is added to half, when thiosulphate is indicated by the formation of a white precipitate of sulphate of barium, caused by the conversion of thiosulphate to tetrathionate by the iodine, and oxidation to sulphate by the bromine. The absence of hydrosulphuric acid must be ensured before carrying out this test by bubbling carbon-dioxide through the solution (*Chemical News*, vol. 72, 39).

BRITISH MEDICAL ASSOCIATION.

The general annual meeting of the British Medical Association held this year in London has been memorable in many ways. It is more than twenty years ago since the Association met in London until this year. At the present time the Association counts 16,000 members, whilst there were not 1600 when the previous metropolitan gathering was held. This year's meeting was perhaps one of the largest gatherings of medical men ever assembled. The principal addresses, of which the tenour is given below, have been fully reported in the *British Medical Journal*, the official organ of the Association.

The President, Sir J. Russell Reynolds, in the opening address, touched on many important matters, the chief of which were the biological basis of modern medical advancement and the tendency to a loss of moral cohesion in civilised society. It was pointed out that in general physiology great forward strides had been made in the discovery of some of the functions of structures, such as the pituitary body, the thyroid gland, and the suprarenal capsules. This newly acquired knowledge had been successfully applied in a system of "organic medication." "These extracts seem to possess a power reaching far beyond that which was first found to be their almost anticipated result, that is in so modifying the action of the heart and the intravascular pressure in a manner and to a degree entirely unlooked for, and requiring much further investigation in order to unravel the true nature of the functions of those organs in health, and the value they may have by their products on the processes and treatment of disease."

Not less important was the growth of "micro-biology." The germ theory was entertained by Harvey, who spoke of diseases "scattering their seeds and producing diseases like themselves in bodies of a different nature," and also reminding his readers that such phenomena were not so strange as the "far greater wonders than these taking place daily in the generation of animals." The highest development of this subject was the method of immunisation by serum, which had also of late been extended to the treatment of the bites of venomous reptiles.

The speaker was not able to contemplate with satisfaction the moral condition of the greater social world, with which the professional life was so intimately associated.

There was a loss of reverence for religion, for personal conduct and family life. To a large extent this could be traced to a pernicious phrase, which seemed to indicate that since only a few years of the nineteenth century now remained they might be spent in frivolity, which could be put aside when the new century commenced; as if every day was not the beginning of a new century! Physicians and surgeons could do much to counteract this growing tendency. "In the nursery, in the schoolroom, and yet a little later, we would give advice, and that of a useful sort."

Sir William Broadbent gave the address on medicine, speaking of "The Growth of the Art and Science of Medicine." The relative position of "art" and "science" in the title of the address had been chosen advisedly; "for the art of healing is one of the primary needs of social organisation, however rudimentary, and preceded by many ages the development of anything which could be called a science of medicine." Although in the Old Testament and in Homer individual acts of healing are referred to, and the Chinese from remote antiquity had a system of medicine, and medicine has a place in the Hindu Vedas, yet the works of Hippocrates (born about 460 B.C.) are the earliest medical writings that have come down to us. We are at once introduced to the theory and practice of the art of healing at a considerably advanced stage of development. Already there were rival schools of thought, and treatment and disease was discussed with extra-

ordinary acumen from opposite points of view, both as regarded its nature and phenomena. Hippocrates lived in Greece during the age of Pericles, and was contemporary with Socrates, Euripides, and Aristophanes, and was a worthy representative of medicine at that brilliant period.

"His distinguishing merit was that he was guided by observation and not by theory. Hippocrates could not any more than his contemporaries or successors, or than we ourselves, escape the dominion of theory, but his theories were generalisations from observed facts, and not deductions from preconceived ideas, or so-called first principles." His name is associated with the doctrine of coction and of critical days. Thus a cold in the head begins with a watery discharge from the nose and obvious constitutional symptoms. This is followed by a thick muco-purulent discharge and a remission of symptoms, and finally as the discharge ceases health is regained. The theory as applied to this particular case worked out thus: one of the four humours of the body had obtained predominance over the others instead of keeping in proper proportion with the other three. This excess gave rise to the general and local disturbance, and was concocted by the animal heat increased for the purpose, and qualified by admixture of the other humours, and thus worked up to a condition in which it could be got rid of. Five centuries later, when Rome had swallowed up Greece, Galen, though born at Pergamos, practised in Rome. He spent much time at dissection, and his anatomical writings are wonderfully complete and fairly correct, and held sway until Vesalius in the fifteenth century challenged some of Galen's descriptions, and was haled before the Inquisition for his pains. Galen wrote a hundred medical works, among them one on Theriaca—an electuary, so called from containing viper's flesh with sixty-two other ingredients, including poppy juice and many aromatics. "The humeral doctrine was accepted by Galen and developed. The humours are phlegm, blood, yellow bile and black bile. And all diseases arise either from a change in the quality of these humours or from a predominance of one or other of them, or a flux of some particular humour to a given part."

The period of the Renascence was marked by a revival of interest in medicine as in other branches of learning. The culminating point at this period was the discovery by Harvey of the circulation of the blood (1628). This, with the discovery of the capillaries by Malpighi, and of the lymphatics, laid the foundation for physiology, and a correct understanding of disease. Sir William Broadbent then traced the growth of physiology and pathology, and asked the pertinent question: "What is the bearing of all these advances of knowledge on therapeutics, which, after all, is the object of our lives?" "As regards the remedies in our possession they are only too numerous. Recourse to a great variety of drugs is fatal to exact knowledge of their effects and to precision in their use." As examples of most useful acquisitions were named the antiseptic group, the chloral sulphonal group, the salicylates and salicine, the phenacetine and antipyrine class, coca and cocaine, and it was especially important that in some of these physiological action had been inferred from chemical constitution.

The address in surgery was delivered by Mr. Jonathan Hutchinson F.R.S., who paid a tribute to the memory of the late Mr. Arthur Durham, who was cut off by death soon after he had been asked to give this address. After giving two graphic sketches of the surgery of the past, one as reflected in Sharp's 'Critical Inquiry,' published in 1750, and the other as given by Roux, in his 'Relation d'un Voyage,' which was an account of English surgery a century ago, and contained a lament at the beginnings of specialism then seen in London. Mr. Hutchinson traced the origin of lithotrity and ovariotomy, the latter, perhaps, the most successful operation in modern surgery. In 1854, Mr. (now Sir) Spencer Wells, was editor of the *Medical Times and Gazette*, and with the assistance of Mr. Hutchinson collected and tabulated the results of the major operations at the London hospitals. At one time fourteen successive fatal cases of ovariotomy were collected from different institutions, having occurred within a short time of each other. Both Wells and Hutchinson then deemed the operation little short of manslaughter, but a succession of improvements in various details changed the aspect of things so greatly that it is now very rarely attended with a fatal result. The success of Spencer Wells in doing this operation became so great that medical men came from all parts of the globe to study his methods. The great improvements in surgery have been attended with an increase in the number of cases suitable for operative treatment, and patients more readily submit to operations now that they are done with greater security. This is of especial advantage in the case of cancer which is now removed much earlier than heretofore, with the result that many more cases are permanently cured.

Besides these three chief addresses, many papers of great interest were read in the various sections. In that of "Medicine," Dr. Pavy introduced a discussion on the sero-therapy of diphtheria by a short account of the origin and development of the subject. Dr. Sidney Martin said that the want of success in the past had made it imperative that the new method of treatment should have the fullest and most critical examination. Professor von Ranke (Munich) said that in his wards the mortality from the disease had been greatly diminished by the treatment; this was confirmed by Professor Baginsky, of Berlin. Dr. Sims Woodhead advocated the use of large doses of serum, and Dr. Hermann Biggs (New York) stated that protective injections conferred an immunity which lasted thirty days.

In the Section of Surgery, Sir Wm. MacCormac dealt with some questions in military surgery, more especially concerning the effects of the new repeating rifle and small hardened conical bullets. He concluded: "I think we are justified in believing, although there is high authority for a contrary opinion, that the next great war will be more destructive to human life, "bloodier," in fact, than any of its predecessors, and that the number of injuries, and in many cases the severity of the injury, will be largely increased. But very many cases will remain less severe in character, more capable of successful treatment, and less likely to entail future disablement, while improved sanitation and antiseptic methods will enormously increase the number of recoveries."

In the Public Health Section, Mr. Ernest Hart strongly impeached the system of Sanitary Service in India. "Until lately Indian Medical Officers who dared to accept the patent facts and to aver that particular outbreaks of cholera, of typhoid fever, and of dysentery were due to contamination of the drinking-water were subject to persecution. Medical officers of all grades were expected to show respect to their seniors by evoking as the efficient causes of cholera outbreak, telluric influences, pandemic waves, epidemic constitution, cholera mists, blue clouds, cholera blasts the influence of trees, and such-like bogies." Mr. Hart urged the importance of forming a Royal Commission to inquire into sanitary administration of India.

As president of the Section of Pharmacology and Therapeutics, Sir Wm. Roberts drew attention to a neglected alkaloid of opium—narcotine, or better termed anarcotine, for it was characterised by an absence of narcotic properties, but possessed marked antiperiodic powers, and succeeded in some cases of malaria where quinine had failed.

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THE SELECT COMMITTEE ON WEIGHTS AND MEASURES.

The report of the Select Committee on Weights and Measures has now been published, together with the proceedings of the Committee, minutes of evidence, etc. Evidence has been received from witnesses representing official, commercial, manufacturing, trade, educational, and professional interests, and numerous corporations, school boards, and other public bodies have submitted resolutions in favour of the adoption of the metric system. Almost all the witnesses examined are described as expressing a strong opinion as to the complicated and unsatisfactory condition of the weights and measures at present in use in this country, and of the serious drawback to British commerce caused by the difference between the prevailing system and that adopted by all European nations except Russia, as well as by a large number of non-European countries. Both foreign and home trade would, it is believed, benefit by the adoption of the metric system, besides which a year's school time would be saved in the case of children, as they would not need to waste time over the present complicated system of tables of weights and measures. Germany, Norway and Sweden, Switzerland, Italy, and other countries have proved that no serious opposition or inconvenience need affect a compulsory change from the old to the newer system, and that the change can be carried out in a comparatively short period. In the United States the metric system is now compulsory for pharmaceutical purposes, and a commission is at present considering the advisability of adopting it generally. The Select Committee, therefore, believes that the adoption of the metric system by England would greatly tend to render it universal, and recommends:—

"(*a*) That the metrical system of weights and measures be at once legalised for all purposes.

"(*b*) That after a lapse of two years the metrical system be rendered compulsory by Act of Parliament.

"(*c*) That the metrical system of weights and measures be taught in all public schools as a necessary and integral part of arithmetic, and that decimals be introduced at an earlier period of the school curriculum than is the case at present."

The effect of these recommendations will probably be to secure early legislation on the subject, and in a few years' time we may expect to find the metric system the prevailing one in this country. Meanwhile, it is definitely announced that it will be introduced into the forthcoming edition of the British Pharmacopœia. To facilitate the transition, it is intended that the proportions in the official monographs shall be given in terms of both British and metric systems, but in the portions of the work referring more especially to analytical operations the metric system alone will be made authoritative. As pointed out by Mr. Michael Carteighe, President of the Pharmaceutical Society, in his evidence before the Select Committee, the General Medical Council cannot yet introduce the system into the Pharmacopœia to the exclusion of the British system, as it is not a lawful system. He showed also that since the practice of pharmacy, as time goes on, more and more involves dealing with very potent and active medicaments, and the rule of thumb in pharmacy has gone, it is desirable that the greatest simplicity should prevail in the system of weights and measures employed for dispensing purposes. At present, however, the use of metric weights and measures is distinctly illegal, so that when foreign prescriptions are to be dispensed, and the formulæ of foreign pharmacopœias compounded, pharmacists are practically compelled to break the law. He considered, therefore, that the metric system should at once be added to the systems now legal, and that a probable result of this would be its general adoption by the drug trade for the preparation of medicines. Referring to the advantages likely to accrue from adopting the system in pharmacy, Mr. Carteighe explained that it would result in the removal of the difficulty now caused by there being no simple ratio between the volume and weight of liquids used in preparing medicines, whilst the safety of the public would be better guarded by having potent preparations of strengths that can be easily worked, which would be the same whether the prescriptions were dispensed in London or New York, in Berlin or Paris. Both prescribers and dispensers would benefit by the change, on account of the lessened liability to errors and dangers.

It may be taken for granted that pharmacists for the most part already appreciate the advantages likely to accrue from the change, and, in view of the position taken by the Pharmacopœia authorities, it would seem that they ought as a class to pass through the transition stage sooner and with less inconvenience than the rest of the general public. As regards the practical difficulties inseparable from the adoption of the new system, the one of most importance affecting traders generally will be the question of expense. It is pointed out by the Secretary to the Federation of Grocers' Associations of the United Kingdom, in a letter addressed to the *Daily News*, that about a million retailers will require to purchase new sets of weights and measures, at an average cost of about two pounds in each case. This expenditure of two million pounds will not directly, if at all, benefit many of the involuntary purchasers, but yet ought not to be allowed to stand in the way of a much-needed reform. Perhaps, since the actual benefit would be a national one, the Government of the day may see its way to reimburse the cost of the change to individuals from the public purse. The greatest difficulty of all, however, will be the assimilation of the new ideas by all sorts and conditions of men, though even this may be smoothed over by preserving the old nomenclature as far as possible. For example, there should be

no great objection to the preservation of the terms pound' pint, yard, and ton. The half kilogramme (about $17\frac{5}{8}$ ozs.) might be termed a pound, and would not greatly differ from the old imperial pound; the half litre (approximately $17\frac{1}{2}$ fl. ozs.) might well be regarded as a pint; the addition of about a tenth to the yard would render it identical with the metre; and the reduction of the ton by little more than thirty-seven pounds would convert it into the metric ton of one thousand kilogrammes. The standards would thus be altered, but the old familiar denominations would remain, and in the case of the average individual this is probably the point of greatest importance. At the same time no real difficulty need arise from the existence of the synonymous terms in each instance, and without unduly disturbing popular notions concerning weights and measures, the incalculable advantage of world-wide uniformity in actual standards might be almost at once attained.

THE BRITISH INSTITUTE OF PREVENTIVE MEDICINE.

The progress of bacteriology and the necessity for facilities for carrying on investigations in this department of science early led on the Continent to the establishment of Bacteriological Institutes, at Paris, Berlin, St. Petersburg, etc. Some years ago the British Institute of Preventive Medicine was founded for carrying out a similar work in England, and so far has had a successful and useful career. The work of the Institute may be briefly summarised as follows:—(1) Research and original investigation. (2) The teaching of systematic bacteriology and bacteriological chemistry in their relation to medicine, public health, and the technical industries, classes being held in these subjects which are open to all. (3) Bacteriological investigations, for example, diphtheria and hydrophobia diagnoses; the bacteriological examination of water, milk, etc. (4) The preparation of bacterial products and remedies, *e.g.*, the diphtheria and tetanus antitoxins, tuberculin, Mallein, etc.

A site has been acquired on the Chelsea Embankment, near Grosvenor Road Station, and here the building which is to form the permanent home of the Institute is already in course of erection. The Institute is modelled on the lines of the best Continental laboratories, and bids fair to be one of the finest of its kind. At present, however, the Institute is located in temporary premises in Great Russell Street. On the ground floor are the offices, a private research laboratory, and a dark room for photographic work. The photomicrography is in the hands of a competent photographer, who gives instruction to those students wishing to acquaint themselves practically with this indispensable adjunct to scientific work. On the next floor is a laboratory for research workers, and a large room used for lecture and demonstration purposes. On the third floor is a small chemical laboratory and the Berridge water laboratory. The latter is devoted to the chemical and bacteriological examination of water and sewage. The Bacteriological Department is on the top floor. One room is devoted to practical instruction in bacteriology. The classes are attended by medical men, health officers, and chemists. A large contingent of the students come from India and the Colonies. There are also two smaller rooms for the head of the Bacteriological Department and his assistant, and for research work. The basement contains a room for sterilising and distilling purposes, animal room and store rooms. A farm has been acquired near Harrow, where the horses and other animals necessary for the preparation of the antitoxins, etc., are kept.

THE SERUM TREATMENT OF TUBERCULOSIS.

Professor Maragliano, of Genoa, has made experiments with a view of testing the merits of antitoxic serum as a remedy against consumption. It is now well known that the toxin (tuberculin) obtained from tubercular material, when injected subcutaneously into persons suffering from tuberculosis, causes inflammatory reaction in the parts affected by the disease. Maragliano prepared animals by gradual immunisation with tuberculin, and found that they were then able to resist inoculation with active tubercular matter taken from the human subject. Serum obtained from such animals was found to neutralise tuberculin, that is, when tuberculin mixed with the serum was injected into persons suffering from tuberculosis no reaction ensued, although in the same persons injection of tuberculin alone produced the usual effects. Thus it appeared that the serum was really antitoxic to tuberculosis, and the investigator was encouraged to test the serum as a remedial measure. In a certain number of cases where uncomplicated tuberculosis was present, the patients after a systematic course of injections appeared to be really cured, and when the disease was complicated by the presence of other micro-organisms, such as streptococci, in addition to the tubercle bacilli, a varying measure of improvement was observed. The future of this important investigation will be watched with keen interest.

NEW USES FOR GUAIACOL.

Guaiacol, one of the ingredients of creasote, has lately been recommended as an antipyretic administered by external application. Braise (*La Presse Méd.*, April 10, 1895) and Lucas-Championnière (*Bull. de l'Acad. de Méd.*, July 30 and *Pharm. Journ.*, Aug. 10, p. 134) recommend a solution of the same drug in sterilised olive oil (1 in 10 or 1 in 20) as a local anæsthetic, to be used like cocaine by hypodermic injection. For the removal of teeth, small tumours, etc., it was found that perfect anæsthesia was obtained, and it is claimed that the anæsthesia obtained by guaiacol is as perfect as that obtained by cocaine, whilst ten times as much of the former can be used without causing symptoms of poisoning. It remains to be seen whether these interesting observations will be confirmed by other surgeons.

THE BRITISH ASSOCIATION.

The proceedings at the annual meeting of the British Association will commence at Ipswich, on Wednesday, September 11, when the Marquis of Salisbury will vacate the presidential chair in favour of Sir Douglas Galton, who will then proceed to deliver his address. A conversazione will probably be held in the Museum and adjoining buildings the next evening, and on the Friday, Professor Silvanus P. Thompson is to lecture on "Magnetism in Rotation." On Monday, September 16, Professor Percy F. Frankland will lecture on the work of Pasteur, and its various developments, and a soirée will be given by the Ipswich Scientific Society and the Suffolk Institute of Archæology on the following day. The Saturday evening lecture, by Dr. Alfred H. Fison, will be on "Colour." Communications for the honorary local secretaries—Messrs. S. A. Notcutt, G. H. Hewetson, and E. P. Ridley—should be addressed to the Museum, Ipswich.

NOTES AND NEWS.

Planting Central Africa.—In Mr. Alexander Whyte's report on the botanical aspect of the region over which he exercises influence in British Central Africa—principally the Shire Highlands—it is stated that when European implements are placed in the hands of the natives, they make good field labourers, while, with one or two exceptions, all European vegetables do well, their plentiful supply contributing materially to maintain the health of the whites at the various stations. English potato tubers were spoiled in transit by the extreme heat; but by a little management excellent potatoes were raised from seed, and, as Mr. Whyte points out, the result is that the plants now growing are practically indigenous. They show no signs of disease, and are not so liable to degenerate as the offspring of English tubers would be. A large number of other economic and ornamental plants are also flourishing, amongst them wheat, barley, oats, lobelias, roses, pinks, balsams, phlox, mignonette, and so forth. In fact, the British settler in the Shire Highlands will find himself very much at home in his tropical garden. Some familiar home flowers, however, assume gigantic proportions under an African sun. Geraniums grow as high as hedges; and sunflowers, dahlias, amaranths, and cannas shoot up into tall, shrub-like plants.

French Peas à l'Anglaise.—The *British Medical Journal* observes that it is notorious that the preserved peas and other green vegetables so largely imported from France are coloured with copper salts, but it has been constantly urged in extenuation that the quantity employed is too small to exert any toxic or injurious action. Since, however, it has been shown in a report of a sub-committee of the Glasgow Corporation that some samples of peas examined contained no less than 15 grains of copper sulphate in the pound, it is urged that this position cannot seriously be maintained. The dangerous character of the admixture is said to be admitted by the French Government and manufacturers, since the sale of the peas is illegal in that country, and they are designated in the trade as *petits pois à l'Anglaise*. Our contemporary entertains the hope, therefore, that the present Government may be induced to take up a question of such importance as one of the social reforms which will engage its attention.

A Colossal Bottle.—At the Bordeaux exhibition will be seen the largest bottle ever made. It will be no less than 35 metres (or nearly 115 feet) high, and will represent a bottle of tonic bitters. People will be admitted to the interior. Two enormous doors will give access to the ground floor, where there will be a large refreshment-room. Leading from the first to the third floor will be two staircases, each of 160 steps. They will end about half-way up, and from there will be a winding staircase leading to the bottle's neck, at the top of which there will be a terrace with space for thirty-five people, whence a fine view of the grounds and city will be obtained. The whole will be surmounted by a kiosque in the guise of a cork.

Leeches as Weather Indicators.—The *Journal d'Hygiène* notes that a leech is an excellent barometer. When it remains curled up at the bottom of the containing vessel or aquarium the weather will be fine; if it rises towards the surface unsettled or rainy weather is indicated. If it moves about rapidly it foretells much wind, and if it indulges in convulsive somersaults thunder is at hand.

The Effect of Onions on Diuresis and Perspiration.—Stawski has experimented on this subject on several healthy persons. Each experiment lasted six days, and for three days previous the person was under control. Raw onions to the amount of 100 grammes, taken with mixed diet, did not show any distinct diuretic properties, and did not affect perspiration. The weight of the bodies during the experiments increased. The quantity of excrements increased and continued in most cases after the experiments. Raw onions augment the appetite, produce vigour, and cause temporary inclination to somnolence. They also cause thirst and eructation, increase peristalsis, soften excrement and favour its easy evacuation.

Experiments in Osmosis.—At a recent meeting of the Paris Academy of Sciences, a paper on the osmotic phenomena produced when ether and methyl alcohol are separated by different diaphragms was read by F. M. Raoult. It was found that with a diaphragm of pig's bladder, the methyl alcohol passes by osmosis to the ether side, but the bladder membrane appears to be impermeable to ether; even with mixtures the transference is always of methyl alcohol towards the side where it is of less concentration. Exactly the reverse occurs with a vulcanised caoutchouc membrane, which is impermeable to methyl alcohol, but permeable to ether. The experiments show:—(1) that osmosis between two determined liquids may not only vary much in energy, but even change its sense with the nature of the diaphragm; (2) that the osmotic movement of substances across the diaphragm may be absolutely independent of their molecular weight and of their condition as dissolved substance or solvent.

Prescribing Chemists.—Under this heading a correspondent of the *Standard*, referring to the inquest held on George William Clark, at Limehouse, on August 12 (see *ante*, p. 150), objects to the statement made by the Coroner (Mr. Wynne Baxter), to the effect that anyone might prescribe, but they did so at their own risk, and the law did not prevent them from attending and giving medicine. This, he urges, is incorrect, and he quotes the observations made by the late Mr. Justice Cresswell in the case of "The Apothecaries' Company *v.* Lotinga," when it was pointed out that the sole question was whether the defendant had practised as an apothecary, for it was not pretended that he had obtained any certificate authorising him to do so. The mere fact of the defendant having supplied medicines did not necessarily show that he practised as an apothecary; for a surgeon might lawfully do that if the medioines were administered in the cure of a surgical case. And with regard to the plea that if he did not supply the medicines as a surgeon still he did not apply them as an apothecary, but as a chemist, it was clearly shown that a chemist is one who sells medicines which are asked for; whereas, in the case in question the defendant himself selected the medicines and determined on which he ought to give. This, the Judge considered, rendered the defendant liable to the penalty sued for. It is worthy of note that in all the press discussions on the conduct of the man Perdue, the fact is quite lost sight of that he is not in any way entitled to be styled a chemist.

Microbes in River Water.—Mr. Hankin, the bacteriologist to the Indian North-West and Central Provinces, states that, from bacteriological observations he has made, he has come to the conclusion that, whilst in England, the more muddy a water is the larger is the number of microbes it is generally found to contain, in India, so far as his experience goes, the contrary is the case. The thick turbid water of the Ganges or the Jumna is commonly much better bacteriologically than that of the Elbe at Hamburg.

Kerner's 'Natural History of Plants.'—It is announced by Messrs. Blackie and Son, Limited, that this work will be completed at the end of September, when Part XVI., Half-Vol. IV., and Vol. II. will be published. Part XV., just issued, is prefaced by a fine coloured illustration of an Australian eucalyptus grove, and contains the conclusion of the section devoted to the classification of the Angiospermæ. The distribution of species is next considered, the various means available for that purpose being described at great length and in a most fascinating manner.

Gutta-Percha from Leaves.—It is stated that there now appears some prospect of a permanent supply of gutta-percha. The old method of cutting down a tree to get the gum is replaced by that of plucking the leaves and extracting it from them. This plan has been tried with success, and it is stated that there is more gum extracted from the leaves, whilst it is of purer quality. An adult tree of twenty-five to thirty years' growth yields only one "catty" of gum when the tree is sacrificed; whereas by plucking the leaves twice as much is yielded, without injuring the tree. Moreover, the saplings from the roots of trees already cut down are useful for producing leaves.

Bottles for Compressed Gases.—According to a writer in the *Mittheilungen aus den k. technischen Versuchsanstalten zu Berlin*, between March and May, 1894, the Aktien-Gesellschaft für Kohlensäure Industrie zu Berlin had sent three pairs of bottles to be tested by internal pressure and by direct tension. The first pair (I.*a* and I.*b*) were made first as open tubes, and then completely welded at one end, while the other end was narrowed until only a small opening was left. The second pair (II.*a* and II.*b*), of German manufacture, and the third pair (III.*a* and III.*b*), of English manufacture, were made from steel blocks drawn several times on a mandril through dies until the required length was obtained, when the open end was reduced until only a small opening was left. The results of the two methods of testing agreed fairly well for the pairs II. and III., but for pair I. there was a considerable discrepancy. This was explained by the fact that whilst the bottles of both pairs II. and III. had apparently been made out of similar materials, those of pair I. appeared to be of quite different material. In testing II.*a*, the stress produced was 96·5 per cent. of the observed tensile strength of the material, while in the other bottles it only reached 74 per cent.

Biography of Mr. E. M. Holmes.—The latest issue of the *Galerie d'éminents thérapeutistes et pharmacognostes*, edited by B. Reber, of Geneva, contains a portrait of the Curator of the Pharmaceutical Society's Museum, which is an excellent likeness. Accompanying this is an interesting biographical account of Mr. Holmes, followed by very full lists of his contributions to botanical science and materia medica. It is not generally known that Mr. Holmes contributed nearly all the articles on drugs in the latest edition of the *Encyclopædia Britannica*, in addition to having published about a hundred and twenty separate articles on materia medica in the *Pharmaceutical Journal* during the last twenty-three years.

Pharmaceutical Classes at Exeter.—A teacher is wanted to take charge of a class in the science subjects of the Minor examination at the Exeter Technical and University Extension College, at a salary of £100 per annum. Candidates must be qualified to earn grants under the Science and Art Department, and applications, accompanied by copies of testimonials, should be made by post before August 31 to the Principal of the College, at the Albert Memorial Museum, Exeter.

ENGLISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Dispensing Tonic Mixtures.—Mr. Bernard Dyer, the public analyst for the county of Leicestershire, presented an interesting report to the County Council at the meeting on August 14, in reference to samples of medicine submitted to him during the quarter for analysis. He said thirty-nine samples of medicine were submitted to him, and consisted of tonic mixtures obtained by submitting to thirty-nine druggists throughout the county prescriptions for a tonic mixture containing iron and quinine. It was very satisfactory to him to be able to report that in thirty-six of the thirty-nine cases the mixture was both accurately dispensed and properly labelled. In one case in which the mixture was properly dispensed it was wrongly labelled. In one other case, the mixture was slightly too strong, but not very materially so. In the remaining case a mixture of iron and quinine was made up, but it was quite a different mixture from that ordered. It contained two and a half times as much quinine as would be contained in a mixture properly made up according to the prescription, so that a patient taking the mixture as directed would have been consuming seven and a half grains of actual quinine per day, instead of the three grains that would have been contained in the mixture as ordered. He understood that the druggist who dispensed that mixture was cautioned to be more careful in future. Under the Fertilisers and Feeding Stuffs Act only one sample was submitted to him, viz., one of dissolved bone compound, the analysis of which showed the manure to be above the guarantee set forth in the invoice.

Bottle-Bursting Accident.—A shocking accident occurred recently to a young man named James Glendining, a driver in the employ of Mr. Mackay, mineral water manufacturer, Newcastle. While in the act of carrying a box containing a number of bottles of lemonade upstairs, in the Old Durham Inn, Bigg Market, his foot by some means slipped, the consequence being that the box fell heavily on the stairs, causing several bottles to explode. A piece of glass caught the right eye of the young man with such force as to completely cut it out of its socket. He was at once taken to the infirmary, where the injury was attended to.

Fire at a Birmingham Chemist's.—On Saturday afternoon last the premises and stock of Mr. Thornley, Snow Hill, Birmingham, narrowly escaped destruction. It appears that an inflammable vapour came in contact with a light, and very quickly a portion of the more or less inflammable contents of the front shop was in flames. Fortunately the chief fire station is situated close by, and the brigade, with the extinguishing appliances, was quickly on the spot, and prevented what might otherwise have been a serious conflagration.

The Western Sanitary Association on Sanitary Education.—The Western Sanitary Association held its summer meeting at Torquay on Saturday last, August 17, and the Mayor (Alderman Dr. Richardson), in welcoming the members, spoke of the value of Torquay as a health resort, saying that they never saw in the town cases of septic pneumonia, and that acute diseases in general were very rare. The advantages of residence in Torquay were not only due to its equable climate, but to the great care taken in the sanitation of the town. Mr. C. MacMahon, the President, read a paper giving a record of seventeen years' sanitary progress in Torquay, being followed by Mr. W. J. Wreford, of Exeter, with a paper on "Some Diseases Abolished by the March of Sanitation," in which he traced the history of hygiene down to the end of the eighteenth century. He advocated the teaching of hygiene and physiology in schools. Dr. P. Q. Karkeek supported this view, and said they would like to have more laws in the direction of improving health. Mr. Addiscott, Plymouth, said it was necessary that the richer classes should be educated as well as the poorer. Dr. Pitt Palmer advocated the establishment of a ministry of public health. After the Conference a luncheon was held in the Bath Saloon, the Mayor presiding. Dr. Richardson also entertained the members at tea at the Towers.

Poisoned by Cocaine.—"Death from misadventure" was the verdict returned, on Aug. 14, upon the body of William Patefield, aged 22, a solicitor of Bradford, who died on the platform at the Leeds Midland Station. He had been in the habit of taking cocaine hypodermically, and before starting for London he went to the lavatory, drank a quantity of the drug mixed with water, returned to the platform, fell, and expired. The deceased's arms, forearms, and thighs were covered with marks such as would be caused by a hypodermic needle, and a quantity of cocaine was found in the stomach. Dr. Roberts, of the Leeds Infirmary, said in small doses the drug was a stimulant, and in large doses it produced a kind of intoxication. Eight or ten grains would be fatal, and it would be easy for a person to administer to himself an overdose.

Mr. H. W. Barford, of Manchester, formerly for some years with Messrs. H. Roberts and Co., of Florence and Rome, and Messrs. Roberts and Co., of Paris and London, has purchased the well-known business of Messrs. Gibbs and Gurnell, Ryde, I.W.

Sale of Proprietary Medicine Unstamped.—At the Marylebone Police Court, on August 17, Mr. Hannay heard a summons taken out by the Inland Revenue authorities against George James Knight, of 452, Edgware Road, for exposing to sale a bottle of cod-liver oil and malt extract, which was a proprietary medicine, and therefore liable to stamp duty, without a label provided by the Commissioners of Inland Revenue.—It was stated for the prosecution that on March 22 a Revenue officer called at the defendant's shop and asked for a bottle of the preparation in question, which stood upon the counter. The bottle bore two labels, one bearing the words "Windle's Solution of Cod-Liver Oil, etc.," and the other warning the public that "No preparations are genuine unless protected by this label, a counterfeit of which is a forgery." The bottle was taken behind a screen, and when delivered to the officer was wrapped up in paper. Subsequently, when the officer examined the bottle he discovered that the "s" in the name "Windle's" had been erased prior to the bottle being handed to him in the shop. This was done, it was said, in consequence of a correspondence the defendant had had with the Inland Revenue some time since, when he was informed that the use of the possessive case rendered him liable to be called upon to pay stamp duty.—Mr. Clay, solicitor, who appeared for the defence, said his client used the name Windle in the possessive case upon almost every article he sold, and he had no intention whatever of conveying the intention that he had a proprietary right to those articles. The erasure of the "s" from the label of the bottle in question took place a considerable time ago.—Mr. Hannay decided that the case had been clearly proved, and imposed a fine of £3 3*s.* and 2*s.* costs.

What is a Seidlitz Powder?—At the Bolton-by-Bowland Petty Sessions, on Monday, Benjamin Robinson, grocer, of Gisburn, was summoned under the Food and Drugs Act for selling one dozen seidlitz powders which were not made according to the British Pharmacopœia. The powders were divided into three parts and one sent to the analyst, whose certificate was to the following effect: "The contents of the blue papers weighed respectively 154·5, 158·1, 183·0, and 163·5 grains, averaging 159·8 grains. Of this, 27 grains only consisted of bicarbonate of sodium, as against 40 grains directed by the British Pharmacopœia to be present in the contents of each blue paper. The contents of the four white papers, consisting of tartaric acid, weighed respectively 25·9, 33·7, 34·1, and 34·7 grains, averaging 32·1 grains, as against 38 grains directed by the British Pharmacopœia to be contained in each white paper. Observation: Seidlitz powders were constituted an official preparation by the additions to the British Pharmacopœia of 1885, published in 1888, which directed that the contents of each blue paper shall weigh 160 grains, of which 40 grains shall be bicarbonate of sodium, and that each of the white papers shall contain 38 grains of tartaric acid. Hence the contents of both the blue and the white papers were materially less in weight, and consequently, in medicinal activity, than seidlitz powders prepared in accordance with the British Pharmacopœia.—Alfred H. Allen, public analyst for the West Riding of Yorkshire." Defendant was fined 10*s.* and costs, and told that he must get it back from the dealer who supplied him.

The Late Mr. J. G. V. Ismay.—The death is announced, at his residence, Woodville, Riding Mill-on-Tyne, of Mr. John George Vipond Ismay, senior partner in the firm of Messrs. John Ismay and Sons, wholesale chemists and druggists, of Newcastle-on-Tyne Mr. Ismay, after acquiring a knowledge of the retail trade by an apprenticeship passed in Bristol, and a course of more scientific training at Bloomsbury Square, joined his late father in the management and development of their business. Originally a drysaltery business, the firm has successfully entered into and occupied for many years the two fields of drug merchants and oil and colour manufacturers. The Groat Market premises, with an extending area and a commanding position, remained the centre of the drug business, while mills at the Ouseburn were the manufacturing home of the oil and colour departments, and an immense business throughout the North of England and Scotland was controlled from each place. During the past years the deceased gentleman, through failing health, did not devote himself so actively to business as during former times. He leaves no family, and the sole partner in the business is his brother, Mr. Matthew P. Ismay.

Sale of Deficient Tincture of Rhubarb.—At the Halifax West Riding Court, last week, Jonathan Mitchell, grocer and provision dealer, of Greetland, was summoned for selling tincture of rhubarb under the recognised strength. It was found to contain 62·17 per cent. of water. The defendant stated that he had purchased it from a respectable chemist, who had informed him that the tincture had probably lost spirit by evaporation, owing to its having been kept too long. A fine of £1, with 18*s.* costs, was imposed.

The Discovery of Argon.—It is announced that the Committee of Award for the Hodgkin's prizes of the Smithsonian Institution has awarded the first prize of ten thousand dollars for a treatise embodying some new and important discoveries in regard to the nature or properties of atmospheric air to Lord Rayleigh and Professor William Ramsay, for the discovery of argon

SCOTTISH NEWS.

[Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.]

Vitriol Throwing in Glasgow.—At the Glasgow Sheriff Criminal Court on Monday, August 17, Margaret Thomson pleaded guilty to throwing vitriol on Constable Cadger, as reported last week, and was sentenced to six months' imprisonment.

Mr. Henry Bellyse Baildon, M.A., F.R.S.E., is one of the candidates for the vacant Professorship of English Literature in the University of Edinburgh.

Lectures on Botany for the Working Classes.—The Regius Keeper of the Royal Botanic Garden will lecture on "Principles of Cultivation of Plants" in the Lecture Hall in the Garden, on Saturdays in August. The lectures will be open free to both men and women. Hour of lecture, 6 p.m. On Saturday evening, August 17, Professor Bayley Balfour, Regius Keeper of the Royal Botanic Garden, Edinburgh, delivered in the lecture hall at the Gardens the first of this series of botanical lectures. There was an audience of 200 or 300 people. Taking as his subject "The Principles of the Cultivation of Plants," Professor Balfour said in the outset that his intention was to show the real structure of plants in relation to their surroundings, and to give some idea of the lines upon which successful cultivation must proceed. With this view he went on to explain the nature and functions of the protoplasm, which was the vital substance of every plant, as a living organism; to describe the processes by which plant life was carried on; and to point out the essentials of healthy life in plants, such as water, heat, oxygen, and light.

Spigelia marylandica is now flowering at Kew in the rock garden, where also the red egg-shaped fruits of *Podophyllum emodi* form striking objects of interest to the pharmaceutical student.

IRISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

PHARMACEUTICAL CHEMISTS' AND APOTHECARIES' ASSISTANTS' ASSOCIATION OF IRELAND.—At a meeting of the Committee of this Association, held at the "XL" Café, Dublin, on Friday evening, the 16th instant, it was unanimously decided to rescind the resolution, passed at the previous meeting, to make application to the Council of the Pharmaceutical Society for the grant of a room in which to hold the meetings of the Association, and it was decided instead to procure a room for the exclusive use of the Association. A sub-committee was accordingly appointed with that object in view.

Subsequently, on the same evening, the weekly meeting of the Association was held, Mr. J. B. Alister, L.P.S.I., President, in the chair.

The President announced the decision of the Committee to procure a permanent room, and also stated that Mr. T. J. Parker would read a paper at the next meeting.

A letter was read from Dr. Ninian Falkiner expressing his regret that he was unable to deliver a lecture on that occasion, owing to his absence in England. He assured the Association of his hearty interest in all its proceedings, and his sincere wishes for its success.

The President announced that this was only a temporary postponement, and that it was hoped that they would have the pleasure of hearing Dr. Falkiner lecture on no very distant date. To prevent disappointment, Mr. W. B. Payne, their hon. treasurer, had come forward—on very short notice—with a paper entitled "A Microscopic Study of the Stems of Plants."

At the close of the paper, Mr. Payne practically illustrated his subject by means of a number of specially prepared slides exhibited with the aid of his microscope. Mr. Payne's efforts to supply entertaining instruction were much appreciated and warmly acknowledged by the meeting.

Several new members having been elected, the proceedings terminated.

THE IRISH LADY PHARMACIST, notwithstanding the gallant determination of the members of the Assistants' Association to embrace her, expressed at a recent meeting of that young and flourishing body, does not appear to be coming forward. Perhaps she does not quite appreciate the prospect of such a collective hugging Or, perhaps, she is a myth? Certainly the most anxious inquiries at Mount Street have failed in ascertaining her whereabouts.

A YOUTHFUL "PHARMACIST."—The registration claims of druggists, under the Amendment Act of 1890, revealed some queer things, notably where a person claimed to have been in business as a principal at eleven years of age! That, however, has been put into the shade by the discovery of a ten-year-old "pharmacist" in a southern county. It is understood that a gentle remonstrance from the pharmaceutical authorities has resulted in an alteration in young hopeful's position.

WELSH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

MR. EDWARD GIBBINS, chemical works manager of Neath, is a candidate for the vacancy in the town council, caused by the death of Mr. J. B. Davies.

THE LIST OF SCHEDULED POISONS.—A coroner's jury at Aberavon, last week, made a recommendation that carbolic acid should be included in the list of scheduled poisons, on account of the frequency with which it was used by persons bent upon their own destruction. The case arose out of the suicide of a girl named Rebecca Michael, of Sandfelds, Aberavon, who bought 3*d.* worth of carbolic acid from Mr. Loveluck, chemist, and afterwards drank a sufficient quantity to cause death.

FOREIGN NEWS.

[*From our Special Correspondents.*]

FATAL DISPENSING ERROR.—A young workman, aged 29, Carlo Miracoli, obtained on a medical prescription at Levi's pharmacy, Milan, 10 grammes of ethereal extract of male fern to take for tape-worm, from which he suffered. Shortly after swallowing the medicine he was seized with obstinate vomiting, and in about four days died. The young man's unlooked-for death, together with the peculiar symptoms, gave rise to grave suspicions of poisoning, and the authorities accordingly ordered a post-mortem, with the result that it was judged that death was due to hemlock poisoning. An analysis of the remains of the medicine revealed the presence of hemlock, but a second analysis of the viscera, etc., made six months (!) after death showed no traces of coniine, nor did another at the same time of about 2 centigrammes of the medicine remaining in the bottle. However, it was held that death was due to hemlock poisoning, and the assistant who dispensed the prescription was condemned to five months' imprisonment, and a fine of 5000 francs for the benefit of the deceased's son and widow, and 500 francs penalty, whilst the proprietor of the pharmacy, Signor Levi, as responsible for the assistant Acerbi's acts, had to pay costs and make provision for the deceased's family!

OFFICIAL RETAILERS OF QUININE IN ITALY.—A proposition exciting a great deal of indignation among Italian pharmacists has just been presented in the Chamber of Deputies by Signor Garlanda, who wishes the Government to supply sulphate of quinine in 1 gramme tubes to the general public at 10 centimes each, through the licensed vendors of tobacco and salt (this latter is a dutiable article in Italy). This bill reads as follows: "For public and hygienic reasons the Minister of Finance is empowered to furnish to the general public sulphate of quinine by means of the vendors of dutiable articles. The sulphate of quinine shall be supplied to the vendors in hermetically sealed glass tubes, each containing 1 gramme. Upon each tube shall be placed a stamp, value 10 centimes, which will be the selling price of the said tube." The Neapolitan pharmacists at once telegraphed to the President of the Chamber of Rome in these terms: "The Neapolitan pharmacists strongly protest against the proposition Garlanda, which, violating sanitary law, injures vested interests and gravely offends professional dignity." Besides the Neapolitans, the chemists of Florence and Venice, as well as the pharmaceutical associations in Italy generally, are actively agitating for the rejection of this unjust and illogical bill.

THE GENDER OF NEW CHEMICAL TERMS.—French scientists are beginning to realise the incongruity of their language with regard to the gender of new words introduced into chemical nomenclature. The chemical section of the Association for the Advancement of Science intends at the next meeting to finally decree the gender of these unsexed words. Professor Bourquelot, who is engaged on this question, remarks that the partisans in favour of the feminine gender for words ending in "ose," such as glucose, saccharose, and maltose, base their argument on the fact that the author of the said words made them feminine in the first instance, whereas sugar the generic word is masculine. Words ending in "ure" are feminine, and yet one says "*le mercure, le tellure.*"

APOTHEKERS' CONCESSIONS IN GERMANY.—In some parts of Germany considerable anxiety has been caused by the attempt that has been made in Prussia to do away with the old-established practice by which a concession for carrying on business as an apotheker was transferable by sale. It has already been decided that in future only personal concessions shall be granted in Prussia, and the desire is to extend that system to the whole of Germany, even in the case of concessions which have hitherto been saleable. The absence of any apparent disposition to oppose this attempt may no doubt be attributed to the agitation in favour of doing away with saleable concessions which has been promoted by pharmacists who do not possess such concessions, and also by the German Pharmaceutical Association. The success attending their efforts has encouraged the qualifying assistants in several States to join in this movement. In Bavaria, for instance, a petition has been presented to the Minister of the Interior, the essential nature of which is to demand that all concessions hitherto saleable shall be made henceforth untransferable. Strictly speaking, pharmacies in Bavaria are at the present time actually carried on upon the basis of concessions which are unsaleable. On the death or removal of a

proprietor the pharmacy is, in the first place, sold and the purchaser applies to the Government for a concession to carry on business. Thereupon the Government offers the concession for public competition, but, generally speaking, no tenders are made for it, and as a matter of course the purchaser of the pharmacy obtains it himself. An alteration of this practice of the nature sought for by the petition above mentioned would have very serious financial consequences for those who are in possession of pharmacies carried on according to the old system.

Syrup of Creasote.—There is a good deal of talk just now in Germany respecting a tasteless preparation of creasote. To tell the truth, one is surprised at the notion of being able to arrive at a method of completely masking the unpleasant taste of this valuable medicine. However, by means of the alkali or alkaline earth bases, this result is actually attained. Magnesia, combined with creasote, gives a product insoluble in water. This preparation can easily be reduced to a powder, and in this form dispensed. Associated with an officinal syrup it constitutes a medicine much more agreeable than any preparation of creasote actually in use. The German preparation is made to contain 10 per cent. of creasote, and the dose is 20 drops in a little water (equal to 10 centigrammes of creasote).

Paris Municipal Laboratory.—The Municipal Council of Paris has recently founded a laboratory as an adjunct to the one presided over by Drs. Pasteur and Roux, where medical practitioners may get gratuitous diagnoses of suspected cases of croup. The Director, Dr. Miquel, is very enthusiastic on the benefit which the medical profession will derive from this laboratory. Cultures are made from the suspected secretions sent in, and the result of the bacteriological examination is made known in fifteen to eighteen hours. In the event of croup being diagnosed the necessary remedies are immediately supplied. Even during the convalescent stage the secretions are virulent, and are a means of contagion. Isolation of the patient is maintained until the secretions are exempt from the Bacillus Lœffler.

Obnoxious Odours in Paris.—As a sequence to all that has been said about the obnoxious odours that nightly pervade the air of Paris, a serious epidemic of dysentery has broken out at Roissy, in the environs of Paris, which is attributed to the employment of the refuse of the streets as manure by two local farmers. It is thought that the wells have been contaminated by the infiltration of the heavy rains through the infected lands. Seventeen out of eighty cases have already proved fatal, the chief victims being old people and young children, who are too weak to support the violent abdominal pains which are the principal characteristics of this epidemic.

Société Royale de Pharmacie de Bruxelles.—The international congress of pharmacy, instituted on the occasion of the celebration of the fiftieth anniversary of this Society, was opened in the Palais de Cinquantenaire on Thursday, August 15, by M. Créteur, honorary president, and M, Buzon, president, of the Society. A full report of the proceedings will appear in next week's Journal.

OBITUARY.

Smith.—On August 1, George Emanuel Smith, Chemist and Druggist, Wakefield. (Aged 86.) Mr. Smith was elected on the first Town Council when Wakefield was incorporated in 1848, but retired at the end of three years. In 1865 he was elected an alderman. Mr. Smith was also a Governor of Crowther's Charities, and in 1887 built and endowed the six handsome almshouses abutting on the Grammar School grounds, in the inmates of which he took considerable interest.

Bibbings.—On August 7, the wife of J. H. Bibbing, Pharmaceutical Chemist, of Queen Street, Newton Abbott.

Ismay.—On August 14, John G. V. Ismay, Chemist and Druggist, Newcastle-on-Tyne.

Turley.—On August 14, John Turley, Chemist and Druggist, Tenbury. (Aged 78.)

POISONING CASES AND INQUESTS.

Carbolic Acid.—William Charles Stainsby, aged 32, of 2, Wyvil Street, Radford, committed suicide on Saturday, August 10, by taking carbolic acid.

Laudanum.—Edward George Down died at Bournemouth, on August 10, from the effects of laudanum.

Opium.—Edward W. B. Garlike, aged 54, a medical practitioner, of Museum Street, Ipswich, died on August 9, from the effects of opium.

Laudanum.—Alice Emma Bence, aged 42, of 36, Charteris Road, Stroud, died on August 4, from the effects of laudanum. At the inquest, the jury returned a verdict of "Death from misadventure," and added a rider that it would be well that greater restrictions should be placed on the sale of poisons.

Carbolic Acid.—Sarah Ann Standen, of 3, Bedford Place, Brighton, committed suicide on August 5, by taking carbolic acid.

Salt of Lemon.—Catherine Jane Norfolk, aged 41, of Upper Beau Street, Liverpool, committed suicide on August 10 by taking salt of lemon.

Carbolic Acid.—Eliza Canner, aged 47, of 50, Mellor Street, Belgrave, committed suicide on August 10 by taking carbolic acid.

Prussic Acid.—Samuel Hickling Gell, aged 69, of 20, Hampden Street, Nottingham, committed suicide on August 13 by taking prussic acid.

Carbolic Acid.—Mary Ann Fletcher, aged 42, of 3, George Street, Leicester, committed suicide on August 10 by taking carbolic acid.

Oxalic Acid.—Sarah Evans, 56, of 6, Albert Buildings, Wellington Street, Birmingham, died on Saturday evening from the effects of oxalic acid, self-administered.

Laudanum.—Emily Eliza Wright, aged 60, of Alpha Road, Surbiton, died on August 16, from the effects of an overdose of laudanum. Verdict: "Death by misadventure."

Spirit of Salt.—William Long, aged 69, of 31, Church Row, Bethnal Green, died on August 18, from the effects of spirit of salt, self-administered.

Opium.—Stephen Fowkes, aged 19, of Ash Street, Cotmanhay, committed suicide on August 15, by taking opium.

Carbolic Acid.—Sarah Annie Stroybant, aged 49, of 38, Kyverdale Road, Stoke Newington, committed suicide on August 13, by taking carbolic acid.

Carbolic Acid.—Mary Ashton, a widow, of 1, Fanceys Street, Liverpool, committed suicide on August 14, by taking carbolic acid.

Belladonna.—Mary Louisa Coe, aged 71, of 91, High Road, Streatham, died on August 15, from the effects of belladonna. Verdict: "Death from misadventure."

Salol Collodion is formed by the action of salol camphor on nitro-cellulose, and is described (*Méd. Mod.*) as a viscous paste resembling collodion.

Excretion of Morphine in the Saliva.—Rosenthal (*Berlin Klin. Wochensch.*) readily detects morphine in the saliva of patients treated with that body subcutaneously. The amount so excreted is relatively large, and the author suggests the examination of the saliva in cases of suspected morphine poisoning.

USEFUL FORMULÆ.

[*Readers requiring working formulæ for special preparations should intimate their wants to the Editor, who will be pleased to assist them to the best of his ability.*]

Bay Rum.—The following will be found to yield a satisfactory preparation:—Oil of bay, 1 drachm; oil of orange, 5 minims; oil of pimento, 4 minims; rectified spirit, 14 fluid ozs.; distilled water, 6 fluid ozs. Dissolve the oils in the spirit, add the water, and a sufficiency of caramel to produce the required tint. Allow to stand for a week and filter.

Lotion to Prevent Insect Stings.—Acetic ether, 5; eucalyptol, 10; eau de Cologne, 10; tincture of pyrethrum, 50. This should be diluted with from 3 to 6 times the amount of water and applied as a wash (*L'Union Pharmaceutique*).

Antiseptic Dentifrice.—Salicylic acid, 1; chloroform, 10; tincture of benzoin, 10; tincture of canella, 10; rectified spirit, 130. Two teaspoonfuls to be used diluted with a glass of water (*Revue de Thérapeutique*).

Brilliantine.—The following formula is a well-tried one for the non-separable preparation:—Castor oil, 2; rectified spirit, 48; ess. bouquet and ess. frangipanni, of each 4; tincture of saffron, 1. Dissolve the essence in the spirit, and add the tincture and castor oil. Allow to stand for a few days before putting up for retail.

Headache and Neuralgia Liniment.—This preparation has been found of great service in the most obstinate cases of neuralgia. It is applied by painting over the affected part with a camel-hair pencil. The only objection to it is its expense:—Oil of peppermint, 5; essential oil of mustard, 1; camphor, 2; ether, 10; rectified spirit, 30.

Menar's Emmenagogue Pills.—Carbonate of iron, 3 grammes; powdered saffron, 50 centigrammes; powdered cinnamon, powdered castoreum, powdered rhubarb, powdered aloes, of each 1 gramme. Mix and divide into 160 pills. Dose, three per diem.

Anti-Hæmorrhoidal Paint.—Fluid extract of rhatany, 2 grammes; glycerin, 60 grammes; potassium trisulphide, 5 grammes. To be painted on the affected parts twice daily with a camel's hair pencil.

Depilatory Liquid.—Iodine, 75 centigrammes; oil of turpentine, 20 drops; castor oil, 2 grammes; alcohol, 10 grammes; collodion, 30 grammes. To be applied once daily for three or four days. When the pellicle of collodion is removed the surface is perfectly smooth (*Journ. de Pharm.*, after *Bullet. de Pharm. de Lyon*).

Eau Aromatique.—Tinct. pyrethri, 1½ oz.; tinct. cinnam. ver. 4 oz.; tinct. caryoph., 6 oz.; tinct. benzoin. simpl., 4 oz.; tinct. rad. angelicæ, 4 oz.; tinct. sem. ambrettæ, 4 oz.; tinct. coriand, 8 oz.; tinct. pimentæ, 9 oz.; tinct. mosch. (24 gr. to 1 oz.), 1 oz.; tinct. anisi, 1 oz.; extract rosæ, 4 oz.; ess. ambergris, 1 oz.; spt. menth. pip. (1 in 32), 1 oz.; spt. chloroform, 10 oz.; spt. vini. rect., 30 oz. Filter; label, "Eau aromatique, for preserving and cleansing the teeth and gums and sweetening the breath." Use half a teaspoonful in a wine-glass of water (*Brit. Jour. Dent. Sci.*, xxxviii., 648).

Application for Chilblains.—Tinct. digitalis, 6; thymol, 3; alcohol, 150; glycerin, 150 parts. Mix and rub well on the affected parts (*Quart. Med. Journ.*, iii., 400, after *Les Nouv. Remèdes*).

Depilatory Soap.—Metinger (*Rev. de Thérap.*, lxii., 450) gives the following formula for a depilatory soap. Glycerin, 373; lard, 746; cacao butter, 746; castor oil, 1492; solution of caustic soda, 25 per cent., 1492; starch, 94; sulphide of sodium, 746; oil of citronella, 94; water, 1674 parts.

Waterproof Varnish.—The following formula for varnish, well adapted for the protection of prints on glass against humidity, is from *L'Amateur Photographe*:—White gum lac, 27 to 32 parts; borax, 8 parts; carbonate of sodium, 2 parts; glycerin, 1 to 2 parts; water, 320 parts. Dissolve the borax and the carbonate in 160 parts of warm water, and add to the solution the gum lac, which has been broken into small fragments. Place the vessel containing the mixture on the fire, and stir until the lac is dissolved. Allow to cool, filter, and afterwards add the glycerin and the remainder of water. At the end of a few hours a deposit is formed, and after filtration the liquid should have an amber-yellow colour. The varnish is said to keep well.

Odontalgic.—Cocaine hydrochlorate, 1 part; cherry laurel water, 1; tincture of arnica, 10; solution of acetate of ammonia, 20. To relieve the pain caused by caries, place in the affected tooth a piece of absorbent cotton damped with this solution. For hypersensitive or inflamed gums wash the mouth out with 30 parts of the solution and 50 of linseed tea (*Arch. Med. da India*, in *Boletim do Centro Pharmaceutico Portuguez*).

Purgative Coffee.—Infusion of coffee, 60 grammes; simple syrup, 35 grammes; scammony, ·80 centigramme; citrate of soda, 25 grammes; gum arabic, in powder, 8 grammes. Triturate the scammony with the gum, dissolve the citrate in the infusion, add the syrup, and mix altogether. To be taken frequently (*Boletim do Centro Pharmaceutico Portuguez*).

Pencils for Cancer of the Uterus.—Methylene blue, 25 grammes; tannin, 25 grammes; powdered opium, 05 grammes; oil, 15 drops; cacao butter, 45 grammes. Mix and mould into a pencil (*Bol. do Centro Pharm. Portuguez*).

Pills for Cystitis.—Venice turpentine, 4 parts; castoreum, 2; camphor, 4 grammes; calcined magnesia, *q.s.* Make forty pills. Three or four per diem (*Bol. do Centro Pharm. Portuguez*).

Pyoktanin in Suppositories.—The following formula is given (*La Méd. Mod.*) for suppositories containing pyoktanin, for use in the treatment of cancer of the rectum, as suggested by Schultz:—℞. Pyoktanin, gr. i.; pulv. opii, gr. $\frac{1}{12}$; ol. theobrom, *q. s.* M.

Substitute for Natural Sulphuretted Waters.—The fact that natural sulphuretted waters do not keep and travel well, losing their free sulphuretted hydrogen, and therefore their efficacy, has suggested the expedient of using a solution of monosulphide of sodium in diluted glycerin to serve as a "concentrated" water, which when suitably diluted, is stated to possess all the efficacy of the natural sulphur spring (*Rev. Inter. de Méd. et Chirurg.*). The formula of this solution is—Monosulphide of sodium, 10 parts; distilled water, 40 parts; glycerin, 150 parts. Dissolve the sulphide in the water with a gentle heat and mix the solution at once with the glycerin. This solution keeps well and affords a sulphuretted water by mixing a teaspoonful with about 90 fluid ounces of water, previously boiled to expel the dissolved air, and cooled. A teaspoonful added to 9½ fluid ounces of syrup forms a convenient and portable form, of which half a teaspoonful in milk or water affords a ready means of administering the required dose. Obviously this preparation is incompatible with free acids. These should be neutralised with a little alkali before adding the sulphide solution.

Effervescent Quinine Mixture.—The following is an agreeable and effective method of dispensing quinine which renders the alkaloidal salt more pleasant to take and at at the same time more easily tolerated (*Rev. Intern. de Méd. et Chirurg.* vi., 253):—Sulphate of quinine, 2 grains; citric acid, 10 grains; simple elixir, syrup of orange, of each 30 minims; distilled water to half an ounce. Each dose to be accompanied by a powder of sodium bicarbonate, 10 grains.

NEW REMEDIES.

[*The notes given under this heading embody recent suggestions in therapeutics. They cover both new drugs and preparations, and old ones under new aspects. The word "parts" is used to represent parts by weight, both for solids and liquids.*]

Salicylate of Sodium in Exophthalmic Goitre.—From the analogy between exophthalmic goitre and gout, Chilret was led to try salicylate of sodium in the former complaint, with the best results. The salicylate is prescribed in four daily doses, each being largely diluted up to 250 grammes of fluid to ensure tolerance. The total daily dose is 5 grammes. This may be lowered to 4 and 2 grammes as the patient improves; it must be continued for some time after the first success, and renewed whenever the general health becomes less satisfactory (*Bull. Gen. de Thérap.*, cxxviii., 511).

Pharmaceutical Combinations of Sodium Iodate.—A dusting powder is composed of iodate of sodium, 3 parts; powdered boric acid, 24 parts. Pills for bronchitic asthma are made of iodate of sodium, 3 grammes; mucilage of tragacanth, sufficient to mass. Divide into twenty pills; one or two to be taken three times daily. In swellings of the ganglia, neuralgia, and gastric hæmorrhage the following hypodermic injection is given: Iodate of sodium, 1 gramme; distilled water, 20 grammes. From one to four Pravaz syringefuls are given every other day; afterwards, twice a week (*Bull. Gen. de Thér.*, cxxviii., after *Merck's Bericht*).

Heroic Coffee-Drinking in Strangulated Hernia and Intestinal Occlusion.—Guérin prescribes frequently repeated draughts of coffee, 250 grammes of coffee for twelve cups of boiling water, a cupful of the liquid being given every quarter of an hour, the four last cups being taken every half hour. When coffee cannot be given, subcutaneous injections of caffeine are substituted, commencing with half a gramme, and, if it is well tolerated, increasing rapidly up to 1½ to 2 grammes (*Rev. Intern. Méd. et Chir.*, vi., 190).

Antipyrine in Infantile Diarrhœa.—Saint-Phillipe has found antipyrine serviceable in treating the intestinal troubles of young children, when these are accompanied by a slight febrile reaction. In the case of weaned children it is best to commence with a dose of calomel, to be followed by careful dieting or exclusive milk diet. The antipyrine is given in the following mixture:—Antipyrine, 50 centigrammes dissolved in syrup of orange flowers, 50 grammes; syrup of lime-flower water, 50 grammes. A teaspoonful of this is given every two hours before suckling or taking food, up to five or eight doses per diem. Antipyrine so given is markedly effective in the gastro-intestinal troubles which accompany dentition.

Treatment of Acute Coryza.—Morain, as abortive treatment, employs large internal doses of benzoate of sodium to cut short the beginning of the attack, or painting the nasal mucous membrane with a 5 per cent. solution of cocaine hydrochlorate. For curative means he has recourse to the following methods:—(*a*) Volatile inhalation: Acid carbolic, 1 part; solution of ammonia, 1 part; water, 3 parts; alcohol, 10 parts. A few drops are sprinkled on a rag and inhaled. (*b*) Snuffs: From the innumerable formulæ suggested he selects the following three. Cocaine hydrochlorate, 3 parts; menthol, 5 parts; boric acid, in finest powder, 40 parts; coffee, roasted and very finely powdered, 10 parts. (*c*) Subnitrate of bismuth, powdered benzoin, boric acid, of each 60 parts; menthol, 2 parts. (*d*) Salol, 10 parts; tannin, 1 part; salicylic acid, 2 parts; boric acid, 40 parts. Any one of these powders may be used five or six times daily. A pinch should be snuffed up each nostril so that it penetrates as deeply as possible (*Rev. Inter. de Méd. et Chirur.*, vi., 201).

Papain Ointment for Chronic Eczema.—Papain, 8 parts; salicylic acid, 4 parts; glycerin and castor oil, of each 16 parts. To be rubbed on the affected parts (*Rev. Inter. de Méd. and Chirur.*, vi., 204, after *Nouv. Remèdes*).

Olive Oil in Dry Pleurisy.—Cerenville proposes the injection of sterilised olive oil into the pleural cavity in the treatment of dry pleurisy (*Therap. Gaz.*, [3] xi, 322).

Zinc Stearate in Gonorrhœa.—Miller has found the application of zinc stearate, preferably combined with menthol, of great service in the treatment of gonorrhœa. The mucous membrane of the entire penile urethra is treated with the stearate by means of an ointment catheter. More than three or four applications are rarely needed (*Philadelph. Polyclin.*, iv., 174).

Creasote Injection in Intestinal Tuberculosis.—For every twenty pounds of the patient's weight, Simon prescribes the following:—Pure beechwood creasote, 0·5 milligramme; salol, 0·4 centigramme; iodoform, 0·4 centigramme; dissolved in sufficient olive oil for 10 C.c. of injection. A soft rubber catheter eight to twelve inches long is attached to a glass syringe for introducing the injection as far as possible into the intestinal canal. The solution should be warmed before use (*Therap. Gaz.* [3], xi., 314).

Method of Exhibiting Iodide of Potassium to Avoid Iodism.—According to the *Rev. de Thérap.* the following combination will not occasion iodism:—Potassium iodide, 30; ammonio-citrate of iron, 3; tincture of nux vomica, 8; distilled water, 30; tincture of cinchona sufficient to 120 parts. A teaspoonful to be taken in water after each meal.

Saligenin in Acute Articular Rheumatism.—Saligenin, 4 parts; rectified spirit, 30 parts; distilled water to 200 parts. One to two dessert-spoonfuls to be taken every hour (*Nouveaux Remèdes*, xi., 266, after *Therap. Monatsh.*).

Ipecacuanha in Dysentery.—Sulphate of quinine, 12 centigrammes; powdered ipecacuanha root, 30 centigrammes; hydrochlorate of ammonium, 60 centigrammes; tincture of opium, 12 drops; Distilled water, to 30 grammes. To be taken every four hours (*Practitioner*, May, 1895, 478).

Gallicin in Ophthalmic Practice.—Gallicin, the methylic ether of gallic acid, has been found useful in various forms of conjunctivitis, particularly in cases of a catarrhal nature with chronic swelling of the eyelids, also in acute and chronic folicular catarrh and similar affections. It is best applied by insufflations into the eye. Where the application causes pain the eye should first be treated with a little 20 per cent. solution of cocaine. It may also be used in aqueous solution. It dissolves readily in warm water, giving a colourless solution; it is also soluble in warm alcohol and in ether. The melting point should be from 200° to 202° C. It is a powerful bactericide, but is, at the same time, non-toxic (*Nouveaux Rem.*, xi., 276, after *Pharm. Centr.*).

Inspissated Bilberry Juice in Eczema.—Winternitz has found the concentrated juice of bilberries, *Vaccinium myrtillus*, applied locally with a brush, an excellent remedy in the various forms of eczema, even in chronic cases which had previously resisted other treatment. The inspissated juice or extract, known as "myrtilline," is thus prepared. The dried berries are treated with water and boiled with a gentle heat until the whole of the colouring matter has been removed, the liquor is then strained through a fine muslin sieve and the resulting juice evaporated to a syrupy consistence. To this is added one or two parts per thousand of salicylic acid, as a preservative, or if it be desired to obtain a varnish which will adhere closely to the skin, myrrh, in any quantity, may be substituted for the salicylic acid. After applying this extract to the skin, the part should be covered with a light layer of wadding, kept in place by muslin or linen. In the case of moist eczema of the face, the surface, after applying the extract, should be dusted with rice powder, or any inactive dusting powder. To wash off the application without irritating the skin a tepid washing of water containing 1 per cent. of common salt should be used (*Nouv. Remèdes*, xi., 287).

Ozone in Whooping Cough.—Labbé and Oudin, as the result of the observation of twenty-two cases of whooping cough treated exclusively by ozone inhalations, find that this method of treatment rapidly diminishes the duration, number and the intensity of the spasmodic crises, it shortens the course of the disease, and the general health of the patient shows marked amelioration. The favourable action of ozone is attributable to its bactericidal action (*Rev. de Thérap.*, lxii., 445.)

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

Communications for the Current Week's Journal should reach the Office not Later than Wednesday Morning. Telegrams can be Received on Thursday Morning. All Communications respecting Editorial matters must be Addressed "Editor, 17, Bloomsbury Square, London," and not in any case to individuals supposed to be connected with the Editorial Staff of the Journal.

All Instructions from Members, Associates, and Students of the Pharmaceutical Society, respecting the transmission of the Journal, must be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London, W.C.

Business communications—including advertisements, orders for copies of the Journal, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Cheques and money orders should be made payable to "Street Brothers."

Correspondents who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for illustrations should be done with pen and Chinese ink, and consist of clean, sharp lines, without shading by washes. They should also be prepared twice the desired size, so as to allow for reduction.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Queries addressed to the "Editor" will be replied to as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries."

Reprints of articles cannot be supplied unless authors communicate with the Editor before publication.

LETTERS.

Elementary Pharmaceutical Education.

Mr. E. Saville Peck, of Cambridge, writes as follows:—"Mr. Martin, in his inspiriting presidential address, drew attention, amongst other things of considerable importance, to the necessity of raising the standard of the Preliminary examination. This I heartily endorse, but its value will be largely curtailed unless the passing of the examination be made compulsory before the candidate is allowed to be apprenticed or to commence his technical training under a pharmacist. This will act beneficially in many ways:—

"First.—The broader the earlier education is, the better the pharmacist the lad is likely to become.

"Secondly.—The widening the range of subjects and the increase in the standard would more thoroughly eliminate those who have neither the intellectual capacity nor the application required to pass the Minor, and, failing to pass the Preliminary without having entered upon the career of a pharmacist in any way, they would be able to turn their hand to work more fitted for their abilities before it was too late. This would help to decrease the number of unqualified men.

"Thirdly.—Having passed such an examination, the candidate would surely take greater care to place himself under a pharmacist who would teach and train him in the science and art of pharmacy, and not compel him habitually to do errand boy's work.

"Again, I would oblige the candidate after passing the Preliminary to be registered as a pharmaceutical student for three years before commencing his curriculum at a school of pharmacy. The length of this curriculum I do not intend going into on the present occasion. The different courses of lectures required might be attended at any school of pharmacy certified by the Council of the Pharmaceutical Society, and, as Mr. Martin points out, those schools would soon come into existence in the towns where a university exists, as it would only require the addition of a teacher in pharmacy and materia medica to make the necessary pharmaceutical schedule of subjects complete. I say this from personal experience. Having thus attended all the compulsory courses in the different subjects, not necessarily in the same school, he should be able to present himself for the qualifying examination. The candidate would thus obtain a more thorough and permanent knowledge of pharmacy, and one likely to prove but the foundation for future study and research.

"By adopting some such scheme pharmacists would be more relied upon by the medical profession, and would be more likely to band themselves together for the common object of promoting the welfare of pharmacy, and establishing that *esprit de corps* somewhat deficient in our ranks. Having thus become more fully equipped, more firmly united, pharmacists would be in a better position to demand greater remuneration for their work."

Teeth Extraction by Chemists.

Rus has a grievance against the Dean of the London Denta Hospital. He says, "I shall feel much obliged if you will kindly publish the following extracts from a letter I have received from the 'Dean' of the London Dental Hospital. He says, 'If neither you nor your assistants are upon the Dental Register, you are rendering yourselves liable to prosecution and to a fine of £20 for extracting teeth.' Surely, sir, this is a most preposterous and wrong assertion on the part of the 'Dean.' Extractions have been performed by chemists throughout the length and breadth of the land from time immemorial, and I may venture to say that great service has been rendered by chemists in this direction. Take my own case for instance. The nearest dentist lives eight miles away, a man comes into my pharmacy mad with toothache from a decayed tooth, which necessarily must come out. I must say, 'I am very sorry I cannot extract your tooth. I have the necessary instruments, requisite knowledge, but the Dean says I must not. You will therefore have to bear the pain, walk eight miles, and then perhaps not meet with the dentist at home.' Absurd! The dentists say we must not extract teeth, the doctors say we must not prescribe, we are badgered and bullied by grocers and stores. If man, woman, or child happens to die, and the doctor is told that they have taken—within the last month or so—some harmless compound prepared by the chemist, he at once 'spies' his opportunity of 'sitting upon' the prescriber, and the outcome is an inquest, chemist upbraided and blamed by ignorant jurymen, who are totally 'at sea' upon the subject. If wholesale houses give us strychnine for phenacetine, etc., we are indirectly told that we are to blame, and that we should analyse all our drugs. After our compulsory education and examination it is high time that we had some protection, and to know what position we occupy and where we 'come in.'"

Old Remedies.

T. W. P. says, "I have come across the following which may interest some of your many readers:—'Medicines, etc., sold by Robert Horne at the south entrance of the Royal Exchange, London, in 1674—Lockyer's pills, Matthew's pills, Buckworth's lozenges, Turner's dentifrices, Rhodocanace's spirit of salt, Dr. Manwaring's scorbutick and antivenereal pills, elixir proprietatis, elixir salutis, Sir Kenelm Digby's sympathetical powder.' Just 221 years ago. Are any of them made and sold at the present time? Can any of your correspondents say?"

ANSWERS.

C. H. Ridley.—Thanks for cutting. You are right to protest against the misuse of the title, and will probably find it advantageous to do so in the local press.

D. Dickinson.—1. *Lycopodium selago*; 2. *L. alpinum*.

F. Firth.—We have no information concerning the establishment you mention.

E. C. Spurge.—"Red Marrow Extract" would appear to be either "Virol" or "Virol sans Sucre."

G. R. Lawrence.—The *Amateur Photographer*, 1, Creed Lane, E.C.; *Photography*, 3, St. Bride Street, Ludgate Circus, E.C.; *British Journal of Photography*, 2, York Street, Covent Garden, W.C.

"Moschiferus."—The seeds are probably from a species of *Avena*, but we may be able to give you more definite information later. Refer to the second volume of Pereira's 'Materia Medica' (1857) concerning the other matter you mention.

Correction.—On page 138, in the report of Mr. Holmes' remarks, he is represented as speaking of granulated" ipecacuanha. This should have been "annulated."

Communications, Letters, etc., have been received from Messrs. Anning, Bannister, Barford, Burrows, Clague, Clarke, Colley, Cooper, Davis, Dickinson, Duncan, Durrant, Eberlin, Farr, Frith, Gilligan, Harrison, Harvey, Hewlett, Hyslop, Ince, Lawrence, Mackenzie, Martin, Mitchell, Naylor, Peck, Picken, Poole, Reed, Reeve, Reynolds, Ridley, Row, Rudd, Snaith, Spurge, Taylor, Thorp, Turner, Wiggin, Wills, Wyatt.

"THE MONTH."

Ipoh Poison. Dr. Stapf has been able to revise his determinations of two of the hill plants, from which the Sakais of the hills prepare an arrow poison (*Ph. J.*, lii., 388), further material having been received from Mr. L. Wray, jun., the Curator of the Perak Museum, which throws fresh light on their identity. It was formerly stated that "Ipoh Akcr" was closely allied to *Strychnos maingayi*, and probably only a different state of it, but Dr. Stapf now finds that the plant is not *S. maingayi*, although probably a close congener. It differs from *S. maingayi* in the almost papery leaves which are very like those of *S. wallichiana*, Benth., and in the glabrous ovary. It is probably a new species, but cannot be described in the absence of flowers. "Prual" was determined to belong to the natural order *Rubiaceæ*, but the correctness of that determination was called in question by Holmes and Radlkofer (*Ph. J.*, liii., 620). A repeated examination of the material confirms Dr. Stapf, however, in his opinion as to the systematic affinity of the plant (*Ph. J.*, liii., 660). From the material now at hand it appears that the plant is *Coptosapelta flavescens*, Korth., a Rubiacea of the *Cinchona* group. The genus *Coptosapelta* comprises at present two described species, *C. flavescens*, Korth., and *C. griffithii*, Hook. fil., to which, however, several more might be added from the material preserved at Kew. The genus extends from the Malay Peninsula to the Philippines and New Guinea. If the root bark examined by Dr. Ralph Stockman with respect to its physiological action on animals (*Ph. J.*, liii., 561) was actually derived from the same plant from which the herbarium specimens communicated by Mr. L. Wray as "Prual" were cut, then *Coptosapelta* must be counted in future among the poisonous plants, though up to the present it has not been known to possess poisonous or otherwise prominent chemical properties. *Hymenodictyon excelsum*, Wall., an allied plant, and a native of India, yields an alkaloid "hymenodictyonine," the chemical properties of which "display a close analogy with those of nicotine" (Watt, *Dict. Econ. Prod. India*, iv., 319), and the inner bark of this plant has been long employed by the Hindoos as a febrifuge and antiperiodic. In the *Kew Bulletin* (1891, p. 264) reference was made to other ingredients sometimes mixed with the "Ipoh" by the Semangs. One of these was "Likir," an Aroid sent by Mr. Wray to the Calcutta Botanical Gardens for identification. It has now been ascertained there to be *Amorphophallus prainii*, Hook. f. (*Kew Bulletin*, 1895, 140).

Chemical Nature of Diastase. T. B. Osborne thinks it is highly probable that diastase is a true proteid—either an albumin, a proteose, or a combination of the two. Fractional precipitates from malt extract, obtained in the course of a series of experiments, were found to cause little or no diastasic action when they consisted largely or wholly of proteose, amylolytic power being manifested most strongly in the fractions containing most albumin, though not in strict proportion to the amount of the latter. In all probability, however, it is akin to the albumins, and it is concluded that the diastasic enzyme is most closely related to the albumin named leucosin (*Journ. Am. Chem. Soc.*, xvii., 588).

Essence of Linaloes. P. Barbier and L. Bouveault have made a complete chemical examination of an authentic specimen of Mexican oil of linaloes, and describe it as consisting of licareol (90 p.c.), licarhodol (2 p.c.), and sesquiterpene (3 p.c.), together with small proportions of diatomic and tetratomic terpenes, and methyl-heptanone. The latter, $C_8H_{14}O$, is regarded as identical with the ketone obtained by Wallach by the decomposition of cineolic anhydride (*Comp. rend.*, cxxi., 168).

Nitrogen and Phosphorescence. G. Séguy has discovered that a similar phosphorescence to that caused by the electric discharge in tubes containing rarefied oxygen, may be produced in the case of nitrogen and its compounds, in presence of the vapour of a metallic bichloride, as for example that of tin. The light emitted by the nitrogen tube is rose coloured during the discharge, whilst with oxygen it is dull violet. The phosphorescence, which persists for some time after the interruption of the current, is of a milky whiteness (*Comp. rend.*, cxxi., 198).

Gurgun Balsam in Copaiba. L. F. Kebler has investigated the reliability of the more commonly accepted tests for the purity of copaiba, with especial reference to the use of gurgun balsam as an adulterant. He gives in tabular form the results of the examination of a number of commercial samples of copaiba, as well as of a few samples of known purity to which he had previously added a certain proportion of gurgun balsam. The conclusions arrived at are that no dependence can be placed upon the colour of a given sample, or upon its fluorescence or non-fluorescence. The wide range of the specific gravity of copaiba renders that factor practically valueless, and its solubility or insolubility are also uncertain and unreliable factors. The ammonia tests are described as misleading, the acid number cannot be relied upon, and Hager's test (violet coloration, changing in twelve hours to dark brown or black, on adding 6 drops of balsam to 3 C.c. of a mixture of sulphuric acid, 1 part, and pure acetic ether, 25 parts) is unsatisfactory, especially if the proportion of gurgun balsam present is less than 25 per cent. The U.S.P. test (gelatinisation on heating if gurgun balsam is present) is said to be extremely unreliable. Turpentine, if present, can be recognised by its odour when the sample is heated; fixed oils are absent if a transparent, friable, and amorphous residue is left after driving off the volatile oil by heat; paraffin oil can be detected by introducing 1 C.c. of balsam into a test tube containing 4 C.c. of alcohol (95 p.c.), agitating well, and suspending the tube in boiling water until the contents boil, when any paraffin present will separate and sink to the bottom of the tube, leaving the balsam dissolved or suspended in the alcohol. A test that is fairly reliable with a moderately large percentage of gurgun balsam consists in dissolving 1 drop of the suspected balsam in 20 drops of carbon disulphide, and adding 1 drop of a cooled mixture of sulphuric and nitric acids in equal parts. The presence of gurgun balsam is indicated by a red or violet tinge. The glacial acetic test published by Dodge and Olcott (see *ante*, p. 76) is stated to be perfectly reliable, even when not more than 5 per cent. of gurgun balsam is present. Four drops of the balsam should be carefully added to 1 C.c. of glacial acetic acid (99·5 p.c.) and 4 drops of pure nitric acid (1·42), previously mixed in a test-tube. In a few minutes a reddish zone forms between the layer of

balsam and the acid mixture if gurgun balsam be present, and on mixing the contents of the tube, the whole will assume a reddish or purple colour, varying with the amount of gurgun balsam present (*Am. Journ. Pharm.*, lxvii., 394).

Laccase in Plants. G. Bertrand finds that laccase, the ferment originally found by him in the latex of the Tonquin lacquer tree (*Ph. J.*, liii., 1087, and liv., 754), exists in a number of other plants. Thus, it occurs in the roots of beets, carrots, turnips, and dahlias; potato tubers; young asparagus stems; lucerne, clover, and rye-grass; the leaves of Jerusalem artichokes and beets; the fruits of apple, pear, quince, and chestnut trees, and, lastly, in gardenia flowers. The presence of the ferment was identified in these cases by its effect in causing oxidation of hydroquinone, pyrogallol, or guaiacum resin. A few drops of an alcoholic solution of this resin, when added to a liquid containing but little laccase, causes the white emulsion formed to acquire a blue colour in a very brief time. The presence of much laccase causes the emulsion to become first blue, then green, and finally pale yellow. The reaction must not be confounded with that observed by Schönbein on adding guaiacum tincture to a mixture of hydrogen peroxide and ordinary diastase (*Comp. rend.*, cxxi., 166).

Magnesium Salicylate. R. van Gool points out that when prepared by neutralising salicylic acid with magnesium carbonate, this compound, instead of being pure white in colour, has a more or less pronounced pink tint, owing to the presence of iron in the magnesium salt used. He therefore recommends the following process for the preparation of the compound free from impurities:—Sulphuric acid is neutralised with calcined magnesia, and to the solution of magnesium sulphate he adds first hydrochloric acid, then potassium sulphocyanate in excess, lastly shaking with ether. The aqueous layer is drawn off and again shaken with ether until the latter is no longer coloured by the ferric sulphocyanate, showing that all traces of iron have been removed. The solution of magnesium sulphate is next evaporated to a low bulk and allowed to crystallise, after which the product is washed with spirit to free it from the hydrochloric acid and excess of potassium sulphocyanate which it contains, until no reaction is given with ferric chloride. The pure salt is then dissolved in distilled water, and solution of sodium carbonate added gradually until precipitation is complete, the solution being constantly shaken and kept at a temperature of 70° C. The precipitate having been washed with water until free from sodium sulphate, is mixed with a little water, neutralised with salicylic acid at the temperature of a water-bath, and finally evaporated to dryness at the same temperature (*Journ. de Pharm. d'Anvers*, li., 282).

Coronillin. Schlagdenhauffen and Reeb, in recording further details of their investigation of the genus *Coronilla*, point out that the toxic dose of coronillin for man would probably be 0·430 Gm. subcutaneously injected, and 2·37 Gm. to 2·482 Gm. when taken by the mouth. It is suggested that the much larger dose that can be taken by the stomach depends on the splitting up of the coronillin into coronillein and glucose by the action of the hydrochloric acid of the stomach, or by the alkaline fluids in the intestinal canal (*Journ. de Pharm., von Elsass. Lothr.*, xxii., 219).

Diphtheria Antitoxin. Guérin and Macé have endeavoured to isolate the active constituent from the serum of horses immunised with respect to diphtheria. They treated the serum with ten times its volume of strong alcohol, filtered, and found that the filtrate contained a small quantity of an alkaloidal substance which possessed no antitoxic power. The albuminous precipitate, however, yielded an aqueous solution which possessed an extremely powerful antitoxic power when opposed to active diphtheria toxin. It is concluded by the authors that the active constituent of the prepared serum is of the nature of a soluble ferment or diastase (*Comp. rend.*, cxxi., 311).

Digestive Power of Pepsins. H. W. Snow shows that but few of the so-called U.S.P. pepsins on the market are capable of digesting 3000 times their own weight of freshly coagulated and disintegrated egg albumin, as specified in the U.S. Pharmacopœia. He gives the results of the examination of fifteen pepsins, ten of which are claimed by their makers to possess a digestive strength of 1:3000, though but two actually attain that standard, the others varying from 1:535 to 1:2142 and seven of them being below 1:2000. In the main the results appear to confirm those published by Moffat some months since (*Ph. J.*, liv., 813), and British pharmacists would do well not to take entirely for granted manufacturers' statements concerning the pepsins they offer. It will be remembered also that Moffat showed the superiority of the B.P. over the U.S.P. test (*Pharm. Era*, xiv., 170).

Antiseptic Action of Saccharin. Drs. Burkard and Seifert have conducted a series of experiments which show that the purest saccharin, having a sweetening power 500 times as great as that of sugar, has one-fifth of the antiseptic power of salicylic acid, whilst the ordinary 300-power saccharin, which contains 60 per cent. of pure saccharin, has antiseptic properties equivalent to only one-eighth of its weight of salicylic acid. Saccharin cannot, therefore, be used as a food preservative, since the quantity necessary for such a purpose would give rise to a nauseously sweet taste (*Pharm. Centralh.*, 1895, p. 365).

A New Bacterial Pigment. A. Thorpe has isolated a brown pigment from infusions of maize undergoing putrefaction by means of the *Bacterium brunneum*. It is described as soluble in alcohol, being precipitated from the solution on the addition of water. It is also soluble in ether and in chloroform, but insoluble in water or carbon disulphide, whilst acids appear to destroy it. The alcoholic solution of the pigment, the formula of which is represented as $C_{18}H_{14}O_3$, gave no characteristic absorption bands when examined by means of the spectroscope (*Chem. News*, lxxii., 82).

Yeasts and Moulds. Dr. Jörgenson, of Copenhagen, has confirmed Juhler's observation that typical alcohol-producing saccharomyces cells are produced in flasks in which *Aspergillus oryzæ* has converted rice starch into sugar, and, as the result of experiments subsequently performed, has succeeded in demonstrating the evolution of wine yeast cells from a particular mould found on grapes. The problem whether yeasts may not be only transitory forms in the life-history of moulds, seems therefore to be in a fair way to solution (*Nature*, lii., 397).

Composition of Microbes. E. A. de Schweinitz and M. Dorset have inaugurated a novel method of examining micro-organisms, which consists in an investigation of their proximate and ultimate composition. Tubercle bacilli were found to contain cellulose, together with palmitic and arachidic acids; on the other hand, the glanders bacillus appeared to contain no cellulose, whilst the acids present were oleic and palmitic. The germs were cultivated on the same media, and, with the exception of the nitrogen, there seemed to be but little variation in their composition when the medium was varied. The results of the elementary analyses of three forms was as follows:—

	Nitrogen.	Carbon.	Hydrogen.	Ash.
Tubercle bacillus...	7·34 to 8·94 p.c.	62·98 p.c.	7·34 p c.	1·77 p.c.
Glanders „ ...	14·05 „	41·89 „	5·89 „	5·18 „
Swine plague „ ...	11·81 „	44·57 „	7·20 „	12·41 „

The marked differences in these figures would seem to indicate that the results may prove of some value in aiding classification, and the authors announce that they are continuing the investigation in the case of other disease germs (*Journ. Am. Chem. Soc.*, xvii., 605).

Sandal-wood Oil. T. H. Pearmain and C. G. Moor have examined gelatin capsules, labelled "pure sandal-wood oil," which proved to contain only castor oil mixed with a small quantity of an unidentified unsaponifiable oil. The mixture gave the following figures on analysis:—specific gravity at 15°·5, 0·9633; iodine absorption, 88·0 per cent.; unsaponifiable matter, 5 per cent.; Valenta test (using 84 per cent. acid), turbid at 100° C.; miscible with glacial acetic acid, and with 3 vols. of rectified spirit; saponification value = 17 per cent. KHO; rotation for 100 Mm. at 15°·5 = + 8°·0 (*Analyst*, xx., 174).

Cucurbita Fœtidissima. Professor L. E. Sayre and W. Lang have examined the root of this plant, and find that it contains an alkaloid in very small quantity, together with volatile oil, fixed oil, resin, wax, etc. The root is very bitter and has a slight aperient effect when taken internally. It is often found weighing sixty to seventy pounds, and produces a trailing stem which bears woody, pubescent leaves, six to eight inches long, and a spherical yellow fruit about the size of an orange, containing some two hundred seeds about one-third of an inch in length. The plant grows in Western Kansas, where the soil is dry and sandy, and has been mistaken for the official colocynth plant (*Bulletin of Pharmacy*, ix., 308).

Formation of Gum. As the result of an investigation of various gums and the trees yielding them, Dr. L. C. Lutz finds that in the *Acacia* genus the gum reservoirs are formed only in the bark and pericycle, differing in this respect from the fruit trees that produce gum. The reservoirs or lacunæ, are formed by an abnormal swelling of the cell-walls, which ultimately form an amorphous mass, in which the remains of cells imperfectly destroyed are found here and there. The author believes, therefore, that these gums are not a product of secretion, but that they are the result of a chemical transformation of the cell membranes. The gum of fruit trees is formed exclusively in the outer wood. The author's experiments suggest the idea that the agent causing the development of gum is probably a ferment of the nature of diastase. He also thinks that mucilages, *i.e.*, gums which have not much adhesive property, are derived from cell membranes.

Extract of the Suprarenal Capsules. D. Gourfein has separated a toxic substance from this extract, which is soluble in alcohol and not readily decomposed by heat. Animals injected with it lose strength rapidly, and fall down, remaining motionless as if they were paralysed, though they are not actually so. Death occurs very soon, the poison apparently acting on the central nervous system (*Comp. rend.*, cxxi., 311).

African Indiarubber. A monograph of the genus *Landolphia* from which much of the indiarubber exported from Africa is derived, has been published by Dr. A. De Wevre in the 'Annales de la Société Scientifique de Bruxelles,' t. xix., pt. 2. In this monograph he enumerates twenty-one species of the genus, three of which—*L. Lecomtei*, *L. tomentosa*, and *L. Tholloni*—are new and described by himself. The plants of the genus appear to be confined to Africa, occurring between 16° N. and 30° S. latitude, none having been found north of the Sahara desert, or south of the diamond fields. This monograph should prove very useful to botanists in Africa, since it gives descriptions of all the species, with an analytical key for determining them, and a very full bibliography. It also gives directions concerning the points to be cleared up, and the observations that should be made by future travellers concerning these plants. The kind of indiarubber, if any, which the less known species afford, the relative quantities that they yield, and their limits of growth as regards temperature, soil, etc., are points that are of considerable economic importance.

Ancient Thermometers. A short time ago M. Maze described what was probably the first mercurial thermometer (*Ph. J.*, liv., 962), and he now gives particulars of the first alcohol thermometer used in Paris. During 1657, the then Queen of Poland sent an envoy named Buratin on a mission to Italy, and he brought back numerous presents from the Grand Duke of Tuscany, amongst them being several thermometers. One of these was afterwards sent to Ismaël Boulliau, of Paris, and is described as like the modern form, but with a somewhat flattened bulb. The alcohol was not coloured and the tube was exactly a decimetre long, being graduated with marks in black enamel. Every tenth mark, however, was larger than the rest and in white enamel instead of black (*Comp. rend.*, cxxi., 230).

Novel Galvanic Cell. M. Morisot makes a new battery cell as follows:—The positive pole is a plate of retort carbon placed in an external vessel containing a mixture of sulphuric acid, 1 vol., and water previously saturated in the cold with potassium bichromate, 3 vols. The porous cell contains a dilute solution of caustic soda (density about 1·05), but the amalgamated zinc plate is placed in a smaller porous cell containing a concentrated solution of caustic soda, which is situated inside the first. The electro-motive force of the pile is at first 2·5 volts, and it is maintained above 2·4 volts for ten hours. The internal resistance is about 0·8 ohm, but varies, of course, with the thickness and material of the porous diaphragms. Employing 600 C.c. of the depolarising liquid, 130 C.c. of weak soda solution, and 110 C.c. of the stronger solution, the intensity maintained was very near 0·423 amp. for an interposed resistance of 5 ohms, and 0·220 amp. for a resistance of 10 ohms (*Comp. rend.*, cxxi, 251).

Otto of Roses. A recent Bulgarian consular report comments upon the inaccuracy of the figures given by the Custom House as representing the exportation of this article. Thus for 1894 the value is stated to be betwcen £15,000 to £16,000, whercas almost the whole of the crop, a good average one of about 2000 kilos, was exported at prices ranging from 900 to 1200 francs per kilo, France, Germany, and Great Britain being the principal buyers. It goes on to say that the adulteration to which otto of roses has always been subjected seems hardly to have beeu checked by the prohibition imposed by the Government on the importation into Bulgaria of the adulterating medium, essence of geranium. Indeed, the quantity of otto which reaches the European markets in a pure state must be very small. Last summer the British Chamber of Commerce at Constantinople sent a delegate to Kezanlik, the principal otto-producing centre, with a view to procuring an absolutely pure sample to serve as a standard for purposes of comparison. This gentleman, however, was obliged to return empty handed, for he ascertained that though the otto may not be tampered with after reaching the merchants' hands, there is no means of ensuring that the peasant whose stock the latter buys up has not already adulterated it. Supervision during distillation is no guarantee, for the ingenious peasant is in the habit of sprinkling essence of geranium over the freshly-gathered roses before distillation in order to increase the yield. Congelation at a certain temperature, which is principally relied on as a test of purity, is quite fallacious. It is stated that the cultivation of the Kenzanlik rose has been started with some success at Broussa, in Asia Minor, by Mussulman refugecs from this district.

False Chiretta. A few months ago some loose bundles of herbs rcsembling rccently dried broom tops wcre offered for sale as chiretta by a London drug brokcr. On investigation the plant was found, by J. S. Ward, to agree with the description of the so-called "Indian chiretta," *Andrographis paniculata*, Nees. (Acanthaceæ), a prcparation of which has been advertised under the name of "Halviva." A paper on the subject by Mr. Ward will shortly be published in the Journal, together with one by Professor Greenish, who has investigated the anatomical structure of the drug.

A WHISTILL ALARM.

BY J. MALTBY CLAGUE.

Mr. Moss' description of his useful little piece of apparatus has caused me to think that a little contrivance which I fitted to a water still a few years ago may interest the readers of the Journal.

The apparatus brought before the B.P.C. successfully warns of a full receiver, mine was equally successful in warning of the approaching emptiness of the boiler, and was in my case used in the production of distilled water.

The boiler was a square one, and in addition to the opening in the top by which the steam found its way to the worm, another opening was made. Into this latter a half inch or three eighths inch tube was passed, the lower end of which was open and reached to within three inches of the bottom of the boiler. The upper end of the tube protruded about four inches, and to it an ordinary brass whistle was attached. When the original supply of water was boiled off so as to fall below the lower end of the tube, a rush of steam up the tube and out of the whistle hole gave a piercing noise which promptly drew attention to the depleted condition of the boiler; in short, when it wanted water, my boiler successfully "whistled for it."

THE TINCTURES OF THE BRITISH PHARMACOPŒIA:

A Report on the Strength of Commercial Samples.*

BY E. H. FARR AND R. WRIGHT, F.C.S.
Pharmaceutical Chemists.

The work previously published by us upon the subject of alkaloidal drugs has been done with the following objects in view:—

1. To ascertain the menstruum best adapted for securing perfect exhaustion of the drug.

2. To devise accurate and reliable methods for the estimation of the alkaloids in the tinctures.

3. To find the average alkaloidal strength of the tinctures.

4. To ascertain in what cases it might be feasible and desirable to set up definite alkaloidal standards for the tinctures.

These branches of our investigation having been fairly well worked out, it was thought that an inquiry into the strength and quality of commercial tinctures as sold and dispensed by retail pharmacists might be attended with good results, and that a report upon such tinctures might also prove of interest to the members of this Conference. In order to obtain the requisite samples, several pharmacists residing in different parts of the country were approached, and through their kind instrumentality we obtained the samples now reported upon. In making application for samples it was requested that they be obtained from pharmacies of at least average class; our object being, not to get up a case against our fellow-pharmacists, but simply to ascertain to what extent the case for the standardisation of the alkaloidal tinctures might be strengthened or otherwise by an examination of commercial samples.

In addition to the estimations of alkaloid and extractive matter, we have in the present series of experiments taken the specific gravity of each tincture, thinking it desirable to ascertain whether the official menstrua were closely adhered to in preparing the tinctures. In this particular our results indicate no very important deviation from the official instructions.

In estimating the alkaloids present in the tinctures we have followed in each case the process originally used by us, and which will be found fully described in various numbers of the *Pharmaceutical Journal* for the year 1891-2, and of the *Chemist and Druggist* for 1892-3, under the headings of notes on the individual tinctures.

Table I.

Showing the Amount of Alkaloids in Grammes from 100 C.c. yielded by the Tinctures.

Tincture.	1	2	3	4	5	6	7	8	9	10	11	12	Average.	Average, F. and W.
Aconite	·020	·040	·048	·056	·048	·044	·046	·044	·042	·054	·044	·050	·044	·050
Belladonna	·016	·016	·017	·020	·015	·008	·031	·018	·018	·017	·021	·026	·018	·0246
Cinchona	·54	·22	·40	·52	·60	·66	·41	1·18	·49	·63	·72	·59	·58	·91
Colchicum	·072	·060	·064	·060	·020	·028	·046	·072	·080	·058	·056	·078	·058	·078
Conium	·028	·010	·012	·040	·016	·036	·035	·014	·210	·020	·024	·069	·043	·083
Gelsemium	·032	·032	·024	·044	·044	·032	·030	·024	·041	·025	·026	·027	·032	·044
Hyoscyamus ..	·010	·011	·016	·009	·008	·010	·009	·009	·011	·008	·010	·009	·010	·0105
Jaborandi	·014	·024	·048	·144	·120	·100	·096	·036	·052	·044	·048	·024	·062	·095
Lobelia	·018	·040	·028	·040	·044	·036	·034	·030	·040	·027	·031	·025	·033	·038
Nux Vomica....	·205	·190	·220	·210	·190	·224	·216	·220	·228	·144	·184	·200	·203	- -
Opium	·308	·724	·814	·668	·678	·618	·922	·870	·817	·720	1·04	1·12	·775	·579
Stramonium ..	·032	·016	·024	·016	·016	·018	·020	·017	·015	·025	·015	·017	·019	·0256
Veratrum	·104	·152	·104	·152	·092	·144	·082	·126	·068	·074	—	—	·110	·122

The amount of extractive was ascertained by the evaporation of 10 C.c. of the tincture in a porcelain dish having a flat bottom and drying the extract at 212° F. until constant; and the results obtained are given in Table II.

* Read at the Pharmaceutical Conference at Bournemouth.

TABLE II.

Showing the Amount of Extract in Grammes from 100 C.c. yielded by the Tinctures.

Tincture.	1	2	3	4	5	6	7	8	9	10	11	12	Average.	Average, F. and W.
Aconite	1·96	1·08	2·44	1·72	1·08	·64	1·00	2·02	2·72	2·08	·98	2·24	1·66	2·30
Belladonna	1·38	1·00	1·18	1·14	1·04	·70	·78	1·30	1·22	·80	·68	1·26	1·04	1·24
Cinchona	3·76	3·96	3·64	3·90	4·36	5·24	3·68	7·46	4·04	6·76	5·68	4·52	4·92	5·96
Colchicum	·096	1·08	1·44	·090	·078	·076	2·32	2·18	1·26	1·34	·94	1·16	1·00	1·87
Conium	·96	3·12	1·98	1·10	1·02	·090	1·14	·56	1·86	·80	·82	1·42	1·21	1·29
Gelsemium	1·78	1·38	1·74	2·36	2·14	1·84	1·74	1·48	1·82	2·22	1·72	1·84	1·84	1·80
Hyoscyamus	3·30	3·32	3·44	3·98	3·98	3·28	3·28	2·96	3·76	3·30	3·26	3·80	3·47	3·52
Jaborandi	3·06	3·86	3·96	4·96	4·70	4·17	5·22	4·02	2·80	3·72	4·6	5·82	4·24	4·95
Lobelia	·920	2·12	3·14	2·16	1·90	2·50	2·96	1·14	·73	1·12	1·76	1·54	1·83	2·27
Nux Vomica	1·16	1·14	1·22	1·12	1·22	1·22	1·22	1·18	1·12	1·02	·54	1·24	1·12	—
Opium	3·76	3·80	3·68	4·66	3·50	5·55	3·72	3·82	4·06	3·40	3·88	4·74	4·05	4·03
Stramonium	·54	·56	·36	·40	·42	·50	·72	·70	·33	1·92	·58	1·18	·68	·77
Veratrum	1·50	2·28	1·28	2·28	1·96	1·46	1·14	1·12	1·12	1·04	—	—	1·51	1·75

TABLE III.

Showing the Specific Gravity of the Tinctures.

Tincture.	1	2	3	4	5	6	7	8	9	10	11	12	Average.
Aconite	·847	·857	·844	·847	·847	·852	·846	·854	·913	·856	·840	·857	·855
Belladonna	928	·922	·933	·930	·928	·925	·953	·938	·920	·948	·895	·931	·929
Cinchona	·953	·940	·945	·943	·935	·951	·946	·953	·951	·953	·944	·950	·947
Colchicum	·930	·922	·935	·925	·933	·955	·942	·931	·925	·933	·925	·931	·932
Conium	·938	·940	·927	·930	·931	·930	·935	·940	·908	·931	·931	·932	·931
Gelsemium	·912	·914	·930	·930	·933	·922	·938	·938	·924	·935	·931	·935	·928
Hyoscyamus	·935	·964	·938	·938	·935	·935	·942	·938	·934	·950	·937	·939	·940
Jaborandi	·938	·940	·933	·935	·938	·958	·946	·939	·943	·951	·940	·953	·943
Lobelia	·925	·930	·940	·938	·914	·933	·950	·930	·949	·938	·933	·940	·935
Nux Vomica	·892	·891	·889	·889	·894	·901	·895	·889	·893	·892	·891	·894	·892
Opium	·940	·966	·941	·960	·930	·940	·959	·939	·941	·943	·975	·947	·949
Stramonium	·922	·927	·932	·927	·922	·932	·936	·927	·936	·935	·925	·925	·929
Veratrum	·847	·854	·856	·880	·891	·844	·842	·866	·874	·957	—	—	·871

In the tables we also give the average of our former experiments.

Reference to Table I. discloses a very wide range in alkaloidal value, some of the tinctures being twice or three times the strength of others, and it may be a matter of surprise to many to find that this is the case even with such tinctures as opium and cinchona, both of which are directed to be made from standardised drugs. In the case of the tincture of nux vomica, too, it might be anticipated that the variation would be practically *nil*, but it appears that such is not the case, for whilst in no instance is the B.P. standard exceeded, one tincture is only about two-thirds as strong as it should be, and several others are deficient in alkaloid.

The tinctures of conium were most of them absolutely worthless, and in only one instance did the sample appear to have been made from dried green fruit as directed in the B.P. A reference to the tables of results also serves to bring out another fact, viz., that the relative proportions of alkaloid and extractive contained in different samples of the same drug vary between very wide limits. Attention has been directed to this point on several previous occasions, and its bearing upon the question of tincture standards is obvious.

In conclusion we take this opportunity of thanking those gentlemen who so kindly assisted us in procuring the samples from their various districts.

The PRESIDENT (Mr. Martin), in inviting discussion, said that tinctures, if properly made, ought to be amongst the most definite and certain preparations in the Pharmacopœia. They were all strong solutions of extractives or alkaloids, made with spirit, and if the tinctures were carefully made originally, most of them ought to keep indefinitely, and the variations in tinctures collected from different parts of the country ought to be extremely small. It was lamentable to discover that in a preparation such as tincture of aconite, such a wide difference was observed, and it must very much upset the calculations of medical men if they had been accustomed to prescribe a weaker tincture to find a much stronger one supplied. It was satisfactory to the commercial honour of pharmacy to know that the specific gravity differed so little, and that proof spirit was almost universally of proper strength. It used sometimes to be said that half and half was about the mark. He thought it very probable that the discrepancy found in the results had largely arisen from the fact that tinctures were made from crude drugs, which were not originally up to the proper standard, or had deteriorated by keeping. It was an important question whether it was wise to introduce into the Pharmacopœia a test for each of the tinctures, but the descriptions of drugs were very distinctive, and if tests were included for those capable of assay, and if tinctures were carefully prepared only from crude drugs which came up to the standard, the tinctures ought to be nearly identical by whomever they were made.

Dr. MAHOMED (a medical visitor to the Conference) said he was surprised to find that tinctures differed so much, but there were some other points to be considered besides those referred to. He should be inclined, with all respect, to differ from the author when he said that the chief point was the alkaloidal standard, and that it did not matter so much about the extractives. Of course, the alkaloids were exceedingly important, but they were not always the sole constituents of importance. For instance, in digitalis there were two alkaloids which were antagonistic to each other, and no benefit apparently accrued from prescribing digitalin; nearly the whole of the profession agreed in using the tincture, which included two alkaloids, one of which, to a great extent, counteracted the other. The really beneficial action of digitalis on the heart appeared, therefore, not to depend entirely on the alkaloid, but on something else. Accordingly, he considered that the great object in a tincture was to get as much as possible of the whole contents of the drug into the preparation. Manufacturing chemists would tell you that their essence of beef, or bovril, contained the whole of the extractive matter of the meat; but any one who was hungry would much rather have a beef-steak than any quantity of bovril. It was the same in the case of wine, you could not provide an efficient substitute for the juice of the grape by means of ether, alcohol, and cream of tartar. He would suggest whether it would not be possible in the new Pharmacopœia to take as a basis a known quantity of the crude drug, say belladonna leaves or digitalis, prescribe the process which is best for getting out the whole of the contents, and then standardise the tincture. All tinctures ought to be of the same strength, for it was impossible to make much clinical advance in medicine while they were so different. On looking through the Pharmacopœia he found that tincture of valerian was 1 in 20, belladonna 1 in 8, and nux vomica was to be so prepared that one ounce of the tincture represented a grain of the alkaloids. He did not see that they benefited much by knowing that one ounce represented one grain, unless they were all the same, so that a comparison could be made of the action of different drugs on a sound basis. Digitalis and strophanthus were very similar in their action, but they were made of such different strengths that a comparison was very difficult to make. If they were of the same strength, a known quantity could be injected, and the results watched by the sphygmograph and recorded, and you might say the action of digitalis and strophanthus on the heart may be represented as 5 to 7, or something of that sort, and that would be a distinct advance for medical purposes. Of course the doses would all be altered, bu that would be a minor matter.

Mr. S. R. ATKINS said the question here raised was an interesting one, and showed the difference between analysis and synthesis. They were now familiar with the fact that you might analyse a substance and might then attempt to synthesise it, and the results might be totally different. To take a familiar illustration, you might desire to produce sea water, and might combine the ingredients found in it by analysis, but the result, as regarded the preservation or maintenance of life, was very different from the natural product. The fact was that in the great laboratory of Nature there were forces and principles at work which were exceedingly obscure, such as electricity or magnetism, which materially influenced the result. Some years ago, at one of the Conferences, he remembered an old member, who had now gone over to the majority, after listening to a long, and to him intensely dry,

discussion on the nature and variety of the alkaloids in bark, saying that he much preferred a drop of Huxham's tincture of bark to all the alkaloids.

The President said they were much indebted to Dr. Mahomed for his interesting remarks, but he feared the Pharmacopœia Committee of the General Medical Council would scarcely entertain the idea of pharmacists making physiological experiments. They must approach the question from the chemical and pharmaceutical side and determine the amount of extractive and alkaloid in the various tinctures. It was quite true that the amount of alkaloid present was not always a measure of the value of a tincture in the treatment of disease, but still it was a practical standard, and in some cases it was the standard by which they were able to estimate the relative strength and value of the bark from which the tincture was made. Notwithstanding the last Pharmacopœia discarded the old-fashioned pale bark and inserted a compound tincture of bark made from the red species, many medical men in cases of anæmia attached great value to the old-fashioned tincture. Whatever they contained, the tinctures of the Pharmacopœia should be as uniform in strength and value as chemistry and pharmacy could make them. They were much indebted to the authors of this paper, and he hoped they would continue their investigations.

Mr. Ransom pointed out that one of the samples, which was especially mentioned as not up to the standard, and showed a small percentage of alkaloid, also showed a very small percentage of extractive. On the whole, he thought that though the tinctures were not absolutely uniform, there was a nearer approach to uniformity than if no standardised tinctures had been introduced.

Mr. J. C. Umney said the interesting point about this paper to a manufacturing pharmacist was the bad result of tinctures made from standardised drugs. In the case of cinchona and opium the solvent used for standardisation or assay of the particular drug was not the same as that used for making the tincture, and in the case of opium, at any rate, this might be one reason for the discrepant results.

Mr. F. C. J. Bird remarked that in the case of tincture of opium the average result was about ·75 per cent. of alkaloid, whilst the authors showed some time ago that by following out the B.P. process the average yield was only a little over ·5 per cent. This would seem to indicate that manufacturers and pharmacists had departed from the Pharmacopœia instructions, either by altering the process or by using opium above the standard fixed in the Pharmacopœia.

Mr. Farr, in reply, said their experience, as a rule, had been that when the drugs were of good quality and were kept carefully, the deterioration in any reasonable time was practically *nil*. In several instances, drugs which were examined some years since had recently been examined again, and practically no change had occurred. Of course, if the drugs were allowed to get damp, they would naturally spoil. With reference to the remarks made by the medical gentleman as to the comparative value of the alkaloids and extractives, he thought the example he gave—digitalis—was rather an unfortunate one, because digitalis had not been in any way worked out yet. In commerce you had digitalin, and also pure digitalin. Now the digitalin of the old Pharmacopœia was not by any means so powerful as what was known as pure digitalin of more recent make. The most recent researches showed that the *digitalinum purum* of the German makers contained only about 5 per cent. of real digitalin. These results had only recently been published, and of course they were astonishing. The same could not be urged in the case of many of these tinctures; for instance, in tincture of hemlock the alkaloid varied from ·010 to ·210, but the extractive in the latter case was very little different from the other. He could not conceive anyone saying that those tinctures could possibly be of the same therapeutical value. The one represented the drug in its most powerful condition, the other was made from fruit that had become ripe, and had gradually lost all of its original alkaloid except a very small portion. The one would have full therapeutical effect; the other might be taken in doses of several ounces at a time without any effect whatever. That was an extreme case, but it could not be denied that the alkaloidal bodies present—at any rate where there was one principal alkaloid—were the principal therapeutic agents. The mere inert extractive matters varied probably according to the conditions under which the drugs were gathered. At certain seasons you found the crop of various drugs was very inferior to what it was at other seasons. One gentleman sent him two samples of tinctures of henbane, one made from new leaves of last year's growth, the other from a sample of leaves which had been in stock for twelve months, which he thought were not really fit for use. The one which had been kept twelve months, having been gathered in 1893, was more powerful than the fresh one, not to a large extent, but it contained more extractive, and also more alkaloid. Of course, this was owing to the exceptionally dry season and the large amount of sunshine in 1893, and probably the same result would be found this year. With regard to the sample of tincture of nux vomica referred to by Mr. Ransom, which was particularly low, that was not made from extract at all, but from the original drug; it was quite different in colour to those made from extract. With reference to the others, he did not think it must be assumed that alkaloidal value meant actual strength. As far as he was aware, in the evaporation of the extract of nux vomica there was a certain loss of alcohol, and the estimation of the original percolate would not always correspond with the estimation of the extract made from it. There might be a loss of some of the brucine present—it was scarcely likely to be strychnine—and as that was much less powerful in action than strychnine, the loss in effect would not be equal to the loss in actual alkaloid. He agreed with Mr. Umney as to the use of standardised drugs, that they did not produce the effect desired. Mr. Wright and himself had always maintained that the preparation of tinctures from standardised drugs was not enough; the tincture must also be standardised after it was made. With regard to the tincture of opium, if you took powdered opium containing the proper percentage, viz., 10 per cent. of the alkaloid, the tincture made from it according to the British Pharmacopœia process would not contain ·75, but from ·5 to ·6 per cent. of morphine. In the present case, two or three of the tinctures were not made from powdered opium; in one instance they were told it was not, and in two others the character of the tincture seemed to show that it had been made from moist opium; it was lighter in colour, and on evaporation there was more of the characteristic smell of opium than from the powder. Furthermore, in the estimation the alkaloid came out a little more freely, and all seemed to point to their being made from moist opium.

GLYCERIN OVULES AND SUPPOSITORIES.

By E. Lomuller.

Now that suppositories and ovules containing glycerin have entered the dominion of pharmacy, it will not be altogether useless, perhaps, to give a new *modus operandi* for their preparation. The usual formula for their manufacture is with general accord given as follows:—Isinglass or gelatin, distilled water, and glycerin. Such suppositories have the great disadvantage of being more or less sticky, of adhering frequently to the mould, and when the mass is not sufficiently homogeneous, of giving defective, opaque, and dirty grey coloured products. The author has tried various excipients having the power of solidifying glycerin, but none have given completely satisfactory results.

Finally, he had recourse to agar-agar, or gelidium corneum, and believes he is right in his preference for it. These are the proportions used:—Agar-agar, in small pieces, 10 grammes; distilled water, 200 grammes. Make a smooth soft paste by the aid of heat, stirring constantly, and then add glycerin, 200 grammes. Mix thoroughly, add any medicament required, and strain. The suppositories and ovules obtained are transparent, less elastic than those made with gelatin, and more easily detachable from the moulds and from the capsule used to make the mass in, from the little tendency it has to become granular or lumpy. It seems, therefore, from the double point of view, cleanliness and ease of manipulation, it is advantageous to substitute agar-agar for gelatin, and its price is equally low with that of gelatin.—*Il Giornale di Farmacia.*

Artificial Vesicant.—Menthol, 1 gramme; chloral hydrate 1 gramme; cacao butter, 2 grammes; spermaceti, 4 grammes. Make an ointment and spread on lint or adhesive plaster. This is a mild and painless blister (*Il Farmacista Italiano*).

THE WEIGHTS AND MEASURES OF THE BRITISH PHARMACOPŒIA *VERSUS* THE METRIC SYSTEM.*

BY WILLIAM ELBORNE, B.A., F.C.S.,
Pharmacist at University College Hospital.

A silent change is taking place, one which many of us are helping to bring about, and its issue will be rather of a revolutionary character; it is no less than the severance of the axis around which English pharmacy has for many years revolved. The grain, the scruple, the drachm, and the ounce, together with the Roman numerals, the ancient symbols of the prescription, the old masonic signs between prescriber and dispenser are ultimately to be done away with, and at last we Anglo-Saxons are to think and chatter in a foreign tongue. In the new circumlocution a plain 5-grain blue pill becomes pil. hydrarg. 0·324 gramme, or 3·24 decigrammes, or 32·4 centigrammes, or 324 milligrammes; and a 2-ounce black draught becomes mist. sennæ co., 56·794 cubic centimetres.

I allude to the recent memorandum issued by the Therapeutic Committee of the British Medical Association in reference to the approaching revision of the British Pharmacopœia:—"The metric system of weights and measures should be introduced, the equivalent in avoirdupois weight and imperial measure being added as alternatives. In the Pharmacopœia for 1885, a great advance was made by the parts and fluid parts of the materials used in galenica-compounds being given in many instances, as well as the weights and measures in grains and ounces. The principle then adopted might be still further extended. The general employment of the cubic centimetre for liquids, and the gramme for solids as in the American (U.S.) Pharmacopœia might with advantage be adopted."

Among the reasons assigned for the legislation or permissive use of the metric system in this country is primarily that its introduction would facilitate and be more advantageous to our foreign commerce, and the Select Committee of the House of Commons after having received evidence from witnesses representing many different interests, official, commercial, manufacturing, trade, educational and professional, have recommended as follows:—

(*a*) That the metric system of weights and measures be at once legalised for all purposes.

(*b*) That after the lapse of two years the metric system be rendered compulsory by Act of Parliament.

(*c*) That the metric system of weights and measures be taught in all public elementary schools as a necessary and integral part of arithmetic, and that decimals be introduced at an earlier period of the school curriculum than is the case at present.

Thus by the legislation or permissive use of the metric system having been obtained, there would be no impediment to its immediate introduction into our Pharmacopœia, and by donning this mantle of science it is considered that we should be progressing more with the times, and that our Pharmacopœia would thus assume a more imperial or even international character, or at least be more in harmony with the pharmacopœias of France, Germany, and the United States.

Now as regards the metric system, considered by itself, for ensuring international uniformity in matters of science, it is at once the most simple and excellent, and is voluntarily adopted by physicists and chemists of all nationalities, and as we know has been adopted by English pharmacists in their investigations and research for many years; it is also already and justly recognised in our Pharmacopœia in the preparation of our volumetric test solutions. At present, however, it is not, I fear, sufficiently well-known among us to warrant its sole adoption into the formulæ of our Pharmacopœia (which is not I understand intended at present, and of the evils attending its adoption in half measures I propose to speak further on), neither is the successful experience attending its introduction into France and Germany (its native land) and into the United States Pharmacopœia, any strong argument for Englishmen.

Moreover our B.P. was never written primarily for the promotion of foreign commerce, but expressly for the safety of the public and ensuring uniformity in the daily distribution of medicine throughout the vast British Empire.

Now, however closely pharmacy may be allied to the exact sciences, we must never forget that the practice of medicine and pharmacy is essentially an art; and probably the whole root of the matter in reference to this sought-for change is that we have become, as it were, so fashionably intoxicated with the modern spirit of science that we are at last failing to discern the vested interests of our art; and, as in every noble edifice, the higher we rise in the superstructure the further we get away from the foundations, yet, however unconscious we may become of their presence, they nevertheless undoubtedly exist, deeply rooted in the soil. And while it is most desirable that in matters of science all measurements should be expressed in the metric system, yet at times it is well to be mindful that the arts of life existed long before science was dreamt of, and that a considerable portion of what science we know, owes its origin to the interpretation of the arts. We should also distinguish that science, which has no vested interests to protect, and whose aspiration is ever to see the one in the many, and to merge technicalities and particulars into the general, possesses an unbounded privilege by no means aspired to in the arts, viz., of daily revising her standards, and welcoming any revolutionary measures of discovery with open arms.

Now if our pharmacopœial weights and measures (including the apothecaries' weights), were involved in any real defect or fundamental error, their abandonment would be justified. But such is not the case, in fact they are based on foundations a little more solid than those of the metric system, for they are what they were intended to be, whereas that cannot be said of the metric system, inasmuch as the metre, the base of the system, was intended to be the ten-millionth part of a quarter of the earth's meridian, which it is not. Apart from such philosophical trifling, one of the most valuable and characteristic features of the British system is that it is a convenient natural growth, and an inheritance eminently adapted by experience, that master of undoubted authority, for efficiently carrying on our busy art in the shop, surgery, or dispensary. And the fluid grain is the measure of 1 grain of water.

The British legal standard of mass, called 1 lb. avoirdupois, is an arbitrary lump of platinum, and 1/7000 part of it is called a grain (troy, avoirdupois, and apothecaries' grain), which latter, says Mr. Davies Gilbert, a former President of the Royal Society, "the College of Physicians have expressed themselves most anxious to preserve" (McCulloch's 'Dictionary of Commerce,' London, 1832, p. 1102). The avoirdupois ounce weighs 437·5 grains and the volume of 437·5 grains of water at 62° F. is called the fluid ounce.

On the other hand, the metric system, one of the results of the great French Revolution, introduced in 1799 and legally established in France in 1840, is eminently artificia ; its standard of mass is a lump of platinum called the kilogramme, intended to have the same mass as a cubic decimetre of distilled water at 4° C. The lowest denomination of this standard is the milligramme, which is the millionth part of it, and 1000 of such parts constitute the gramme. Confining our attention to the measurement of mass, the lowest denomination of our avoirdupois pound is the grain, and the great advantage of this unit for the purposes of medicine is that it is a quantity, as the word grain suggests, very small, yet

* Read at the Pharmaceutical Conference at Bournemouth.

readily comprehended, whereas the milligramme is a quantity so exceedingly small that it is almost imperceptible, and it is difficult to think in terms of it. We could perhaps form a better idea of it if we were to weigh out 1 grain of, say, pilula hydrargyri and imagine our small 1-grain pill equally sub-divided into sixty-five other very little pills; each of the latter would then weigh a milligramme. Our grain consequently equals 65 milligrammes, and this expressed in terms of the gramme is 0·065; and which is easier to think of, our original small pill in terms of 1 grain, or in terms of 65 milligrammes? And to arrive at pil. hydrarg., gr. v., which is the easier calculation, to multiply 1 by 5, or 65 by 5, arriving at 0·325 Gm.? And for half a grain, which is easier to divide, 1 by 2 and write ½, or to divide 65 by 2 and write it 0·032 Gm. or 3·2 centigrammes or 32 milligrammes? But suppose a slight error be made in the insertion of the decimal point, is the mistake so readily discoverable as in our British system? The dose of morphine, for instance, is, say, ½ grain (0·032 Gm.), but if by mistake it were written 0·32 Gm., would the error be so patent as in its English dress, gr. v.? Here is a case in which 1000 times the quantity of atropine ordered was dispensed in mistake: "A fatal case of poisoning is reported from the United States as having occurred in Brooklyn through a dispenser mis-reading the following prescription:

Atropin sulphurici	1·5 mg.
Aquæ.....	30·0 Gm.

M. S. As directed.

Misled by the unusual way in which the dose of atropine was written, the dispenser read it as 1·5 grammes, and dispensed the solution accordingly; in extenuation it was urged that the dose should have been written 0·0015 Gm. . . . . We may remark that a confusion similar in nature to that obtaining in the dispenser's mind, though perhaps not to the same degree, may be met with not unfrequently in the literature of countries where the metric system has been used longer than in the United States." (*Pharm. Journ.* [3], vol. xv., p. 901). Some of us will perhaps wonder what this has to do with the application of the metric system to the B.P.; all I can say is that by its introduction will not metric prescribing and possibly this sort of evil necessarily follow?

Now the consistency of the French in the use of their metric system, is due to the absence of the cubic centimetre from their pharmacopœial formulæ (in the Supplement of the Codex recently issued, the measuring of liquids for alkaloidal solutions has been adopted), all their pharmacopœial preparations being prepared by weighing, and likewise dispensed by weight in grammes. In consequence, percentage solutions are regarded in terms of weight, and a 5 per cent. solution of, say, camphor, in alcohol specific gravity ·838 would mean 5 grammes of camphor dissolved in 95 grammes of alcohol; but the spirit alone would measure about 113 cubic centimetres, and herein lies the crux of international discord regarding so simple a matter as percentage solution, for we English who just as consistently prepare and dispense all our liquid medicines by measure, regard a 5 per cent. solution (of a solid) by weight in measure, as for instance grains in fluid grains, whatever be the solvent. And instead of in grains and fluid grains, to express it as grammes in cubic centimetres is practically one and the same thing, for disregarding temperature, the gramme is 15·432 grains, and the cubic centimetre is another name for the fluid gramme. But for prescribers and dispensers—the people who chiefly use the Pharmacopœia—this expression of a percentage solution in grains and fluid grains is not exactly what is wanted; what we want to know is, regardless of the grain measure not being a minim, how many grains of an alkaloid or what not there are in 100 minims of the solution, and since all medicines are prescribed by measure, that is I believe, a prescriber's view of a percentage solution.

(*To be continued.*)

OXYGEN AS A FUNDAMENTAL REQUIREMENT OF LIVING MATTER.*

BY W. MARCET, M.D., F.R.S.

Our conception of life, vitality, or vital force has become more definite since Virchow perfected the cell-theory of Schwann, and showed that the life of complex organisms is the sum of the life of their component unit-organisms—cells. Instances of the tenacity of life in vegetable cells are well known, and amongst them the lecturer recalled Robt. Brown's observation of the germination of some seeds of the Nelumbian water-lily after they had been kept for 150 years. The vital resistance of seeds is also shown by their surviving exposure to the greatest degree of cold obtainable by artificial means. Loss of vitality is followed by chemical decomposition, which begins with the combination of the oxygen which forms part of the molecules of living matter. "Once that oxygen is gone, recovery of life is impossible." In animals this chemical death is marked by the muscular tissues assuming an acid reaction. The acid thus formed has been accredited with the production of rigor mortis—the first unequivocal sign of somatic death. Oxygen, we must conclude, remains unchanged in seeds which retain their vitality for long periods, but in the absence of water and certain bacteria, which have been found necessary to vegetable growth, this oxygen cannot be made use of, and the vitality of the seed remains latent, at the same time that certain atmospheric conditions prevent death, *i.e.*, the combination of the molecular oxygen.

Applying these facts of plant life to animals, the lecturer put forward the query: "Given an animal suddenly placed in a state resembling death, but in which it could retain its combined oxygen, would it not be possible to retain its life in obeyance, and ready to be restored on a return to favourable circumstances?" An affirmative answer to this question is found in the record of some experiments by a physicist, Raoul Pictet, who was the first to liquefy air. Fishes were rapidly frozen so hard that they could be snapped like a stick, and yet when very gradually thawed they recovered life. In these experiments the molecules of tissue were frozen before they had time to dispose of their oxygen.

Without oxygen no metabolism, none of the phenomena of life, can take place. It is not the simple apposition of atmospheric oxygen and living tissues that causes the vital changes in the latter, but the changes going on in the tissues demand fresh oxygen for their continuation. One of the first objects of the oxygen-consuming metabolism is the production of heat, which consists in a vibratory molecular movement. In cold-blooded animals this molecular movement is wholly, in the warm-blooded partly converted into molar or mass motion, imperceptible to the thermometer. An excised muscle contracting in vacuo produces a measurable quantity of carbonic acid, showing that the oxygen required for the production of heat is contained in the tissue itself. This view explains the immediate response of muscles to the will. A sudden muscular contraction is not to be looked upon as due to direct oxidation, "but appears to result from some power of an explosive nature with which oxygen would be concerned."

The Effects of Cold.—In warm-blooded animals the application of a moderate degree of cold to the body increases the consumption of oxygen, the production of carbonic acid, and that of heat. On the other hand, excessive cold tends to lower the vital energy, especially at low barometric pressures in persons unaccustomed to them. Thus Dr. Marcet and a friend spent three days at an altitude of 11,000 feet. Determinations of the amount of CO_2

* Abstract of a Croonian Lecture recently delivered before the Roya[1] College of Physicians.

expired were taken in the valley before the ascent was made, with a temperature of 71° F. and the barometer at 29·948 in. At the summit the temperature was 43° and the barometer 20·09 in., and the estimation of CO_2 was repeated, with the result that instead of a greater amount of CO_2 the latter was found to be 12 per cent. less in the case of Dr. Marcet, and 16 per cent. in the case of his friend. Both felt languid and lost appetite at the high altitude.

Pictet has found that at a temperature of −130° F. hydrochloric acid will not combine with metallic sodium. Thus excessive cold tends to arrest all chemical changes. Warm-blooded animals resist the depressing action of cold for a considerabie time, but, as Pictet observed, when their power is on the wane death takes place in a few minutes, the temperature in the centre of the body remaining nearly constant to the end of the struggle for life. Cold-blooded animals usually die at a temperature below −22° F., but they are capable of resisting freezing. Thus Pictet exhibited to an audience frozen gold-fish, pike, and frogs, which were again shown alive and well, after slow thawing, to the same audience at a subsequent lecture.

The Effects of Muscular Exercise.—"We have now to consider a state of life which to my mind bears some relation to the increased production of carbonic acid in the body from an accession of cold —I mean muscular exercise. The successive phenomena in muscular contraction are as follows: First, volition towards exercise produces an increase in the volume of air breathed, which occurs immediately before contraction or simultaneously with its commencement. At the same time, as will be shown in my third lecture, a certain amount of oxygen is absorbed in the motor centres of the brain corresponding to that muscular exercise. An excess of carbonic acid is now expired, which at first obtains its oxygen from that contained within the muscles, and in proportion as this is used up the oxygen required is taken from the air breathed, the muscles at the same time charging themselves afresh with oxygen from the atmosphere. A number of experiments I made confirm this view. I must also state that we do not know by what process the carbonic acid is formed."

The author explains the discordant accounts of the effects of mountain ascents upon the body temperature by the conclusion that the effect varies in different individuals according to whether the work is done soon after a meal or fasting, and whether there is much or little perspiration. In most persons a fall of temperature is noticed when fasting and perspiring freely, while young persons in good training and perspiring freely may experience a rise of temperature.

Since 1849 (Regnault and Reiset) it has been known that a marked volume of oxygen is taken in at the lungs, which fails to re-appear as CO_2 in the expired air. The question naturally arises as to what becomes of the oxygen which has thus disappeared. Before that question can be answered, due consideration of certain factors which modify the amount of CO_2 expired must be taken into account. First among these are the effects of different foods. Edward Smith showed, in 1859, that fats, oils, and starch diminish the CO_2 expired, whilst tea, sugar, coffee, rum, milk, cocoa, etc., increase the amount. Though rum and pure alcohol increase the expired CO_2, gin, whiskey, and brandy diminish it. The effects of barometric pressure further complicate investigations which seek to measure the effects of any one factor on metabolism; thus, Paul Bert showed that animals perish under diminished atmospheric pressure in exactly the same way that they do when left in a closed vessel. The conclusion that he drew was that death was due to want of oxygen, and not to the presence of an excess of CO_2. For the purpose of investigating some of the factors which determine variations in the amount of oxygen consumed, of Co_2 expired, and variations in the rhythm, depth, etc., of respiration Dr. Marcet constructed a delicately arranged series of iron bell-jars equipoised by pulleys over water. The subject of the experiment inspired fresh air through the nose, and expired through a tube connected with the mouth into one of the bell-jars. By means of a style fixed to the top of one of the bell-jars, and a rotating drum, the amount of air expired each minute was recorded on a chart. It was found that the volume of nitrogen in the expired air afforded an accurate measure of the amount of air inspired.

The period of the maximum absorption of oxygen was found to be within the first hour, after a mid-day meal, and coincides with a low amount of expired CO_2. The oxygen is required to prepare for the assimilation of ingested food, and for the tissue changes which it entails. Further it was observed that two hours after a meal the amount of oxygen absorbed per minute was considerably greater than when fasting. Thus the ratio $\frac{CO_2 \text{ produced}}{\text{Oxygen consumed}}$ was found to vary considerably under the influence of food.

The different Forms of Respiration.—The author recognises four different modes of respiration:—

1. Automatic breathing in repose,
2. Forced or laboured breathing whilst the body is in a state of repose.
3. Breathing while under muscular exercise.
4. Breathing while the body is at perfect rest, with the mind or imagination actively at work towards the exercise of volition.

During forced respiration not only is a greater amount of air expired, but more oxygen is absorbed and more CO_2 given off than in normal breathing. The increased consumption of oxygen is accounted for by the increase in muscular work. This also accounts for some of the increase in CO_2 exhaled; the rest of the CO_2 over and above the normal is due to increase in the amount liberated from the blood at the beginning of forced respiration. When forced respiration is desisted from, a short period of shallow breathing (relative apnœa) is observed before normal respiration re-commences. The amount of CO_2 evolved is greatest at the beginning of forced respiration and gradually diminishes with the continuation of the experiment.

In the third form of breathing, namely, that under muscular exercise, farther differences are observed. The quantity of respired is greater from the beginning of the exercise, and if the latter is uniform the increase in the quantity of respired air also remains uniform. On cessation of the exercise, as when the subject of the experiment sits down in an easy chair, the increased respiration continues for some time unless a few forced inspirations are taken. Dr. Marcet points out a practical application of this last observation, namely, that a person out of breath from muscular exercise would experience immediate relief from a few deep gasps taken after assuming a state of repose. The causes of the peculiarities of breathing under exercise are, first, the want of more oxygen to supply the heat required for muscular work; second, an increase in the amount of CO_2 produced, this increase is in excess of the amount that can be separated at each expiration, and therefore CO_2 accumulates in the blood to be separated on assuming the state of repose.

Gilding Silk.—It is stated to be possible to gild silk by means of electrolysis. The fibres are made to conduct by treatment with silver nitrate and subsequent reduction by means of sodium bisulphite, or glucose and dilute alkali. Instead of silver, lead or copper acetate may be used, and by treatment with sulphuretted hydrogen or dipping into an alkaline solution of thiourea the fabric may thus be coated with a conducting surface of metallic sulphide, and then electroplated in the usual way. The silk thus prepared is said by Silberman (*Chem. Zeit.*) to retain its flexibility and feel.

CORRESPONDENCE.

[*Letters to the Editor should be written as concisely as possible, on one side of the paper only, and preferably with name and address for publication.*]

MR. BARNARD S. PROCTOR ON THE "PHARMACEUTICAL JOURNAL" AND TRADE.

Sir,—So long as the *Pharmaceutical Journal* was a monthly periodical, I habitually read almost every page in every number Now that it has undergone a second enlargement, a greater percentage of its contents fails to claim my critical attention. I would not have it supposed in consequence that the change does not meet with my approval. Far from it, for if I wished it to contain nothing but what was acceptable reading for myself I should write myself down a narrow-minded and a selfish man.

The Journal of the Society ought to appeal to pharmacists as a whole, and to be regarded as the most valuable source of current information upon all matters connected with their trade. I know not whether the change has been brought about purely at your own initiative, or at the suggestion of the Council of the Society, but under either circumstance we are much indebted to the originator of the improvement and to the editorial staff, who carry out the many-sided task of supplying matter to suit all pharmaceutical requirements.

I rejoice to see the greater prominence given to trade information, for I believe much injury to pharmacy is consequent upon the neglect of the trade side of the pharmacist's education, and upon the false notion that success in business should be consequent upon the passing of the examinations.

Some would-be leaders in pharmacy urge upon us that we may claim the title and emoluments of a profession for operations of a trade. Pharmacy is admittedly a trade giving scope for the exercise of skill and the application of intellect, but it includes also many transactions not involving any notable amount of either skill or responsibility.

The man who cuts your hair or cleans your watch makes a professional charge for his services. He does not give goods for money, which is the characteristic of trade. We, who supply a bottle of castor oil or dispense morphine pills, sell the goods which we have purchased or produced, the former sale involving no element of skill or no cousinship with professional work. The latter transaction, though involving some skill, and it may be also knowledge and responsibility, is as purely an act of trade as would be the making and selling of a pair of boots. Both are perfectly honourable to a man who conscientiously does them to the best of his ability.

The dispensing of medicine is an unprofessional practice which we readily enough think ought not to be the habitual work of a qualified medical practitioner; it brings him down to the position of a tradesman. Not that a tradesman is necessarily less honourable than a professional man, the discreditable thing is to claim a professional status while acting on trading methods. A professional pharmacist should be one who for a fee supplies information or guidance in pharmacy; not the amateur lecturer who gives his services with no remuneration but that of feeling himself a lecturer, such a one is a "cutting" professional, and makes it the harder for the truly professional pharmacist to earn a living by the sale of his information and guidance. I acknowledge to having lectured for fees and without fees, and I feel that the former is more creditable both to the lecturer and his pupils. The latter should only occur when there is no professed teacher in the field, and when the coming pharmacists are too poor to pay market value for their education. It is not an unqualified good to encourage such to enter the trade.

Pharmacy will flourish when those who practise it have such reserves of financial and mental resources as will enable them to do justice to their customers by buying well and selling on such terms as do not drive purchasers to seek better sources of supply, and do not tempt other tradesmen to deal in drugs which are in their nature untempting in every respect but that of yielding unusual percentage of profits.

Your market reports should show us what is a reasonable margin of profit to the wholesale dealer, and afford us a clue as to how we should retail drugs on lines analogous to those we feel justifiable on the part of the wholesale firms supplying us. Then we should do as we would be done by—but I fear that is too moral and too philosophical for the leaders in pharmacy; they think it discreditable, disreputable even, to get any but "good prices" from a retail purchaser. They feel it degrading to their scientific attainments that goods should be sold in their establishments at the same prices as are charged for the same goods by the ignorant men who keep cutting shops. I think it very creditable to Messrs. Howards and Sons that I can buy from them mercurials and bismuth salts at as good prices, that is as low prices, as I should pay to less qualified manufacturers; and if I pay more for their quinine than for other brands it is in the belief, not that Messrs. Howards are very illustrious men, but that the article paid for is in some respect better. This is a true and honourable trading principle, even though it be the force which moves the whirlwind of modern trade. The leaders in pharmacy cannot altogether ignore the trade element in our calling. Even the President of the Pharmaceutical Conference, though emphasising the claim of pharmacy to a professional status, speaks of the "retail pharmacist." Can pharmacy be retail if it be a profession? Perhaps I should ask, can it be a profession if it be retail?

There is some scope for chemical trade connected with photography and other arts, which should legitimately fall into the hands of the pharmacist, as he is the only person legally qualified to retail poisonous chemicals. Your articles upon photography and optics will be both useful and interesting to those who are commencing those branches, though they are branches more fruitful of pastime than of profit. A considerable amount of money may be turned over in the sale of plates, chemicals, and apparatus, but it will generally be found that the profits are poor excepting where the sales are small, scarcely as good as the profits upon drugs, even at cut prices, and the trade is not in such close harmony with dispensing. However, it is better than the nostrum trade. However perfect the nostrums may be pharmaceutically, the trade in them is an encouragement to bad medical practice, and the photographic trade is free from that.

I do not expect to see the day, but I rejoice to think that it must come, when pharmacists shall be not only so good scientists as to be equal to any problem in the preparation of medicines, but so good tradesmen that the public shall have no inducement to support ignorant dealers in drugs. It may be that your position, official and representative of the whole body of pharmacists, forbids your direct advocacy of the views which I hold; but I am quite satisfied that the course you are pursuing will meet with general approval, and will ultimately promote the progress of pharmacy in the dual direction of better science and better trade, better practice and less profession.

Grey Street, Newcastle, BARNARD S. PROCTOR.
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INTERNAL SECRETIONS.

The growing importance of medication by means of extracts made from ductless glands, such as the thyroid, has aroused the greatest interest on the part of both medical practitioners and of pharmacists. For this reason the address given in the section of physiology at the meeting of the British Medical Association, by Professor Schäfer, calls for careful attention. By secretions are usually meant the substances which are separated from the blood by glands, and after undergoing certain modifications, are poured out either on the exterior of the body, or upon a surface connected by ducts with the exterior. "On the other hand, some secreted materials are not poured out on an external surface, but are returned to the blood." These are named by Professor Schäfer the "internal secretions," and glands which elaborate only such internal secretions are termed ductless glands. Many glands which furnish external secretions may be removed without any marked symptom supervening. The salivary and mammary glands are instances of this. In the case of other glands provided with ducts, such as the liver and pancreas, extirpation is followed by death. This is not due to the loss of their external secretion, which may be wholly diverted from its normal channel and removed from the body by means of an artificial fistula without fatal or even serious consequences. Thus the inference is that it is the loss of their internal secretion which determines inevitably a fatal result. Among the internal secretions of the liver are sugar and urea. The former an example of a useful internal secretion, the latter of an internal excretion destined to be separated from the body by the kidneys. In the case of the pancreas, an anatomical peculiarity is to be noticed; it consists in the presence of islands of epithelial cells richly supplied with blood-vessels, but unconnected with the ducts of the gland. In many cases of fatal diabetes the pancreas has been found to be atrophied or practically destroyed by disease, thus suggesting a connection between diabetes and disease of the pancreas. The reality of the connection has been proved experimentally. For, in the first place, fasting animals which have survived for a few hours the removal of the pancreas have exhibited the phenomena of diabetes—glycosuria and polyuria, whilst animals in which the part of the gland concerned with the elaboration of the external secretion has been destroyed by blocking the pancreatic duct, have remained in perfect health. Moreover, if a portion of the gland be left in the animal no symptoms of diabetes occur, and if a sufficient part of the pancreas of the same or another animal be grafted under the skin or elsewhere, subsequent removal of the pancreas is no longer followed by the usual symptoms—in fact, the animal may remain in perfect health. Having thus clearly defined the meaning of the term, the lecturer passed to the consideration of the internal secretion of the thyroid gland. The organ is developed as a pouch from the mucous membrane at the back of the tongue, but its communication with the exterior becomes obliterated; its secretion (colloid) collects in closed follicles lined by epithelial cells. Hale White has observed that the gland tends to undergo some structural degeneration in old age. In 1856 Schiff showed that in dogs removal of the thyroid is invariably followed by nervous disorders and death. In 1874 Gull, and 1878 Ord, showed that in a disease called myxœdema the thyroid is invariably atrophied, and in 1882 J. and A. Reverdin recorded the fact that removal of the whole gland in persons suffering from goître produced the symptoms of myxœdema. Schiff had observed that by grafting a portion of the gland under the skin of a dog previous to the removal of the gland the subsequent symptoms were prevented. Horsley, by employing monkeys, which survive the operation longer than dogs, found that in them as in man total removal of the gland is followed by myxœdema. The leading symptoms of this disease are partly nervous, partly metabolic Among the first group are muscular tremors passing into spasms and finally into convulsive attacks, the latter show themselves by distension of the subcutaneous tissues with a fluid rich in mucin, the integument swells, becomes dry, and the hair falls out. These effects can be entirely prevented by grafts, which are permanent in their action, and for a time, at least by the administration of fresh gland or juice either subcutaneously or by the mouth as was first shown by G. R. Murray.

To explain the effects of removal of the thyroid, a view has been advanced to the effect that the gland destroys noxious substances (waste products) which would otherwise accumulate in the blood from the activity of other organs; this auto-intoxication theory is opposed by the remedial action of the juice or extract of the gland which the "internal secretion" theory explains. George Oliver noticed that the exhibition of thyroid preparations caused dilatation of the radial artery, and Professor Schäfer finds that extract of the gland, whether prepared by water or by glycerin, and whether previously boiled or not, causes a rapid fall of the general blood-pressure, although the heart's action remains the same. Thus the fall of blood-pressure was seen to be due to dilatation of the blood-vessels alone. This fact is in harmony with the observation of Lorraine Smith, who observed that animals deprived of the thyroid do not reach to changes of temperature like normal animals. In the latter a moderate degree of cold does not produce a fall in the temperature of the body, which is sustained in the first place by diminution in loss of heat, effected by contraction of the cutaneous blood-vessels, and after an interval by increased oxidation. The former phenomenon is wanting in animals deprived of the thyroid gland, although the latter is present. Another ductless gland, the pituitary body, is developed in part like the thyroid gland. Its removal in cats has been found to be followed by death, which takes place usually within a fortnight, and is preceded by a fall in body-heat, lassitude, muscular tremors, passing into spasms and dyspnœa. In

man pathological enlargement of this gland is found to be associated with a disease—acromegaly—in which the bones of the face, hands, and feet become greatly enlarged. Injection of boiled extract of this gland causes, Schäfer found, a rise of blood-pressure, due to increased force of the heart-beat accompanied by contraction of the arteries. The latter being exactly the converse of what was observed in the case of thyroid extract.

Finally, the author, with the assistance of Dr. G. Oliver, investigated the effects of extract of the suprarenal bodies. These ductless glands are associated with a fatal and not very uncommon affection —Addison's disease—in which the skin becomes pigmented, there is great muscular weakness, and generally within a few months death from syncope or exhaustion, due to vomiting. When the glands are removed from animals, death rapidly supervenes. It was found that the central part of these organs contain a dialysable substance, which affects the skeletal muscles, the muscular walls of the arteries, the heart, and important nerve centres in the medulla, viz., the cardio-inhibitory and, to a less extent, the respiratory centres. On the skeletal muscles the effect resembles that of the poison veratria, that is to say, each single "contraction" shows a lengthening of the phase of shortening, and an enormous lengthening of the phase elongation of the muscle fibres; as to the heart, when the vagi are intact the extract arrests the action of the auricles, whilst the contractions of the ventricles continue, but more slowly; when the vagi are cut the action is reversed; the strength, and frequently of the auricular contractions are increased. On the arteries a minute dose of the extract has the effect of causing a contraction and a consequent rise of blood-pressure, when the vagi are cut this rise of blood-pressure is extreme. That this effect is the result of a direct action on the muscle of the vessel-walls is shown by its taking place after the vasomotor nerves have been divided. This remarkable effect, no matter whether produced by a minute or a large dose, passes off after a short time. The probable explanation of this is that the material is "packed away" in the muscles, where its action lasts much longer than on the heart and blood-vessels. In concluding the address Professor Schäfer predicted a great future for the subject, a prediction which has already promise of fulfilment in a report of a case of Addison's disease which appears to have been benefited by suprarenal extract.

FOREIGN MEDICINES IN CHINA.

In the Consular Report (No. 1577) on the trade of Ichang, China, for the year 1894, it is stated that foreign medicines and worm tablets figure in the import table to the value of £2500. Foreign drugs are said to be much appreciated by the natives, especially quinine, which seems to be universally known, but there are few places in the interior where they can be purchased. Though local chemists in Hong-Kong and Shanghai have their agents in some of the larger cities, the quantities they dispense are too large for the requirements of the ordinary native, to whom a disbursement of the equivalent of a penny is often considerable. Acting-Consul Brady considers that a large business might be done by any enterprising wholesale firm which would make up small quantities of medicines in an attractive form, with full and concise directions in Chinese on the wrapper. Worm tablets are exposed for sale on the street stalls of almost all the cities in the eighteen provinces, besides being hawked about the country by pedlars, and quinine is an article for which travellers are continually being besieged by the Chinese, who consider it a panacea for all ills, whilst the demand for it would soon increase if it were placed on the market in a cheap form. It is pointed out that there are many other simple remedies such as sulphur ointment, boracic acid, santonin, iodine, zinc ointment, a good purgative pill, and an anti-diarrhœa medicine, for which if once fairly placed on the market a ready demand would spring up. The essential conditions of success are "that the medicines should be disposed of in small quantities, at the cheapest possible rates, and that each packet should be accompanied by explicit directions as to the dose to be taken."

PHARMACISTS AND MEDICAL MEN IN BELGIUM.

In the report of the pharmaceutical congress held at Brussels (see page 193) it is interesting to notice that the Belgian Minister of Agriculture stated, by his deputy, that the Government intended to suppress the practice of medical men supplying their patients with medicine. It appears that a Commission has been appointed to draw up new medico-pharmaceutical laws, and the chief work of the congress was the consideration of such matters as might assist the Government in rendering those laws generally satisfactory. Amongst the more important conclusions arrived at, after due deliberation, were those which recognise (*a*) the necessity of suppressing the system by which numerous pharmacies are conducted by managers instead of legally qualified proprietors, and (*b*) the desirability of establishing a minimum tariff. It was also considered desirable to limit the number of pharmacies, either by legal enactment or by increasing the stringency of the examinations. The latter plan has already proved effectual in reducing the number of pharmaceutical students in Belgium. The idea of establishing unanimity in the prices charged for dispensing medicines, by marking the sum charged on the prescription, is also worthy of note, as well as the suggestion that the pharmacien should make it his business to analyse alimentary substances. The congress is stated to have been extremely successful from all points of view, and the whole report will be found of considerable interest to British pharmacists.

FORGERY OF MEDICINE STAMPS.

In the House of Commons on Tuesday, Mr. Curzon, replying to Mr. Tomlinson, who asked a question relating to the wholesale forgery in France of patent medicine labels and stamps, whereby loss was entailed upon the British revenue and upon British manufactures, said that representations had been made to the French Government with a view to the prosecution of the offenders. There had been some delay in the matter, but no reasons existed for believing that the French Government would fail to carry out its treaty obligations.

STUDENTS' NUMBER OF THE JOURNAL.

Secretaries of provincial pharmaceutical associations interested in pharmaceutical education, and principals of schools where pharmacy students can receive special instruction, are reminded that the students' number of the Journal will be published on September 14, and that particulars of classes, etc., should be in the Editor's hands as early as possible next week.

REVIEWS AND NOTICES OF BOOKS.

John Dalton and the Rise of Modern Chemistry. By Sir Henry E. Roscoe, D.C.L., LL.D., F.R.S. (London: Cassell and Co., Ltd.)

In beginning a series of biographies of scientific men, Sir Henry Roscoe could not go wrong in choosing so solid and interesting a personality as John Dalton, nor could any one more appropriately than Sir Henry, himself a distinguished chemist and a son of Manchester, write this sketch of the great Manchester teacher.

The life history of such men is always interesting, and it is important that their scientific successors, as well as the general public, should have the means at hand of forming some clear conception of their character, mental powers, methods of work, and even of their social and personal relations. This little volume forms very pleasant reading, and presents a very clear picture of the man. Several excellent lives of Dalton have already appeared, and this last is admittedly much indebted to them, but it also gives a great deal of new matter, especially in relation to Manchester, and forms a most welcome addition to our knowledge.

Dalton was undoubtedly a man of great natural genius, but he had also an abundant endowment of that other form of genius "the infinite capacity for taking pains." This is well expressed by the author thus: "Speaking once to a young man, Dalton said: 'Thou seems to have better talents than I possessed at thy age; but thou may want the thing I had a good share of—perseverance.' If this is not everything, without it there can be nothing. Perseverance made him the best scholar in Pardshaw school; it enabled him to make 200,000 meteorological observations; it rendered it possible for him to establish the Atomic Theory, and it gained for him the highest recognition which a man of science can attain—a seat as one of the eight foreign associates of the French Academy.

One of the most noteworthy personal characteristics of Dalton was his colour-blindness, for it furnished the subject of his first paper to the Literary and Philosophical Society of Manchester, entitled "Extraordinary Facts Relating to the Vision of Colours, with Observations by Mr. John Dalton," and read on October 31, 1794. In this subject he was almost the first observer, and for many years he gave attention to it, but neither he nor the many who have followed have been able to give any adequate explanation of the facts, although much information has been gathered as to the nature of the facts themselves. The great importance of the question in relation to the use of coloured lights for signalling purposes is manifest, and it is far from reassuring to read on p. 87 that an English railway official recently explained the method adopted by his company for testing the eyesight of their servants to a committee of the Royal Society, and applied those tests in examining the sight of Mr. Rix, the Assistant-Secretary of the Royal Society, with the result that he pronounced his sight to be good and normal. When informed that Mr. Rix was colour-blind, he said "I must admit that Mr. Rix being colour-blind is an eye opener!" As Sir Henry Roscoe says, "it is also an 'eye-opener' to the public to be told that any great railway company test the eyesight of their engine drivers, guards, and signalmen with such precision that some of them are certainly unable to distinguish between a red 'danger' signal and a green 'safety' one."

It seems natural that Dalton, a "Friend" and a descendant of Friends, should in all his manner of life be punctual both in time and deed. His strenuous youth with diligent study and "perseverance" would intensify this habit. We are told that a lady, who lived nearly opposite his laboratory in George Street, used to say that she knew the time to a minute by seeing Dr. Dalton open his window to read off the height of his thermometers.

"For many years [1817 to 1844] President of the Literary and Philosophical Society, he was punctilious as to the commencement of the business of the meeting at seven, and even more so as to its termination at nine. One of his intimates was Peter Clare, one of the secretaries of the Society, and a clockmaker by trade. At Dalton's request, Peter presented to the Society one of his best clocks (it now stands in the meeting-room), which only sounds one stroke on the bell during the twenty-four hours, and that stroke is at nine o'clock in the evening; thus notice was given that the meeting must conclude." It would be a good thing for many modern societies if they had such clocks in their meeting-rooms. Could they be introduced under the name of the Scientific Society Clock?

With this regularity of habit it is not wonderful that when he came to London to deliver lectures he found the mode of life irregular. In a letter in 1809 he writes: "I am very regular with my breakfast, but other meals are so uncertain that I never know when or what. Hitherto I have dined at from two to seven o'clock; as for tea, I generally have a cup between nine and ten, and, of course, no supper. I am not fond of this way of proceeding." These visits to London to give lectures at the Royal Institution give a very interesting view of Dalton's nature, and from his letters some equally interesting accounts of other men as apparent to him. In 1804 "I was introduced to Mr. Davy. He is a very agreeable and intelligent young man, and we have interesting conversations in the evening. The principal failing in his character is that he does not smoke." At this time Dalton was 37 years of age and Davy 25. It is pleasant to think that their relations were very cordial, and that Davy gave his visitor all the help he could in preparing for his first lecture. "The evening before the lecture Davy and I went into the theatre. He made me read the whole of it, and he went into the furthest corner; then he read it and I was the audience. We criticised upon each other's method." These were early days with Davy, and, alas! Mr. Davy in 1804 and Sir Humphry Davy, Bart., of later years were not quite the same person.

Dalton's simplicity of life is shown when on a later visit to London (1809) he was too late to dine with Davy at the Royal Society Club at the Crown and Anchor, and had to seek his dinner at an eating-house. "Looking in at a window, I saw a heap of pewter plates and some small oblong tables covered with cloths. I went in and asked for a beefsteak. 'No.' 'What can I have?' 'Boiled beef.' 'Bring me some immediately.' There was nothing eatable visible in the room, but in three minutes I had placed before me a large pewter plate covered completely with a slice of excellent boiled beef swimming in gravy, two or three potatoes, bread, mustard, and a pint of porter. Never got a better dinner. It cost me 11½*d.* I should have paid 7*s.* at the Crown and Anchor."

Some of the stories here told of Dalton's quaintness and directness of speech are very interesting. For example, when a very long and stupid paper was being read at the Philosophical Society at Manchester, Dalton, being in the chair, whispered to the secretaries in a voice to be heard all over the room: "Well, this is a very interesting paper for those that take any interest in it." At another time he was suffering from catarrh, and his doctor ordered him a dose of James's powder. The next day he was better, and, the doctor, of course, attributed the improvement to his prescription. "I do not well see how that can be," said Dalton, "for I kept the powder until I could have an opportunity of analysing it."

Dalton's income, although very small, was made sufficient by the simple method of reducing his wants to the needful simplicity. He earned his living as a schoolmaster, that is, during the greater part of his life, by giving lessons to private pupils. At first he charged 1*s.* a lesson, afterwards increased this to 1*s.* 6*d.*, and ultimately to 2*s.* 6*d.* per hour. For a lesson in the laboratory 3*s.* 6*d.* In 1833, when he was in his sixty-seventh year, he was awarded a Royal pension of £150, and this three years later was doubled. This was surely not too much to be given by, as it has been put, the richest nation upon earth to the chief scientific leader of his epoch. But without saying a word against the propriety of affording national support to men of such exceptional power, it is, perhaps, questionable whether by so doing a proportionate increase in the amount of work accomplished would be attained. Such support would doubtless release them from the strain of self-support, and give greater leisure for work of more important character, and thus the amount of such work done would be somewhat increased, but not in proportion to the time devoted to it. Faraday achieved the marvellous discoveries embodied in his first series of 'Experimental Researches in Electricity' in ten days of experiment, but these were spread over as many weeks, and it could hardly be that the intervening time was wholly unfruitful, even though devoted apparently to other purposes. Thought, even perhaps scarcely conscious, was going on, and when the next day could be given to laboratory work the fruit was gathered. No doubt if Dalton had all his life been free from the labour of his private lessons he would have done more, perhaps much more, original work, but not in proportion to the time given to it.

Dalton's apparatus and manipulation was of the very simplest order, and he seems to have been contented with merely approximate results. Angus Smith says that he seems to have begun his experiments with his hands and finished them off with his head. His great power of detecting relations and appreciating proportions enabled him to see the true point to which the figures

he obtained approximated, and to seize on this amid a number of varying results. His apparatus is carefully preserved in Manchester, and includes old penny ink-bottles, rough home-made thermometers and barometers, a small balance and weights, showing that minute accuracy could not have been attained, and apparently was not sought. It was not lack of means which compelled the use of such appliances, but his mode of thought was such that he did not consider greater precision necessary. He was always ready and contented to make the corrections, and in the proper direction, necessary on account of imperfections of apparatus. As an instance, he investigated, in 1799, Count Rumford's statement that liquids are "perfect non-conductors of heat," by means of a conical ale-glass, two thermometers (probably home-made), and a red-hot poker, and concluded "that the quick circulation of heat in water over a fire is owing principally to the internal motion excited by an alteration of specific gravity; but not solely to that cause." As his apparatus was to a large extent made by his own hands, and his patient care where needful was inexhaustible, he could have attained much greater accuracy with no additional expenditure, except that of time, but he simply did not think it was required, and was content with results of less precision.

His extraordinary power of patient work is shown in his 200,000 meteorological observations. A large proportion of these were of great use in a field of work then little known, but some would seem of doubtful scientific value, as, for example, recording the temperature of a room with a fire in it.

But the great discovery of his life, which will carry his fame to all countries and all generations, is that of the law of chemical combination in multiple proportions, generally called the Atomic Theory. In his laboratory note-book, September 6, 1803, is the entry "Observations on the ultimate particles of bodies and their combinations," and this is followed by a series of circular signs with dots, crosses, etc., within them to represent the elements hydrogen, oxygen, azote, carbone, and sulphur, and a few pages further on these signs are used in juxtaposition to indicate the composition of chemical compounds, such as nitrous oxide, water, etc. Under date October 12, 1803, is another entry, "New theory of the constitution of the ult. atoms of bodies," followed by a slightly different series of circular signs. He was first led to this by attempts to account for the homogeneous character of the atmosphere by arranging in combination the oxygen, azote, and watery vapour known to exist in it. In this he failed, and soon after concluded that the sizes of the atoms of different gases must be different, and then "it became an object to determine their relative sizes and weights." Then he found that one proportion of nitrogen combined with one of oxygen, or two of nitrogen with one of oxygen, but in no intermediate ratio, and was thus led to the law of multiple proportions. In all this he followed Newton as a thorough atomist. The following passage from Newton is given as quoted by Dalton. "It seems probable to me that God in the beginning formed matter in solid, massy, hard, impenetrable, moveable particles, of such sizes and figures, and with such other properties, and in such proportion as most conduced to the end for which He formed them, and that these primitive particles, being solids, are incomparably harder than any porous bodies compounded of them; even so very hard as never to wear or break in pieces, no ordinary power being able to divide what God Himself made one in the first creation. . . . . God is able to create particles of matter of several sizes and figures, and in several proportions to the space they occupy, and perhaps of different densities and forces." Dalton applied this idea to illustrate and to account for the observed facts of chemical combination in definite and multiple proportions, and there can be no doubt that he himself thoroughly believed in the actual existence of these impenetrable particles spoken of by Newton. Nevertheless, it must be remembered that he always speaks of the relative weights of the atoms, and that the relations thus expressed will remain true, and his law of multiple proportions also, whether the ultimate particles exist or not. It may be interesting to compare on this point the opinion of Faraday, whose mind was by nature mathematical and logical, although without scholastic training in such subjects. It is given in a letter to Dr. Henry, dated August 2, 1853, and so is just half a century later than Dalton's conception of his hypothesis. "I do not know that I am unorthodox, as respects the atomic hypothesis. I believe in matter and its atoms as freely as most people; at least, I think so. As to the little solid particles which are by some supposed to exist independent of the forces of matter, and which in different substances are imagined to have different amounts of these forces associated with, or conferred upon them (and which even in the same substance, when in the solid, liquid, and gaseous state, are supposed to have like different proportions of these powers), as I cannot form any idea of them apart from the forces, so I neither admit nor deny them. They do not afford me the least help in my endeavour to form an idea of a particle of matter. On the contrary they greatly embarrass me; for after taking account of all the properties of matter, and allowing in my consideration for them, then these nuclei remain on the mind, and I cannot tell what to do with them. The notion of a solid nucleus without properties is a natural figure or stepping-stone to the mind at its first entrance on the consideration of natural phenomena, but when it has become instructed, the like notion of a solid nucleus, apart from the repulsion, which gives our only notion of solidity, or the gravity, which gives our notion of weight, is to me too difficult for comprehension; and so the notion becomes to me hypothetical, and what is more, a very clumsy hypothesis. At that point, then, I reserve my mind as I feel bound to do in hundreds of other cases in natural knowledge."

Again, in another place, Faraday raises the dilemma that in a non-conductor of electricity the inter-atomic space must be an insulator, while in a conductor the inter-atomic space must be a conductor. It may be that in these thoughts Faraday was, as Tyndall put it, trying to "overleap the limits prescribed to the intellect itself," but they seem to warn us that we should keep carefully in mind what is fact and what is hypothesis in Dalton's Atomic Theory, and perhaps, like Faraday, "reserve our minds." There is a very real danger that by constant use we should forget that the formulæ developed from it, and the graphic representations used are in reality only conventional methods of representing facts. Sir Henry Roscoe gives an amusing instance of a pupil, to whom he had explained the atomic theory by help of wooden blocks, who answered the question "Describe Dalton's Atomic Theory" thus: "Dalton's Atomic Theory consists of cubical blocks of wood painted various colours." But it is doubtful if this is much worse than the frequent discussions amongst chemists of great learning, who show on the black board elaborate constitutional formulæ and bring forth arguments from the relative positions of "atoms" which can only apply on a plane surface, and in this year of grace, 1895, the writer heard a difference in chemical decomposition of two substances gravely accounted for by the variation in the mechanical leverage arising from the difference of position of the atoms in the two cases as shown on the black board. A further danger of modern chemistry seems to be that attention is almost wholly taken up by the attempt to define according to the conventions, the constitution of bodies, little, if any, regard being had to their actual appearance, and even to their chemical properties, except in so far as they are related to this question of constitution. Dalton was rather laughed at for speaking in his homely way of chemical substances, as these "articles," but it would be well for modern chemistry if more attention were paid to them as "articles" rather than as formulæ.

Sir Henry Roscoe deserves the fullest thanks for giving us in this small volume a very life-like account of a noble man, to whom chemists are under an immense obligation, and who takes a rank so exalted amongst the high priests of science.

Cuticularisation and Cutin.—M. C. van Wisselingh has established, from physical and micro-chemical investigations, an essential difference between the processes of cutinisation and suberisation. Cork is never formed at an early period; it always makes its appearance in the phellogen on the inner side of the cell-wall, and is therefore in direct contact with the protoplasm. The cuticle, on the other hand, is always present in the embryo, clothing the outer side of the epidermal cells; it is invariably separated from the cell-contents by layers of cellulose. Cutin always consists partially of fusible constituents, though the temperature at which their fusion takes place varies greatly, from below 100° to 200° C. Phellonic acid is never present in cutin. Cutin is, as a rule, less easily saponified by potassium hydrate than suberin. The products of saponification differ from the corresponding products in the case of cork; they generally consist of yellowish spheres or masses, largely composed of readily fusible substances (*Over cuticularisatie en cutine*, Amsterdam, 1894; from *Botanisches Centralblatt*, lxii. (1895), p. 234).

NOTES AND NEWS.

Failures in 1894.—According to the report on bankruptcy just issued by the Board of Trade, the number of receiving orders made during 1894, in the case of chemists, druggists, and chemical manufacturers, was 25, as against 33 in 1893. There was a similar decrease in the case of grocers, the figures being 283 and 331 respectively, whilst the total number of receiving orders made during 1894 was 4762, as against 4874 in 1893. The number of failures amongst surgeons, however, rose from 8 in 1893 to 13 in 1894.

Inland Revenue Expenditure.—The estimate of the sum required to defray the salaries and expenses of the Inland Revenue Department during the year ending March 31, 1896, shows a net increase of £33,508 over that for the previous year. Travelling expenses are estimated to amount to £1000 more; expenses of prosecutions to £500 more; and rewards to officers and others for detections, etc., to £500 more. It would be interesting to know whether this portends increased activity on the part of the authorities, and if so, against whom the crusade is to be directed.

Diphtheria and Speaking Tubes.—The *British Medical Journal* reports that of 150 employés engaged in a particular establishment at Hackney, forty-three were girls working in one room, and of twenty-five cases of diphtheria occurring twenty-two were among these girls. The disease probably spread from one to two others of three girls sitting near together, and frequently using the speaking tubes. The others affected were only one assistant on another floor, who used the other end of one of the tubes, and two additional assistants in yet another room, who frequently came in contact with the girls in the lavatory and used the same towels.

Dates as a Source of Alcohol.—Lebny thinks that Mesopotamian dry dates may possibly be useful as a source of alcohol. According to his analysis (*Zeits. für Spiritusind*) they have the following mean composition:—One hundred parts by weight consist of 85·1 of pulp and 14·9 of kernel. The pulp consists of cane sugar, 0 per cent.; dextrose, 66·07; starch, 1·28; nitrogenous bodies, 2·97; fat, 1·03; gummy bodies, 4·26; cellulose, 4·97; mineral salts, 1·96; and water, 17·46 per cent. According to these figures 100 kilos would yield 37–38 litres of 90° alcohol. It will be observed that these contain no cane sugar, but Lindet has found in the flesh of Tunis dates 23 per cent. of dextrose, along with 38 per cent. of cane sugar.

Photographic Printing by Machinery.—An account is given in the *Scientific American* of a new process of rapid photographic printing by machinery. The sensitised bromide paper, in rolls a thousand yards long and over a yard wide, is mechanically unwound in a room illuminated by red light and fed under two or more negatives, against the face of which it is pressed by a platen. At the same time the necessary exposure takes place automatically by the flashing of incandescent electric lamps above the negatives. The exposed portion is then passed on and wound upon another roller, while a fresh portion of sensitised paper is exposed in turn. In another room the roll of paper that has been exposed is, by means of appropriate machinery, developed, fixed, etc., etc., the nished prints being wound upon a third roller as they emerge rom a long trough, the compartments of which contain the different solutions required for the various operations.

Delphinium Zalil.—The yellow flowers of this plant, which are collected in Persia and Afghanistan for dyeing silk yellow, have lately been shown (*Journ. Soc. Chem. Ind*) to have only about half the colouring power of the flower-buds of *Sophora*, and less than half the dyeing power of *Quercitron*, although the yellow colour is much purer, *i.e.*, less orange than that yielded by the bark. It is not, therefore, likely to come into commerce. The plant itself was introduced into horticulture a few years ago by Dr. Aitchison, C.I.E., F.R.S., and was first described in the 'Trans. Linn. Soc.' [2], vol. iii., p. 30, and figured in the 'Botanical Magazine,' i., 7049.

Plants of the Solomon Islands.—A contribution to the Flora of the Solomon Islands recently received at Kew, from the Rev. R. B. Comins, contains two species of economic interest and eleven new to science. One of these, *Diospyros acris*, Hemsl., is said to possess a juice so acrid that it blisters the body when applied to the skin, and another, *Daphniphyllum conglutinosum*, Hemsl., has a sap used as a cement by the natives, and which is said to be really equal if not superior to diamond cement. The tree belongs to the natural order *Euphorbiaceæ*, a third, *Hedycarya solomonensis*, Hemsl., is a very conspicuous shrub with black berries borne on orange-red stalks, and seems suitable for ornamental purposes.

Sale of Proprietary Medicine Unstamped.—In connection with the case reported last week (see page 171), in which Mr. G. J. Knight, of Edgware Road, was fined a mitigated penalty for selling a preparation of cod-liver oil and malt extract, it seems only fair to the defendant to state that fuller information now to hand puts a very different aspect on the matter. Mr. Knight has submitted documentary evidence which conclusively proves that more than four years ago he was warned that the use of the possessive case in the name "Windle's Solution of Cod-Liver Oil in Malt Extract," rendered the preparation liable to Medicine Stamp Duty. In consequence he had the letter "s" erased from all the labels in stock, and he has continued to use those labels up to the present time. These facts he has ample evidence to prove, and it is noteworthy that the first notice be received in connection with the present proceedings was to the effect that he had sold "unstamped, a certain preparation, viz., Windle Solution of Cod-liver Oil in Malt Extract, which is liable to Medicine Stamp Duty." Here there is no indication of the use of the possessive case, and Mr. Hannay's decision was based on the fact that a label over the cork bore the name and address of the firm, together with the words "No preparations are genuine unless protected by this label, to counterfeit which is forgery. (Signed) W. Windle and Co." The same label is used for several other preparations, and similar ones are doubtless in common use by other chemists. It seems desirable therefore to draw attention to the fact that the use of such a label has, in this instance, been held to render the preparation liable to stamp duty, as a proprietary medicine.

Courageous Conduct of a Pharmacist. — The *Nottingham Daily Guardian*, in reporting an inquest on a gentleman who was drowned whilst bathing at Sutton-on-Sea, on August 16, relates that the deceased was almost rescued by Mr. Charles Edwin Robinson. A companion of deceased was actually saved by Mr. Robinson's exertions, and the coroner spoke in very complimentary terms of the assistance so rendered. Mr. Robinson was a student and prizeman at the School of Pharmacy about two years ago, and is now engaged with Messrs. Dinneford and Co., New Bond Street, W.

ENGLISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Meeting of Junior Chemists at Plymouth.—The meetings held from time to time by the junior section of the Plymouth, Devonport and District Chemists' Association are being productive of good results, as evidenced by the one held on Thursday evening (August 22), at the Foresters' Hall, Union Street, Plymouth, when the members assembled to hear the sixth of a series of lectures on "Materia Medica," by Mr. John D. Turney. The chair was occupied by Mr. W. R. Vickery, and those also present included Messrs. E. Cock, T. Darke, A. Barber, A. Sleep, Waldron, and H. O. Westcott (Hon. Sec.). Mr. Turney, as usual, dealt with his subject in a thoroughly practical manner, and his lecture was both interesting and instructive. At the conclusion of his remarks he was accorded a hearty vote of thanks. The Secretary announced that the meetings of the section would be held fortnightly until October, in order to complete the series of "Materia Medica" lectures. It was proposed to hold an examination on the completion of the series, and through the generosity of the President of the Association (Mr. C. J. Park) successful candidates at the examination would be awarded prizes.

Analysis of Manures.—Chemists interested in the manufacture and sale of artificial manures will be pleased to learn that steps are being taken in Devonshire with a view to removing a difficulty which exists in testing the quality of manures, proposals having been made by one or two rural district councils in North Devon to the effect that the Devon County Council be asked to appoint an analyst to test not only the artificial manures sold to farmers in the open markets of the country, but also feeding stuffs. The question is being well taken up in the district, and the idea has already been approved by the Central Technical Education Committee.

An Unqualified Manager Supplying Opium.—Mr. Pemberton, F.R.C.S. (Coroner), held an inquiry on Monday at Birmingham, relative to the death of Sarah Jane Smith (48), 74, Whitmore Road, Birmingham. Deceased had suffered from a painful internal malady, and to obtain relief had been in the habit of taking small doses of tincture of opium. On the 19th inst. her husband, an Indian pensioner, found her in bed in a comatose state, and observing the symptoms of opium poisoning, he immediately gave an emetic and sent for a medical man. The woman was subsequently conveyed to the Queen's Hospital, where she died on the 22nd inst. from opium poisoning. Before her death she regained consciousness, and stated that she had taken an overdose of laudanum in mistake.—Edward Collingford stated that he was not a fully qualified chemist. He had passed one examination, and was studying for the final. He managed a drug stores at 329, Bolton Road, for a Mr. J. H. Knowles, of Reading. He knew deceased as a customer at the shop, and believed she was a medical nurse. On the morning of the 19th inst. she came to the shop and purchased three drachms of tincture of opium, which she stated she required for outward application, and later in the day she returned, and he served her with another six drachms, because she said that the first lot had not been effective. He let her have the drug as a favour. He was not in the habit of keeping laudanum, but had purchased some for the use of his wife, who suffered from neuralgia. —In reply to the coroner, witness said that he was aware none but a qualified chemist should sell laudanum, and also that he was open to an indictment for having sold it. He had never sold any before, and only let deceased have it as a favour.—A verdict was returned to the effect that the deceased died from the effects of an overdose of tincture of opium.

Sale of Inferior Rhubarb.—At the Ripley Petty Sessions, on Monday, August 26, George Tunnicliffe, shopkeeper, of Loscoe Grange, was charged with having sold three ounces of rhubarb which was not of the nature and substance demanded, on July 5. Capt. Sandys, the inspector, proved the case, and the defendant was fined £1 6*s.*, including costs.

Unlawfully Using the Title of Veterinary Practitioner —On Monday, August 26, at the Wincanton Petty Sessions, John Fudge was summoned at the instance of the Royal College of Veterinary Surgeons, for unlawfully using the title of veterinary practitioner.—Mr. Shaw, of Wincanton, prosecuted, and the case against the defendant was that in March last, when giving evidence on a charge of cruelty to a horse, he styled himself a veterinary practitioner, this statement being testified to by Inspector Greenwell, R.S.P.C.A., and Mr. A. C. Coles, reporter.—Mr. Trevor Davies, of Yeovil, in defence, said the defendant might have used the words unintentionally, but he submitted that he had not held himself out to the public as a veterinary practitioner.—The Bench considered that the case should never have been brought into court. However, a conviction was recorded, and a fine of 1*s.* would be imposed, each party to pay their own costs.

Truro Chemist's Wine Licence.—At the annual licensing sessions for Truro on Monday, August 26, an application was made by Mr. A. E. Adams on behalf of Mr. Bucher, pharmaceutical chemist, of Boscawen Street, for a licence to sell wines for consumption off the premises.—Mr. J. P. Paull opposed the application on behalf of the Licensed Victuallers' Association.—Mr. Adams pointed out to the Bench that the granting of the licence would enable people to obtain medicinal wines day or night, which could not be obtained anywhere near by.—The Mayor (Mr. Trevail) said the Bench agreed in acceding to Mr. Bucher's application, and regarded him as a gentleman whom they could trust not to abuse the privilege.

IRISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Workhouse Drugs.—Dr. Moorhead, Medical Officer of Cootehill Union, in a letter to a Dublin newspaper, commenting on Irish workhouse management, complains that owing to the present system of accepting the lowest tender for medicines, the drugs supplied to the workhouses are often of such inferior quality that the medical officers cannot depend upon them, and they can only be tested upon the bodies of the patients. It is to be hoped that the doctor's strictures may tend to a better state of things, and may rouse the "guardians of the poor" to a sense of their responsibility, and that, while conserving the interests of the ratepayers, they may recognise that where drugs are concerned, at all events, the best is generally the cheapest in the end.

Poisoning by Strychnine.—Mrs. Jane Carroll, of Greenhills, near Naas, in County Kildare, died on the 22nd inst. from the effects of strychnine, self-administered in mistake for a sleeping draught. At the inquest held on August 24, the jury returned the following verdict: "That the deceased died from strychnine poisoning, which she took in mistake for medicine to relieve sleeplessness."

Pharmaceutical Chemists' and Apothecaries' Assistants' Association of Ireland.—The general weekly meeting of this Association was held in the "XL" Café, Grafton Street, Dublin, on Friday evening, the 23rd inst., at 8.30 p.m., Mr. J. B. Alister. M.P.S.I., President, in the chair. There was a large attendance of members. The minutes of the previous meeting having been read, the chairman announced that Mr. T. J. Parker, who had consented to read a paper on that evening, was unavoidably prevented from doing so, but that he had arranged with the honorary secretary to act as his substitute on the occasion. At the chairman's request Mr. J. Long proceeded to read Mr. Parker's paper, the subject chosen being modern pharmacy.

The author in his introductory remarks regarding this subject, dwelt on the rapid progression of pharmacy in modern times, and the important position which it now occupied, at the same time he urged those present not to be discouraged at the difficulties presented during the study of such a profound subject, but rather to feel encouraged at the thought of being permitted to study a subject so intimately connected with our chosen profession. Pharmacy was derived from the Greek *pharmakos*, rendered in the Latin, *ars medicamentaria*, which signifies "the art of drugs." Pharmacy is the art connected with the science pharmacology.

He divided pharmacy into two sections:—

1. "Official pharmacy," or that referring to the manufacture of the B.P. drugs and galenical preparations.
2. "Extemporaneous pharmacy," or that relating to the compounding and dispensing of the extemporaneous formulæ composing the prescription of the physician.

"Every pharmacist should discourage the influence which fashion is rapidly obtaining over pharmacy, and which is directly caused by many modern physicians suiting the patient to the drug, rather than the drug to the patient."

Mr. Parker concluded his remarks on this subject by exhorting all his fellow-assistants to exercise the utmost care in the preparation of prescriptions, bearing always in mind the great responsibility which rests on them, and the trust placed in them both by physicians and the general public.

Mr. O'Sullivan moved that the best thanks of the meeting be accorded to Mr. Parker for his valuable paper, and to Mr. Long for the manner in which he had read it, also for his promptitude in undertaking the duty.

Mr. O'Carroll supported this motion, and the chairman conveyed the sentiment of the meeting to Mr. Long, and through him to Mr. Parker.

Mr. Long responded, and thanked the meeting, both on behalf of Mr. Parker and himself. Several new members were enrolled, and the meeting terminated.

FOREIGN NEWS.

[*From our Special Correspondents.*]

The Pharmaceutical Congress at Brussels.—The meeting of this Congress at Brussels was held on the occasion of the jubilee of the Société Royale de Pharmacie at the Palais du Cinquantenaire (where the exhibition of 1888 was formerly held), and was presided over by Monsieur Creteur, Honorary President of the Société Royale de Pharmacie de Bruxelles, and Monsieur Buzon, President of the same Society.

To the Committee were added, besides the members of the Executive Committee, the names of Monsieur Devaux, Inspecteur Général du Service d'Hygiène et de Santé (who was delegated by the Minister of Agriculture, Monsieur de Bruyn, to attend the Congress as his representative), and of the presidents and vice-presidents of the various pharmaceutical societies of the country.

Monsieur Devaux stated that pharmaciens could depend upon the Government to suppress the practice of doctors supplying their own medicines, and that the Commission appointed for the purpose of drawing up medico-pharmaceutical laws was much interested in the work of the Congress, and hoped that it would furnish the necessary material from which good laws might be formulated. This declaration was considered a very important one at the present juncture, when new medico-pharmaceutical laws are hoped for.

The addresses sent by the Pharmaceutical Societies of Great Britain and Berlin were read by the Secretary of the Congress, and were received with acclamation. Monsieur Fayen, Vice-President of the Association Générale Pharmaceutique, had sent, on the part of that Association, a medal in recognition and remembrance of the task undertaken by the Congress, and in congratulation of the occasion of the Jubilee of the Society.

Monsieur Creteur then gave a long and very interesting account of the evolution of pharmacy from the earliest times to the present day. He pointed out the different phases through which pharmacy had passed, and showed that although the different systems appeared sometimes altogether opposed to one another, yet the results obtained ultimately led to progress being made, and all obstacles placed in its way were invariably overcome, and thus served for the steady advance of science. He therefore advised pharmaciens never to be discouraged, but to work together for better conditions and to have for their aim pharmaceutical science.

Monsieur van Hulst spoke on the practical and commercial side of pharmacy, and advised his *confrères* to establish industries connected with their profession so as not to be indebted either to foreigners or to those who had not made the necessary studies for supplying the requirements of the profession. Monsieur Kusnick, President of the Fédération des Pharmaciens Belges, and Monsieur Verhassel, Honorary President of the Société Royale de Pharmacie d'Anvers, then offered their congratulations in the name of their respective societies.

A visit was then made to the exhibition, which consisted, for the first time in Belgium, of purely pharmaceutical products. The organisation had been entrusted to MM. Derneville, Heur, and van Hulst, and the exhibition was evidently a success, both in the number and character of the exhibits. The drugs, preparations, and apparatus were of excellent quality, most of them being shown by pharmaciens in retail or wholesale business.

At two o'clock the session was resumed, and the papers furnished in reply to the questions proposed by the Congress were presented. The conclusions adopted were as follows:—

Section on Pharmaceutical Legislation.

"It is necessary to establish medical tribunals formed of medical men and pharmaciens in order to settle the differences that may arise from time to time between them. It is also necessary to suppress managers, *i.e.*, that each pharmacien should be the proprietor of his shop. It is further necessary to establish a minimum tariff in order to prevent certain pharmaciens from selling medicines at less than cost price, which can only be done by deception as to the weight or the quality of the drug. This tariff can be applicable to charitable or benevolent societies."

Section on Theoretical and Practical Pharmacy.

"It is necessary to make galenical preparations with products of which the percentage in active principles is exactly known, and in order to prevent the contradictions likely to follow different modes of estimation, the Pharmacopœia ought to indicate the method of analysis to be adopted. For the preparation of powders, also, the Pharmacopœia ought to indicate the kind of sieve to be employed to regulate the fineness of the powder to be obtained. It is desirable to insert in the Pharmacopœia the mode of preparation of certain fluid extracts. In 1885 it had been determined that there was then no necessity to do so, as it was considered that the Pharmacopœia was not called upon to introduce innovations, but only to render official those which had already been approved of by the medical profession. Monsieur Dulière, Inspector of Pharmacy, had proposed that the pharmacien should be required to provide his laboratory with all the utensils and reagents necessary for the exercise of his profession, whether for the preparation of galenical products, or the analysis of chemical and vegetable products purchased in commerce. The list of the reagents and utensils should be mentioned in the Pharmacopœia. In reference to the report made by M. Dulière, and the cases quoted by him concerning the bad quality of certain tinctures, it was asked if he had a normal tincture upon which experts could base an opinion as to the good or bad quality of any sample. For the examination of alimentary substances, *e.g.*, wine, chicory, coffee, each should have officially an average of extractive from which the products should not vary unless either adulterated or of bad quality."

Section on Professional Interests.

"It is desirable that the number of pharmacies should be limited, either by a law regulating the number of pharmacies to that of the population, or by making the examinations more stringent. Since in 1890 the programme of pharmaceutical studies has been increased, the number of students in pharmacy has considerably decreased. It is desirable to compel the pharmacien to put the price of the medicine on the prescription that he prepares. It is to be regretted that the variation of price in different pharmacies should cause a suspicion of bad faith on the part of the pharmacien in the mind of the public. The sale of dressings and of medicinal soaps, and of mineral waters having active ingredients, such as sulphur, arsenic, etc., should be exclusively made by the pharmacien."

Section on Commercial Analysis.

"Adulteration consists not only in the addition of a substance of less value, but also in the subtraction of the active principle, for instance, the sale of exhausted cinchona or opium. The title of chemist not having received official sanction, the pharmacien has the best claim to make it his business to analyse alimentary substances. He is, in fact, the only person who makes a special study of them from the point of view of falsifications; as, for instance, peptones, extract of meat, and farinaceous foods used exclusively for infants and invalids, which ought to be sold only by the pharmacien. There should be indicated for these products the co-efficient of nitrogen, so as to determine their nutritive value, for it happens that certain powders, sold under the name of peptones or meat powders are only the residue of the preparation of extracts

of meat. These powders have a co-efficient of nitrogen sufficiently high, but have no zymotic power. Their digestive power should, therefore, be ascertained. Peptones should also have indicated the amount of the precipitate given by absolute alcohol."

Section on Hygiene and Toxicology.

Monsieur Delhaye, pharmacien at Liège, presented a long and important report upon the necessity of establishing a commission which should occupy itself only with hydrology, and not always trust to the reports which the technical service of the towns give, since the towns which sell their waters are always disposed to consider them of good quality. Also that a geological and hydrological commission should consider the best situation for a cemetery in each commune of the country, and cremation as a radical motion.

Concluding Business.

By way of relaxation, on Thursday evening those attending the Congress were entertained at the Town Hall by the Burgomaster, M. Buls, the Provost, M. Steens, and M. Depaire, councillor and pharmacien, they were able to admire the artistic riches of this admirable building. During the evening the Communal Band played some of its choicest pieces of music. On Friday evening they attended a concert at the Waulx Hall. On Saturday evening a banquet of two hundred covers was laid for the Congressists in the splendid marble hall of the Hôtel Métropole, M. Burgon occupying the chair, with M. De Bruyn, Minister of Agriculture, on his right, and M. Steens, representing the Burgomaster, who was unwell, on his left. M. de Bruyn, in reply to a toast, formally promised to cut the thorny question of the "Cumul," *i.e.*, the dispensing of medicines by medical men. He thanked the pharmaciens of the Congress for the assistance they had always given in the drawing up of the medico-pharmaceutic laws.

The Labelling of Prescriptions.—French prescriptions always being written in the mother tongue, that patients may read them, pharmacists have got into the habit of simply numbering the labels and omitting the directions. In counter-prescribing, which is rather the exception than the rule, the same custom is observed, verbal instructions merely being given. A serious accident, attended with fatal consequences, occurred last week which may be attributed to this prevailing pernicious custom. A pharmacist was called upon by a woman to prescribe for her son, aged 10 years, suffering from a quinsical sore throat; she was supplied with a solution of chlorate of potash, verbal instruction being given that it was to be used as a gargle. Unfortunately the mother misunderstood the chemist, and gave a large dose of what she supposed was a mixture to her son, who after a night of severe suffering died in intense agony.

Medical Practitioners and Rational Dress.—The medical papers are raising an indignant protest in the cause of hygiene against the contemplated interdiction by the municipal authorities of the divided skirt now worn by cycle women. For years, says one writer, medical men have been striving to induce women to abandon the corset and the attendant dangers of tight-lacing, together with the restrictive action on the limbs of skirts and dresses, and now that women have an opportunity, through cycling, of adopting a rational and hygienic dress, the police contemplate interfering, on the ground that the wearing of male attire by females is prohibited except during the carnival season. A doubt is raised as to whether it can be called masculine attire, since it is the habitual dress of the women of Oriental nations. To the question of indecency, which is the chief argument raised by adversaries of this mode of dress, one writer answers that it is no more indecent to show the calves than the arms, and advocates the general adoption of the divided skirt as a walking costume, and especially in wet weather.

Prize for Pharmacological Essay.—The Royal Academy of Medical, Physical, and Natural Sciences of Havannah, at a meeting held on April 28, decided to offer amongst other prizes mostly for medical essays, one—the Cañongo Prize, value 250 dollars in gold—for the best essay on "The Pharmacological Study of the Fluid Extracts." The competition, which is open to any person whether belonging to the medical profession or not, will be closed on March 19, 1896, by which date all papers must be sent in, written either in French or Spanish, and sealed, with a motto on the internal envelope, and in another envelope bearing the same motto the author's name and address. The ajudication will take place on May 19, 1896, when the prizes will be distributed to the successful competitors. Further particulars may be obtained by writing to the Secretary, Dr. Vicente de la Guardia, Havannah.

A Paternal Government!—The Italian Minister of the Interior, with that watchful care for the well-being of the people which so distinguishes those placed in authority in Continental countries, has, with the object of compelling the pharmacists to keep in stock all those medicines with which the Italian Pharmacy Law orders pharmacies to be provided, recently sent round a circular to the Prefects, ordering them to carefully make those visits of inspection which the law requires, and, in addition, to now and then favour the pharmacies in their districts with surprise visits. If any pharmacy be found wanting as regards the drugs marked as obligatory in the Italian Pharmacopœia, its proprietor is to be proceeded against at once, and will be fined according to the number of drugs in which his stock is deficient.

Infringement of Privileges.—Last month the Town Council of Barcelona decided to undertake the distribution of anti-diphtheritic serum produced in the Municipal Microbiological Laboratory, all pharmacists in the town being also authorised to keep it on sale. The serum will be supplied to the general public on the presentation of a doctor's prescription, in tubes of 10 cubic centimètres capacity at 3 pesetas or francs the tube, and to pharmacists at 2.50 francs. The Town Clerk's office will be open for this purpose from 9 a.m. to 2 p.m. As no others than legally qualified pharmacists can according to the Spanish law engage in the sale of drugs or preparations for medical use, *El Memorandum de Barcelona* urges that pharmacists should call the attention of the Governor of the Province to this serious infringement of their privileges, for the Town Clerk's office, it says, cannot be for a moment regarded in the light of a pharmacy, and therefore the faculty of pharmacy should take immediate action in the matter.

USEFUL FORMULÆ.

[*Readers requiring working formulæ for special preparations should intimate their wants to the Editor, who will be pleased to assist them to the best of his ability. The word "parts" invariably indicates parts by weight.*]

Brown Hair Dye.—The following are from the *Era Formulary*:—(1) Dissolve pyrogallic acid, 8 parts, in alcohol, 16, and mix with a solution of sodium sulphide, 1 part, in water, 48. (2) Dissolve separately in rose-water, lead acetate, 2 drachms, and sodium hyposulphite, 1 ounce, using altogether 14 ounces of rose-water. Filter solutions, mix, and add glycerin, 2 ounces. [*Reply to A. P. S.*]

Medicated Pencils.—The *American Journal of Pharmacy* gives the following combinations:—Salicylic acid pencils: Salicylic acid, 20; white wax, 25; lanolin, 55. Salicylic acid and chrysarobin pencils: Chrysarobin, 10; salicylic acid, 20; white wax, 20; lanolin, 50. [*Reply to J. N.*]

Application for Multiple Warts. The following preparation is recommended by the *Moniteur Thérapeutique*:—Flowers of sulphur, 10; glycerin, 25; glacial acetic acid, 5. Mix and shake before using. It should be applied over the part covered with the warts, which will be found to gradually dry up and ultimately become detached. [*Reply to Student.*]

To Relieve Toothache.—The formula given below is said to be efficacious in affording relief in cases of toothache where the tooth is hollow:—Carbolic acid (crystals), chloral hydrate, camphor, and glycerin, of each equal parts. The hollow having been first thoroughly dried out, a plug of cotton-wool soaked in the mixture is carefully inserted and allowed to remain there for some hours. [*Reply to Query.*]

Ink for Writing on Glass.—The *Neueste Erfindungen* gives the following formula for a preparation which is not washed off by water:—White gum lac, 10; Venice turpentine, 5; oil of turpentine, 15; powdered indigo, 5. The mixed turpentines and gum lac are melted together at a gentle heat, and the indigo is then added.

NEW REMEDIES.

[*The notes given under this heading embody recent suggestions in therapeutics. They cover both new drugs and preparations, and old ones under new aspects. The word "parts" is used to represent parts by weight, both for solids and liquids.*]

Methyl Violet (Pyoktanin) in Asiatic Cholera.—Neufeld gives his experience of the use of this remedy in a recent number of the *Méd. Obozr.* He commenced by injecting small doses of a 1 per cent. aqueous solution subcutaneously, gradually increasing to 0·01 gramme every two hours, and in cases which allowed of the use of salt water this vehicle was used, the same strength solution being employed in a similar manner. In addition, it was also prescribed *per os*, the maximum dose in successful cases being 7·2 grammes in six days. The author gives the result of 100 cases thus treated. Two cases, suspected to be cholera, were cured. Of thirty-five in the first stage of the disease, twenty-four were cured. Out of eight cases, in which the treatment was commenced in the first stage of the algid period, three fatalities only occurred, but where it was well advanced six cures were effected out of forty-one cases, whilst in no case in which the disease had reached an advanced stage was a successful result obtained. The author concludes that this remedy is deserving of further investigation, and will become generally prescribed when its medicinal properties are more fully understood.

Chloroform as a Tenicide.—The following formula is given by the *Occid. Med. Times*:—Chloroform, 4 grammes; croton oil, 1 drop; glycerin, 30 grammes. This quantity is for one dose.

Acetate of Uranium in Acute Coryza.—Sten uses the following lotion:—

Pure acetate of uranium	from ½ to 1 part.
Distilled water.....	100 parts.

One drop of this solution, tepid, to be introduced into each nostril.

Acetate of uranium.....	1 part.
Finely powdered roasted coffee	50 parts.

To be used as a snuff. —(*Nouveaux Remèdes*, xi., 265.)

Abortive Treatment of Erysipelas by Ichthyol Traumaticine.—Jubel-Rénog employs a mixture of 3 parts of ichthyol to 10 parts of traumaticine, from which excess of chloroform has been removed. The process consists in circumscribing the affected portion, and a little beyond it, with a band of the traumaticine 2 centimetres wide, applied by means of a brush. When the limbs are involved, a band of double the width should be painted round the affected part (*Rev. de Thérap., Med. Chirurg.*, lxii., 307, after *Bull. gén. de Thérapeut.*)

The Effects of Piperazine.—Nochmoff finds that piperazine diminishes the quantity of uric acid and of urea in the excreted urine, and at the same time increases the diuresis. If the kidneys are healthy large doses of piperazine do not provoke albuminuria, but if these organs are morbidly affected even very small doses of the drug are followed by the appearance of albumin in the urine. Urinary deposits are not modified by piperazine. According to the author, piperazine is not a powerful medicament, but, on the other hand, it cannot be considered completely inactive, it is notably useful in arthritic cases (*Rev. de Thérap. Med. Chirurg.*, xlii., 320, after *Journ. de Méd. et d'Hygiène*).

Galega as a Galactogogue.—In her thesis before the Faculty of Medicine of Paris, Madame Griniewitch finds from experiments, both on nursing women and on cows, that *Galega officinalis*, or goat's rue, has a marked and constant influence on the lacteal secretion; its action appears to be lasting, and the increase in the flow of milk maintains its maximum even two or three days after medication. The preparations prescribed are the tincture, syrup, and the extract. The tincture is made from extract of galega, 6½ parts; alcohol, 60 per cent. by volume, 100 parts. The dose should be from 250 to 500 drops per diem, taken in doses of from 25 to 100 drops. The syrup is compounded from extract of galega, 5 parts; simple syrup, 100 parts. Four or five dessert-spoonfuls are to be taken daily. The extract may be given in 4-grain pills (*Journ. de Pharm.* [6], ii., 62).

Stinging Nettle as a Galactogogue.—According to the author just quoted, *Urtica dioica* also possesses very active galactogogue properties. The tincture is prescribed in the same dose as that of galega. It is prepared from extract of stinging nettle, 2 parts; alcohol, 60 per cent., by volume 10 parts (*Ibid.*).

Tar for Hæmorrhoids.—Tar and extract of belladonna, of each 3 parts; glycerin, 30 parts. Mix; to be applied locally morning and night. Lacruz reports five cases which were cured in from four to twelve days (*Rev. de Thérap. Medico-Chirurg.*, xlii., 323).

Treatment of Buboes with Iodoform.—After emptying the purulent cavity by puncture and aspiration, Bullier washes it out with a one per mille solution of mercuric chloride, and then injects a 10 per cent. mixture of iodoform in vaselin, liquefied at 50° C., in such a manner as to fill the cavity without distending it. The injected mass solidifies in the cavity, pain ceases the day of the injection, the region of the sore assumes a natural appearance, and cure is complete in about eight days. In cases where cure is not immediate, the injection may be repeated in two or three days. If the skin has been greatly raised by the sore, and if it is so distended and becomes so thinned as not to retain its power of regeneration, simple injections are not sufficient, and an extended opening of the abcess is necessary. In ordinary cases, however, healing rapidly follows, and the author has rarely met with a case which resists treatment more than fifteen days (*Rev. Intern. de Méd. et Chirurg.*, vi., 232).

Weak Solutions of Cocaine for Producing Local Anæsthesia.—The *Practitioner* (liv., 573) calls attention to the fact, which is often lost sight of, that weak solutions of cocaine hydrochlorate will produce as successful a local anæsthesia when used hypodermically, as stronger ones. The use of the weaker solution is not only an economy, but, what is far more important, avoids the very dangerous risks of intoxication produced by 5 and 10 per cent. solutions. For many years Professor Roux, of Lausanne, has used only a 1 per cent. solution, which he has found sufficient for such operations as herniotomies and excision of goitres, without any general anæsthetic. Schleich has used an even weaker solution, and finds that a 0·02 per cent. solution produces anæsthesia after injection. A formula which allows of cocaine solution being kept ready for use without fear of deterioration is:—Hydrochlorate of cocaine, 3 grains; hydrochlorate of morphine, ⅓ grain; sodium chloride, 3 grains; solution of carbolic acid (5 per cent.), 2 minims; distilled water to 3 fluid ounces. This is for painful areas; for operations on healthy tissue the cocaine is reduced to 1½ grain.

Suprarenal Capsule Extract for use in Addison's Disease and similar Affections.—Langlois prepares this extract from suprarenal capsules of horse, 2 grammes; boiled water, 20 grammes; chloride of sodium, 12 centigrammes; fluoride of sodium, 25 centigrammes. Triturate and allow to macerate for twenty-four hours, then filter through sterilised cotton. Dose for injection, from 2 to 5 cubic centimetres. D'Arsonville's method differs somewhat from this; he takes suprarenal capsules chopped up fine, 10 grammes, and macerates them for twenty-four hours in an equal weight of glycerin, then adding 5 grammes of boiled water, again macerating for half an hour; filters through paper, and sterilises by means of carbonic acid under pressure (*Rev. de Thérap.*, lxii, 396).

Solution of Calcium Bisulphite in Skin Diseases.—Leistikow has cured cases of pityriasis versicolore with an ointment composed of solution of calcium bisulphite, 3 parts; wool fat and vaselin, of each one part. To prevent relapse, thorough washing every eight days with quinine soap should be practised for one to two months. The author also recommends as an ointment for liberating sulphurous acid actually on the skin:—Lanolin, 10 parts; vaselin, 20 parts; solution of calcium bisulphite, 40 to 60 parts (*Rev. de Thérap.*, xlii., 412, *after Annal. Derm.*).

Scutellaria in Whooping Cough.—Fluid extract of scutellaria, 8 to 16 parts; clarified honey, 30 parts; red cinchona bark, 6 parts; ammonium hydrochlorate, 6 parts; sal volatile, 45 parts; absolute alcohol, 16 parts; distilled water sufficient to make 120 parts. Mix. Dose from 30 drops to one or two teaspoonfuls, three times daily (*Nouveaux Remèdes*, xi., 265, after *Thér. Gaz.*).

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

Communications for the Current Week's Journal should reach the Office not Later than Wednesday Morning. Telegrams can be Received on Thursday Morning. All Communications respecting Editorial matters must be Addressed "Editor, 17, Bloomsbury Square, London," and not in any case to individuals supposed to be connected with the Editorial Staff of the Journal.

All Instructions from Members, Associates, and Students of the Pharmaceutical Society, respecting the transmission of the Journal, must be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London, W.C.

Business communications—including advertisements, orders for copies of the Journal, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Cheques and money orders should be made payable to "Street Brothers."

Correspondents who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for illustrations should be done with pen and Chinese ink, and consist of clean, sharp lines, without shading by washes. They should also be prepared twice the desired size, so as to allow for reduction.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Queries addressed to the "Editor" will be replied to as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries" or "Useful Formulæ."

Reprints of articles cannot be supplied unless authors communicate with the Editor before publication.

LETTERS.

The Major Examination.

Mr. S. C. Frederick Michell, of 35, Fore Street, St. Austell, writes as follows:—"After much consideration and waiting, I am reluctantly compelled, owing to the comparative few who have sent me their names, to abandon—for the time being—the idea of placing before the Pharmaceutical Council a memorial praying them to allow the subjects of the Major Examination to be taken separately."

ANSWERS.

Corrections.—On page 163, column 2, line 4 from bottom, for "lævo-rotation" read "dextro-rotation." In the formula for antiseptic dentifrice on page 174, for "tincture of canella" read "tincture of cinnamon"; in that for purgative coffee, the amount of scammony should be 80 centigrammes, and in the next formula the amounts of methylene blue, tannin, and powdered opium should be 25, 25, and 5 centigrammes respectively.

Dispensing Chemist should note our warning to anonymous correspondents, printed above. If he will send his name and address, space will be found for his remarks.

T. W. Fairburn.—You are doubtless right in your suggestion, for which we are obliged. It is probable, however, that either would serve equally well.

"Secundus."—1. *Narthecium ossifragum*. 2. *Serratula tinctoria*. 3. *Orchis incarnata*. 4. *Alchemilla vulgaris*. 5. *Lobelia dortmanna*. 6. *Polygala vulgaris*.

Dispenser.—If extemporaneously prepared, coated or varnished phosphorus pills do generally betray the odour of phosphorus when the cork is taken out of the bottle, although it is possible to coat them so that this is not evident. Still, the coating may be too perfect, so that the pills are not soluble. Are your pills entirely digested? You might, as a rough test of their containing free phosphorus, cut them asunder in the dark.

"Viridis."—(1) Gold leaf is prepared by hammering the metal between the prepared outer membrane of the large intestine of the ox. This membrane is thus beaten very thin, and constitutes the true "gold-beaters' skin." (2) Court plaster is made of silk or similar material, which is coated with a solution of isinglass, sometimes containing other substances. (3) *Lecanora tartarea* is a crustaceous lichen which was formerly the principal source of cudbear.

W. Wales Edward.—The change referred to had taken place some time before. With regard to the other matters you refer to it is improbable that the writer had in his mind others than pharmacists actually in business, and it is difficult to see what benefit could result from a discussion of the questions you raise in the pages of the Journal. Joint action on the part of those concerned should be more efficacious than any action that could be taken by the Society, which by the way can hardly be expected to pose as the special providence of every one connected with it. Thanks for your expressions of appreciation.

"F. G. R."—You appear unduly despondent. After all, whatever a man's qualifications may be, his success or non-success from a business point of view must chiefly depend upon his business capacity; for example, an idealist and dreamy pharmacist cannot expect to compete with a practical and energetic grocer as a business man. See Mr. Proctor's letter on page 186.

"Quivis."—1. *Panicum miliaceum*. 2. *Artemisia absinthium*. 3. *Setaria glauca*.

"Oxalic."—We understand there is no fixed scale of fees. You should claim as a professional man, and ask for a fee of one guinea. Probably, however, you will have to content yourself with less.

T. Ellinor.—Your letter should have been addressed to the publishing office, 5, Serle Street, W.C. See notice at head of this page.

POISONING CASES AND INQUESTS.

Oil of Vitriol.—Herbert Dawes, aged 6, of Hardy Street, Bradford, died on August 18 from the effects of oil of vitriol. Verdict "Death by misadventure."

Prussic Acid.—Charles Edward Baxter, late librarian at the Kingston Free Public Library, died on August 21 at Gravesend from the effects of prussic acid.

Opium.—Sarah Jane Smith, aged 48, of 74, Whitmore Road, Small Heath, Birmingham, died in the Queen's Hospital, on August 22, from the effects of opium. Verdict: "Deceased died from an overdose of opium."

Laudanum.—Karl Willhelm Meid, aged about 57, of 46, Church Road, Horfield, died, on August 23, from the effects of laudanum, taken to induce sleep. Verdict: "Death was due to laudanum poisoning, taken to induce sleep."

OBITUARY.

Thursfield.—On August 17, Bevington Thursfield, Chemist and Druggist, Kettering. (Aged 28.)

Coles.—On July 16, Charles Henry Coles, Chemist and Druggist, Reading. (Aged 75.)

Norweb.—On August 24, Arthur Norweb, Chemist and Druggist, Nottingham. (Aged 44.)

PUBLICATIONS RECEIVED.

Handwörterbuch der Pharmacie. Edited by A. Brestowski. Part 23. Price 2 m. 40 pf. (Wilhelm Braumüller, Vienna and Leipzic.) From the Publishers.

Notice sur la Société de Pharmacie de Bordeaux. Pp. 44. (G. Gounouilhou, 11, Rue Guiraude, Bordeaux.) From the Society.

Communications, Letters, etc., have been received from Messrs. Ball, Barfoot, Bennett, Blissett, Burge, Clarke, Clayton, Cory, Dyer, Edwards, Fairburn, Fox, Giles, Goddard, Gracia, Greenish, Hadley, Hardwick, Harvey, Herbert, Hill, James, Kirkby, Knight, Lees, Martindale, Michell, Parry-Owen, Proctor, Rawson, Reynolds, Ross, Shirras, Simmonds, Stroud, Sturton, Turner, Underwood, Ward, Watson, West, Windle, Woodman, Yates, Yewdall.

A FALSE CHIRETTA.

BY J. S. WARD.

As herbs of different species are known in India as chiretta, it is not extraordinary that some of them occasionally find their way into this country for disposal.

The late Professor Bentley (*Ph. J.* [3], vol v., 481) described a substitute closely resembling true chiretta, as mitha kirayat, sweet chiretta, *Ophelia augustifolia*, Don., which can be recognised by the almost complete absence of central pith, and its deficient bitterness. E. A. Webb, and more recently W. E. Elborne, noticed the occurrence of mungit stems, madder, *Rubia cordifolia*, Linn., as false packing in bales of chiretta. W. Dymock noticed (*Ph. J.* [3], vol. vii., 979) chota chiretta, *Erythræa roxburghii*, a delicate little plant, 4 to 10 inches high, which is used in India when chiretta is scarce, no evidence is forthcoming of it ever being sent here either as a substitute or as false packing. The 'Pharmacographia' states that the authors have frequently examined the chiretta found in the English market, but have never met with any other than the legitimate sort. Occasional false packing of the madder and mitha chiretta has come under my notice; in India sufficient care is not always exercised. I remember a year or two ago the skeleton of a small monkey, partly covered with its skin, being found in the middle of a bale of chiretta.

Not long since a false chiretta was offered for sale by a broker, which, from its characteristic appearance, could not be mistaken for the genuine. I was kindly supplied with a large sample. The loose bundles not press packed, arranged in series, suggested at a short distance when in bulk, both in colour and appearance, a parcel of recently dried broom tops. Each plant was complete, root and stem being perfect; the branches were slightly broken, the leaves mostly absent, intermixed were some extremely slender stems, panicles of pedicellate flowers, corolla and calyx, and glandular hairs. By searching through the bulk a few leaves only could be found, which were slender and much broken. The branching stems are from $\frac{1}{8}$ to $\frac{1}{4}$ inch in thickness near the base, woody, quadrangular, furrowed, smooth, slightly knotted at the point from which the branches spring, the longitudinal furrows are continued through the roots, which have numerous fine radicles, the leaves are opposite decussate, branches erect, or forming an acute angle with the stem, terminal shoots extremely slender. The whole is a little more than 2 feet in length.

INDIAN CHIRETTA (*Andrographis paniculata*, Nees.).

It agrees with the description given in the 'Pharmacographia' and the 'Pharmacographia Indica,' and also with the specimen, in the Museum of the Society, of the *Andrographis paniculata*, Nees. This plant belongs to the natural order Acanthaceæ, and is described in Hooker's 'Flora of India' as being distributed throughout India from Lucknow and Assam to Ceylon, and cultivated in the East and West Indies. The chief characters given in that work are: leaves lanceolate glabrous, racemes lax, paniculate, divaricate; pedicels manifest, capsule nearly glabrous. The botanical characters of the plant are figured in Bentley and Trimen's 'Medicinal Plants,' vol. iii., 197.

Watt's 'Dictionary of Economic Products,' vol. i., 240, says it is an annual common in hedgerows throughout the plains of India. This bitter shrub forms the principal ingredient in the household medicine called "alui," the expressed juice of the leaves mixed with certain spices is dried in the sun and formed into globules for administration to infants for griping pains, loss of appetite, etc. It appears to be useful in general debility, dysentery, and certain forms of dyspepsia. It is called Indian chiretta (Surgeon-Major Lionel Beech, Coconada). Febrifuge used in infusion (Surgeon-Major Ratton).

"Both Hindu and Mahometan medical writers would appear to have confounded this drug with chiretta. . . . Quite recently under the name of 'Halviva,' which appears to be a corruption of the Bengali word 'alui' or 'alvi,' a preparation of the drug has been advertised in England as a substitute for quinine. The herb is very common in shady situations as a weed of cultivation, and is much used by the natives as a domestic remedy for fever in combination with aromatics, especially with lemon grass" ('Pharmacographia Indica,' vol. iii., 47).

Andrographis is not an article of commerce, but the fresh plant is sold by herbalists and gardeners. The dose of the dried leaves is about 10 grains combined with 20 grains of black pepper.

This individual importation may have been made simply to test its value, or the probability of it finding a sale in this country, rather than with the intention of passing it off as a substitute for chiretta; considering that it is already included in the Pharmacopœia of India, this would be a natural supposition. It is not quite so nauseous as chiretta, but as we have a large choice of pure bitter tonic drugs there does not appear to be much probability of the *Andrographis* being added to the drugs in use in this country.

THE RELATIVE TOXICOCITY OF SERPENT VENOMS.

M. A. Calmette has just published a series of interesting experiments on the relative toxicocity of those serpent venoms which have the reputation for being most deadly. The experiments were carried out on the fresh venom of the Capel cobra, a one-eyed variety from Indo-China; the rattlesnake from North America; the stanchion snake from Martinique; the horned viper and Cleopatra's aspic from Egypt; and on the dried venom of the Australian black snake; the tiger snake; the broad-headed snake; the death adder; and the Trigonocephale of the banana tree, from Indo-China.

Each of these venoms exhibits marked differences in toxicocity, which are interesting to compare. But a still more interesting point is that the toxicocity of the same serpents' venomous secretion is proportional to the length of time during which it has been deprived of food, and is perhaps dependent on other conditions which are difficult to determine.

M. Calmette kept for eight months an Egyptian "Naje Haje" (a species of cobra), which never showed any desire to eat, no matter what food was offered to it, such as mice, frogs, or birds. On its arrival, it was made to bite at a watch glass, and the venom collected by this means, and dried *in vacuo*, killed a rabbit weighing 1700 grammes, using a dose of 0·7 Mg. of dry venom, in four hours. Two months afterwards, the secretion from the same serpent had become fatal to a rabbit in a dose of 0·25 Mg. After the serpent's death, at the end of eight months, the venom extracted from the glands and evaporated *in vacuo* was so deadly that 0·1 Mg. was enough to kill a rabbit weighing about 2 Kilos.

The same observations were made of a Capel cobra which had been kept three months in a cage without taking any nourishment whatever. A cobra which had tasted nothing for at least two months yielded close upon 220 Mg. of toxic saliva. The total maximum quantity of venom extracted after death from the two glands was in one instance as much as 1·136 gramme, corresponding to 0·480 gramme dry residue. To sum up, the percentage of dry residue, which includes the albumin, salts, and toxic substance, varies from 20 to 35 per cent., being directly proportional to the length of the fast and the time expired since the serpent has bitten. Below will be found the comparative toxicocity, for rabbit and guinea-pig, of various specimens of venoms dried *in vacuo*, according to M. Calmette's experiments:—

	Fatal dose in 3 to 4 hours for a rabbit weighing from 1·600 Kg. to 2 Kg.	Fatal dose in 2 to 3 hours for a guinea-pig weighing from 450 to 500 Gms.
1 Capel cobra	0·5 Mg.	0·5 Mg.
2 „ „	0·6 „	
3 „ „	0·3 „	
4 Naje Haje	0·7 „	0·7 „
5 „ „	0·3 „	
6 „ „	0·6 „	
7 Ceraste (horned viper) ...	0·5 „	0·1 „
8 „ „	2·0 „	
9 Rattlesnake	3·5 „	0·3 „
10 Trigonocephale	2·15 „	0·2 „
11 Broad-headed snake	2·5 „	
12 Death adder	1·0 „	0·08 „

These tables show that the sensitiveness of the rabbit and guinea-pig towards the same venom is by no means proportional to the weight of these animals. It is necessary to use nearly twice as much venom to kill a rabbit of 500 grammes weight as to kill a guinea-pig of the same weight. The same points will be noticed if experiments are carried out on dogs; 6 Mg. of the first venom is needed to kill a dog weighing 7 Kg. in twelve hours, when the same quantity will kill 12 Kg. of rabbit in three hours. The toxic power of different venoms is thus seen to be variable, being dependent upon the species of animal experimented upon, the species of serpent, and also upon the time which has elapsed after the serpent has bitten or had a meal before the venom is collected. Moreover, these results are in accordance with observations made some time since in France on the subject of our vipers, from which we learnt that the bites of these reptiles are much more deadly in spring, after hibernation, than they are in autumn.—*Les Nouveaux Remèdes.*

THE CRY OF SUBSTITUTION.

Every now and then the cry is raised that pharmacists substitute preparations of their own in prescriptions for those of pharmaceutical manufacturers. We all know how false such a charge is as applied to pharmacists generally, if by it is meant that they give preparations of their own where those of another are ordered. The obvious intention is to discourage pharmacists from making preparations which shall compete with those of the manufacturer by raising the general cry of substitution. No distinction whatever is made between a legitimate substitution that is honest, and an illegitimate one that is dishonest.

There is substitution, and there is substitution. There is a substitution which consists in replacing the vast horde of proprietary medicines which infest the medical world of to-day, with products whose formulæ are absolutely non-secret, which possess decided therapeutical worth and are the result of ripe pharmaceutical experience. This is one form of substitution, and whenever a pharmacist can induce a physician to prescribe such products made by himself, he owes it to the public, the physician, and himself to do so.

Then there is a form of substitution which consists in replacing proprietary preparations ordered in prescriptions, with preparations which may or may not be similar, but which have not been directed by the physician. There are no words of condemnation sufficiently strong to characterise such a practice, and there is no moral or legal code that sanctions it. No man has any right to filch the good name of another man's product. But he has the undoubted moral and legal right to make a name for his product that is equally as good or better.

And this is the vital point in the whole cry of substitution raised by the manufacturers. It is not so much unauthorised substitution by pharmacists that is dreaded. As a matter of fact this evil is relatively small. But it is the growing practice of pharmacists making their own preparations for physicians' use, and bringing them into direct competition with their products that manufacturers fear. Pharmacists are commencing to realise their advantages as never before. As a class they have the confidence of the community in which they reside—more so than a distant manufacturer can have—and why should they not compete with their own products for their own trade? There is an honest, manly way of doing this, and there is a dishonest way; and, since the great mass of pharmacists are honest, conscientious, and faithful public servants, there is no question as to which of the two methods is generally followed.—*Alumni Report.*

BALSAM OF PERU can be mixed with oils if it be first incorporated with half its weight of castor oil (*Pharm. wochenschr.*); by this addition a uniform mixture is obtained miscible with other oils.

PEPTONE.*

BY W. D. HALLIBURTON, M.D., F.R.S.

It was in the early years of the present century that the most important discovery was made that the secretion of the glands of the stomach is an acid one, and Carl Schmidt was the first to show with analytical certainty that it is hydrochloric acid which is *par excellence* the acid of the gastric juice. The presence of other acids like lactic acid is more or less accidental. The absence of putrefaction in the normal gastric contents was noted by Spallanzini, and is caused by this acid. There can be no doubt that the antiseptic action of the juice, which is very great, serves us in good stead by protecting us very largely from the evil results which would otherwise follow the introduction of numerous microbes with every meal. But it is with gastric juice as a digestant that we have now to deal. The first observers were inclined to attribute the solvent power of the juice to its acid, but as Dr. Beaumont showed in his classical observations on Alexis St. Martin, which have laid the foundation of all our modern knowledge on digestion, this could not be the case. An acid of the same strength is a less powerful solvent, and therefore the gastric juice must contain a special solvent principle. This Eberle supposed to be the gastric mucus, a supposition easily refuted. It was Schwann who discovered this special principle and called it pepsin. He gave the name albuminose to the product of its action on albumin; Lehmann's name peptone, however, has since been generally adopted. Lehmann recognised that peptone is not coagulated by heat as albumin is.

The modern conception of the process of proteolytic digestion in the stomach is the following: Gastric juice acts on proteids in virtue of the compound between pepsin and the acid which it contains. This compound may be styled pepsin-hydrochloric acid. Like that of most other ferments its action is a hydrating one, and similar products may be obtained by other hydrating agencies, such as heating with dilute mineral acids or superheated steam. The final product of this action is called peptone, and this substance compared to the original albumin is very diffusible. But between the albumin and the peptone are several intermediate stages of intermediately diffusible substances. One of these produced in small quantities is acid albumin, but the greater number come under the general heading of the proteoses.

The pancreatic digestion of proteids is closely similar; it, however, occurs in an alkaline medium, and is more energetic, and, moreover, if long continued leads to a breaking-up of some of the peptone into simpler nitrogenous substances like leucine, tyrosine, aspartic acid, and ammonia.

It should be mentioned that though highly diffusible compounds like proteoses and peptone are formed in the alimentary canal, none find their way as such into the circulating blood, even during the periods of most energetic digestion. These substances are, in fact, pretty powerful poisons when injected into the blood-stream. The epithelial lining of the alimentary canal normally protects us from these toxic products by once more dehydrating the peptone in virtue of the vital activity of its cells. Though lymphoid tissue, which is abundant in the intestinal walls, has been considered by some to have a share in this action, most observers are pretty well agreed that it is the columnar epithelium which is the main agent in the "regeneration of albumin."

But to return to the products of digestion, it was very soon recognised that they are numerous. Meissner described the varieties of peptone as parapeptone, dyspeptone, metapeptone, *a*, *b*, and *c* peptone. Schmidt-Mulheim distinguished between parapeptone, propeptone and peptone. Parapeptone is the acid albumin, and propeptone is a very good name for what we now call the proteoses. Nearly all of our present knowledge of the chemistry of digestion is due to the work of Kühne and those associated with him in his researches, particularly Chittenden and Neumeister. A most valuable method of isolating peptone was discovered by Wenz, one of Kühne's pupils. It consists in the use of ammonium sulphate as a reagent; when added to saturation this salt readily precipitates all proteids except peptone. Pure peptone was never obtained previous to this, but always more or less mixed with proteoses.

The earliest of Kühne's observations showed him that there are two varieties of peptone, hemi-peptone, which by the pancreatic juice is further split into leucine, tyrosine, etc., and anti-peptone, which resists this action. The corresponding intermediate proteoses may be termed hemi-albumose and anti-albumose respectively.

More recent observations have shown that albumoses may be classified in another way, according to their reactions and solubilities, into:—

1. Proto-albumose; soluble in hot and cold water and dilute saline solutions, but precipitated by saturation with sodium chloride or magnesium sulphate.

2. Hetero-albumose; insoluble in water, and therefore precipitable by dialysing out the salt from its solutions. Otherwise it closely resembles proto-albumose.

3. Deutero-albumose; soluble in hot and cold water, and not precipitated by saturation with sodium chloride or magnesium sulphate, but it is by saturation with ammonium sulphate. It is thus in its reactions nearest to the peptones.

Peptone itself resembles these albumoses by giving the biuret reaction (pink colour with copper sulphate and caustic potash), but differs from them in not being precipitable by ammonium sulphate nor by nitric acid.

Neumeister has succeeded in discovering the relationship between these two classifications of the albumoses. Albumin may be considered to be composed of hemi-albumin and anti-albumin. The hemi-albumin in the first stage of hydration is split into proto-albumose and hetero-albumose; the anti-albumin yields hetero-albumose and acid albumin. The next stage in hydration is deutero-albumose, and the final step is the conversion of the deutero-albumose into peptone of the hemi and anti varieties.

The albumoses (proto and hetero) formed directly from the albumin may be called primary albumoses. Deutero-albumose is a secondary albumose, and is thus nearest to the peptones not only in its reactions, but also in its order of formation.

The similar products formed in the digestion of globulin may be called globuloses; of vitellin, vitelloses; of casein, caseoses; of myosin, myosinoses. There are individual minor differences, but all are closely similar to the albumoses already described, and the general term proteoses includes them all. The products of digestion of elastin and of gelatin have also a general resemblance to the proteoses and peptone.

Such, briefly, is a summary of our knowledge of proteolysis produced by gastric digestion. But within the last year or two further points of detail have been taken up and worked out, and it is to these that it is the special object of this paper to draw attention. In so doing it will be necessary to restrict our consideration to those papers in which peptones and albumoses are treated from the digestion point of view. It would lead us too far to take up another branch of this subject which has recently attracted so much attention, namely, the chemical action of micro-organisms, and the poisons they produce. Suffice it to say that in numerous instances the toxines and antitoxines of bacteriologists are proteoses or substances closely allied to them.

* Reprinted from *Science Progress*.

Pekelharing* has attempted to throw doubt upon the individuality of peptone and upon the ammonium sulphate method of isolation, claiming that proteoses are only partially precipitated by the ammonium salt, and that the so-called peptone is merely a mixture of albumose or proteose with some unknown substance or substances. In support of this view he apparently finds it impossible to prepare a peptone which will not yield some proteose by treatment with ammonium sulphate, or which will not show the presence of proteose by such reagents as trichloracetic acid.

This criticism has led to renewed research on the part of Kühne† in Heidelburg, and of Chittenden,‡ who now works independently of his old master in the laboratory of Yale University.

In his first paper Kühne states in general terms that a solution containing a mixture of proteoses and peptone gives a precipitate of proteoses when saturated with ammonium sulphate, the peptone remaining in solution. After filtration the filtrate, if set aside, will subsequently give a further precipitate if more salt is added. This has been explained by supposing that the saturation was in the first case incomplete or that the peptone is partially changed back into proteose. He proceeds to show that the former is the more probable explanation. There are many precautions necessary in order to precipitate the last traces of proteose. It is necessary in the first instance to use large volumes of the saturated solution in addition to merely adding crystals of the salt to the proteid mixture. Further, it is found that whereas the greater part of the proteose is precipitated by the salt if the reaction of the mixture is made acid, the residue, which is difficult of precipitation, comes down more readily if the reaction is made alkaline. It is further necessary, after the solution of peptone is obtained, to remove the salt employed. This may be accomplished by the use of barium carbonate after concentration. If pancreatic juice is used for the preparation of peptone, care must be taken to remove leucine and tyrosine also. In drying, concentrating, etc., especially if sulphuric acid is used, a brownish product is formed; this is minimised by care in the manipulations. This substance is precipitated by ammonium sulphate. It is not, however, albumose; it gives no biuret reaction. Further, if a precipitate forms on dialysis, it if not necessarily of proteid nature; if hard water is used it may be calcium sulphate.

Pekelharing does not seem to have recognised the necessity of these and other precautions and details, and, moreover, the differences between peptone and proteose are very striking. This aspect of the subject is considered more fully in Kühne's second paper. There are not only differences in solubility, but differences in elementary composition, differences in behaviour to such reagents as metaphosphoric and trichloracetic acids; and peptone when dry stands alone among the products of proteolysis, by hissing like phosphoric anhydride does on the addition of water.

Chittenden takes up the matter from rather a different point of view. He has considered it necessary to repeat his old experiments with as pure a specimen of proteid as he has been able to obtain, instead of using white of egg or other similarly impure raw materials. The proteid he has selected is the crystallised globulin or vitellin from hemp seed. He also entirely disagrees with Pekelharing, as under these more stringent conditions he confirms his older work; he, however, makes out a few new points, and so a brief *résumé* of the entire paper may not be unprofitable.

He performed two separate digestions on a large scale, one of which was continued for three, the other for ten days. The products of digestion were carefully separated from one another and analysed; their reactions are exhaustively described, including their specific rotatory power. In separating proteoses from peptone the difficulties of manipulation are recognised, and so far as is at present possible obviated. The investigation, however, lends no support to Pekelharing's views, but is in complete accordance with Kühne's contention that peptone is a definite, well-characterised substance. Its amount increases, and that of proteose diminishes as digestion progresses, but an artificial digestion in which all proteose is converted into peptone has not yet been obtained. The progressive changes from primary proteose to deutero-proteose and peptone are most marked in the early stages of digestion; the disappearance of deutero-proteose and the formation of peptone is subsequently a very gradual process.

In the proteolytic process, at least four products of hydration and cleavage are easily recognisable, namely, proto-proteose, hetero-proteose, deutero-proteose, and peptone. The examination of the percentage composition of these substances shows a gradual and progressive falling off of carbon as digestion progresses. But the tables given show another very noticeable feature, and that is that the percentage composition of the individual proteoses differs in the two digestions; the substance called proto-vitellose, for instance, in the digestion carried on for three days, cannot be the same as that with the same name in the digestion carried on for ten days, although both give the same reactions, specific rotation of the plane of polarised light alone excluded. This cannot be due to analytical errors; a skilled investigator of Professor Chittenden's eminence could not fall into such a mistake; besides other proteids, egg-white, for instance, under the influence of superheated steam gives similar results.

The explanation advanced is that the four substances named merely represent the main steps in the hydration process, but that there are further links in the chain mixed with these which cannot at present be separated, and which manifest the same general chemical behaviour.

Such a result is not altogether unexpected; it only shows how, in spite of the advance of chemistry as a whole, it is practically at a standstill so far as the proteids are concerned; nor can we hope to understand the steps in proteolysis until the chemists are able to give us some idea of the chemical constitution of the proteids which these digestive juices act upon.

One of the properties alluded to, which the proteoses and peptones agree in possessing, is their power of diffusing through membranes; and although these products of digestion do not avail themselves of this to the full, for we never find them in the blood, it can hardly be doubted that the formation of diffusible from indiffusible substances must fulfil some useful end. It appears to be the main object of all digestion, whether of proteids or carbohydrates. It may be held that it enables the substance to be absorbed to start on its journey, though in the progress of that journey bloodwards the property in question is lost.

The same two names are associated with the investigation of this point with accuracy. They worked independently and arrived at the same result. To take Chittenden* first. He found that the proteoses though diffusible were not nearly so much so as peptone.

A curious fact which was unexpected was that deutero-proteose is less diffusible than proto-proteose. Proto-gelatose is fairly diffusible, but it has a somewhat lower endosmotic equivalent than the corresponding proteose. Elevation of temperature increases the rate of osmosis, especially of the proteoses.

I give in conclusion the figures from Kühne's paper,† which illustrate these facts. Hetero-proteose is the least diffusible of the

* *Centralblatt f. Physiol.*, vii., p. 43.
† *Zeit. Biol.*, xxix., pp. 1 and 308.
‡ *Journ. of Physiol.*, xvii., p. 48.

* *Journal of Physiol.*, xiv., 483.
† *Zeit. Biol.*, xxix., 1.

proteoses; in neutral saline solutions it is precipitated, and none passes through the dialyser; dissolved in ammonia it loses 5·22 per cent. Deutero-proteose comes next (loss 24·1 per cent.); then proto-proteose (loss 28·3 per cent.); while peptone loses 51 to 51·8 per cent.

A PLEA FOR THE TABLET.*

BY GEORGE W. STANWOOD.

We often hear druggists argue that tablets spoil their business, as doctors carry a full assortment and give them to their patients instead of writing prescriptions.

Now the question arises, have tablets any value, or, rather, more value than any other method of administering dry drugs and chemicals? We claim they have.

In the first place, compared with pills, they have no insoluble coating, nor have they any possible insoluble excipient added to their composition. Properly made tablets are made by simple compression, and therefore, if the secretions of the human system affect the medicine administered, it is bound to be absorbed in the quickest possible time, always an advantage. Comparing them with capsules, we can insure a greater accuracy in their composition, as experiments have proven. Forty tablets of pure muriate of ammonia, made on a machine, adjusted to five grains each, weighed 199¾ grains on a torsion balance. The careful druggist knows it would be impossible to do this in filling capsules.

Another great advantage tablets have over pills, capsules, or powders is the great rapidity with which you can make them. Powders are hard to divide accurately, unless you weigh each one; and, again, put up as they are in paper, they are hard to swallow, and as part of the powder always adheres to the paper, it is impossible for the doctor to be sure his patient always gets the full dose desired.

Taking all these advantages into consideration, and we know of no disadvantages, we cannot blame the doctors for having used this convenient method of distributing their drugs. On account of the tablet, houses which have catered to advanced pharmacy have bought expensive machines to fill the wants of the trade, and as a consequence have well nigh destroyed the pill maker's trade, as very few pills are now made in the drug stores.

Machines are now manufactured by several well-known firms which will enable any druggist to make any and all tablets if he so chooses, and every pharmacist who is not merely a dry goods dealer, that is, one who buys his paregoric by the pint and sells it by the ounce, being a mere measurer of the articles he has bought, knowing nothing about their composition, etc., ought to put in the small sum of fifteen or twenty dollars and make what tablets he and his neighbouring doctors use.

No doctor will refuse to work with the druggists of his town if they use him right. The tablet if anything has widened the breach existing between doctors and druggists. Druggists could not make tablets. Doctors bought elsewhere and gave them to their patients. Then druggists counter-prescribed and doctors did not like it.

Now show the doctors the advantage of freshly made tablets. Take for instance, a rhinitis tablet containing camphor, show the bottle wherein they are kept; notice the crystals of camphor on the sides of the bottles and ask the doctor how much camphor he gets in an old tablet; then ask how much he expects. Hundreds of them change colour by age.

The doctors who have their patients' recovery at heart will rely on the druggist who calls attention to those things that will benefit them in their practice, and seeing him nearly every day ought and will give him the preference over a glibe talking agent. Some druggists say "We will not make our tablets; we will buy them, as it costs only a little more than the articles used in them cost. Besides, it is so much easier." Now how many drug stores keep their clerks working all day long Almost all stores have clerks with nothing to do for at least two or three hours of the day. Any young man likes to learn the business when he enters the drug store as an apprentice. Let him make the tablets and other preparations which do not require a great amount of skill when the work of the store is done. He will be better pleased in a store when he learns the business, even if he has to work harder, if he has got the right stuff in him. The only skill required is the mixing of the drugs (like any powder) and the adjustment of the machine for the first tablet. Afterwards any boy can make from ten to fifteen tablets a minute, at least five hundred an hour.

We believe in every druggist making all his own preparations; he knows what he is selling, he will gain the confidence of the public, and, as in the last part of the last century and the beginning of this, some new Scheele or Liebig will spring up from the noble rank of the druggist instead of letting the manufacturing chemists do all the thinking for the advancement of pharmacy and chemistry.

* Reprinted from *The Spatula*.

BEE CULTURE IN FRANCE.

In a recent number of *Le Figaro* an interesting account of the thirteenth exhibition of La Société d'Agriculture et d'Insectologie in the Palm House of the Jardin d'Acclimatation in Paris, is given over the signature Guy Tomel. The writer estimates the number of bee masters in France at about 10,000, and these are mostly to be found on La Beauce—a vast tract of prairie lying between Paris and Orleans, where the best wheat raised in France is grown—and in the Gâtinais (Loiret), where as many as 800 hives are held by a single proprietor. It is said that last year a bee master of La Beauce sold the honey he had obtained from his hives for 20,000 francs, not counting the value of the wax. Next in importance are the Bretons and bee-keepers of the Landes near Bordeaux. As for Narbonne honey, strictly speaking, there is now little or none of it to be had collected round Narbonne (Aude), in consequence of the dearth of labiate plants which gave to the old Narbonne honey its character. The best and finest flavoured honey now comes from Savoy, but the quantity is limited, owing, as the writer says, to the bees having a habit of only visiting one variety of flower during their day's work, so that if they happen to prefer a flower not very abundant, the number of journeys they make is less the greater the distance these flowers are apart, and consequently the smaller the amount of honey they have for their labour.

In the Beauce the variety of flowers is not so great as in Savoy, but the quantity is very large, so that the bees soon collect their 5 decigrammes of honey — the extent of their carrying capacity — and consequently can make nearly treble the number of journeys per day that their equally hard working but less fortunate relations can in Savoy. Each hive yields from 25 to 30 kilos. of honey, selling at about 1 fr. 30 wholesale, per kilogramme, so that at the least 40 francs is realised, and as the hive itself costs only 15 francs and 5 francs for maintenance, the profit to the happy owner is very handsome. The other side to the question lies in the fact that French people do not use honey to the same extent as we do in England as an article of food, but restrict its use almost entirely to medical purposes, looking upon it as a medicine, good enough, at any rate, to use in gargles. The demand is naturally not very great for home consumption, and as for foreign markets the

large and increasing quantities of American and Chilian honey now produced have caused the price to drop, so that after carriage has been paid there does not remain much profit for the French producer.

As a remedy for this unsatisfactory state of things the writer proposes that as his countrymen and women won't eat honey, it would be now a fitting opportunity to reintroduce "the hydromel" or favourite beverage of their ancestors, who used to drink it out of golden cups or the skulls of their enemies, though he does not insist upon the latter alternative. Therefore during the exhibition it is intended to serve "hydromel" to the fair sex, and so attempt to set a fashion which it is hoped will mean the salvation of apiculture in France.

THE UTILITY OF PHARMACOGNOSY TO THE STUDENT OF PHARMACY.*

BY WILLIAM S. DISBROW, M.D., PH.G.,
Professor of Pharmacognosy, New Jersey College of Pharmacy.

Pharmacognosy may be conveniently termed the child of the microscope, for before the rapid developments which have made that instrument so common and so cheap, we may say that it hardly existed as a distinct branch in the history of drugs. Early in Europe attention was called indirectly to the study of crude drugs, through the impetus derived from histological botany; here the advantages were recognised of a definite determination of histological characters, applied to the study of materia medica, and their exact determination. We have to deal in this division of materia medica with the crude drugs, and for their thorough knowledge we are dependent on the recognition of the true from the spurious, and in this way only are we safe from substitution and adulteration.

Properly speaking, the whole history of the drug, its origin, source, varieties, commercial relations and natural history are to be considered in referring to pharmacognosy; but, as generally understood, and as applied practically in our colleges, it relates to the biological or histological structure of drugs, and the other considerations are relegated to materia medica and botany. The first lectures on this subject were delivered by Martius, at the University of Erlangen, in the year 1825, and the definition, as given by him at that time, was that pharmacognosy is to be regarded as "a part of general materia medica, or that science which relates to the examination of the medical substances derived from the three kingdoms of nature, with a view to ascertain their sources and quality, to test for their purity, and to determine substitution and adulteration." It will be seen that if we accept this as our guide, we should be led far into the domain of the collateral sciences, but I think, as we now understand it, we adhere to drugs of vegetable origin. Without the microscope we would have but a poor showing; for without understanding the elements of plant structure, how can we be expected to appreciate the principles, and what we are able to do to-day in the differentiation of drugs we owe to that instrument.

I remember, in my early pharmaceutical days, we were taught that the characteristics of a drug were those of a microscopic quality, they were round or shapeless, soft or brittle, smooth or wrinkled, brown or some other colour, depending upon the ability of the observer to distinguish colour; never did we hear of the varied arrangement of wood bundles; the parenchymatous and prosenchymatous forms were a nebula, which always retained its misty character. That was but fifteen years ago, in one of the best of pharmaceutical colleges; then but bottled drugs, to taste, to smell, and to inspect with an air of utter helplessness; a microscope—a toy to be cased, and for inspection only. Now the science is recognised and appreciated; to it plenty of practical work is given, and it is second to none in practical importance, and is of infinite interest and beauty. Who among you can recognise one drug from another when crushed or powdered? (For I will concede that there are many general characteristics by which they may be identified without instrumental help.) By what method may this be done, if not by pharmacognosy? And if this may not be considered a science of utility to the pharmacist, I would like to know where we will find it. Pharmacognosy teaches the structural conditions of drugs, the arrangement of their elementary constituents, and how one differs from another; and to know a drug from the pharmacognostical standpoint is the only way by which it may be known. Some of you may consider this all nonsense, and of no practical use, but I tell you you cannot get along without it; and the possessor of a brain so obtuse as to be unwilling to recognise it, and an eye so blinded as to be unable to see it, is not worthy of the profession to which he is supposed to bear allegiance, and he, and not the science, will be the loser.

To be a pharmacist, in its broadest definition, without some knowledge of this science, would be like going to warfare with imperfect armament. You may appear like pharmacist or warrior, but the test soon comes, and it is but the fittest that survives. To be unable to recognise drugs with a definite precision in your daily labours is not only negligence, but criminal.

We should consider this subject not only in its utility, but in its necessity, and if there are any among you who consider it as of value only in rounding out a curriculum, you are making the greatest mistake of your life, preventing by your own mental antigmatism the enlightenment which others would have derived in its pursuit. Pharmacognosy is here to stay, our text books are now filled with it, where but a few years ago no reference was made. Now, well-executed drawing and micro-photos illuminate where formerly all was dreary and dull. How many of us during the idle moments which are so frequent in some of our stores, have wandered about aimlessly, wondering, perhaps, what is the matter with the times, and only considering how cheaply we can purchase the next lot of drugs, irrespective of how much they may be adulterated, and never considering how easily we could fit ourselves to readily identify and to prove their quality; for we must consider that to be worthy of the confidence of the physician, we must be able to give what is requested, and that in a condition of purity.

I imagine I hear some one remarking that to do all this necessitates a microscope and time. This is so, but no more than is imposed upon the practitioner, far more busy than most of you. If you will make yourself superior to your fellow pharmacist, you will soon be rewarded by the public confidence. But if you do not, and are willing to be mere "hewers of wood and drawers of water," you will always remain so, for the day of mere selling of drugs is past, and modern pharmacy is fast pushing to the wall the laggard and the drone. Let us awaken to the value, to the utility of pharmacognosy, if for no other reason than that of mental enjoyment; you will find it to compete favourably with all which you may pit against it.

* Read at the New Jersey Pharmaceutical Association Meeting, May, 1895. Reprinted from the *Pharmaceutical Era*.

CUSCUTIN is an acid glucoside, obtained by G. Barbery (*L'Union pharm.*) from *Cuscuta epithymum*. It is a yellow powder, insoluble in cold water, soluble in a large quantity of boiling water, also in alcohol, ether, acids, and alkalies, but not in chloroform or benzine. The glucoside is associated in the plant with tannin, gum, resin, and a fatty body.

THE WEIGHTS AND MEASURES OF THE BRITISH PHARMACOPŒIA *VERSUS* THE METRIC SYSTEM.*

BY WILLIAM ELBORNE, B A., F.C.S,
Pharmacist at University College Hospital.

(*Concluded from p. 184.*)

And if grains and fluid grains be unsatisfactory, so likewise must grammes and cubic centimetres, for I have already shown that they are in the end the same thing, and, in fact, in our pharmacopœial volumetric test solutions they are accepted as such. And if grains and fluid grains are not so well understood, as I find to be the case among dispensers, how shall they more readily comprehend these foreign multiples of them? Moreover, it is this difference of opinion respecting the constitution of a percentage solution which renders futile the endeavours at an International Pharmacopœia, and grammes and cubic centimetres will not help us out of the difficulty. Let us, however, imagine our aspirations realised, and the metric system introduced into the Pharmacopœia in accordance with the recommendation of the Therapeutic Committee above mentioned. First, a word in reference to the term cubic centimetre. Has it occurred to us that it is not a denomination at all of the metric liquid measure (the litre), but that it belongs to the metric cubic measure, intended for measuring masonry and timber, which by popular perversity, sanctioned certainly by custom, is used instead of the "millilitre." To speak of our fluid ounces in terms of cubic centi-yards would be an expression somewhat analogous; the precise metric system, we see, starts off in an anomaly.

Here is extractum cinchonæ liquidum, our own weights and measures in precedence, with the alternative metric weights and measures (grammes and cubic centimetres).

Extractum Cinchonæ Liquidum.

Take of		
Red cinchona bark, in No. 60 powder	20 ozs.	566·99 Gm.
Hydrochloric acid	5 fl. drms.	17·75 C.c.
Glycerin	2½ fl. ozs.	70·9925 C.c.
Rectified spirit, Distilled water	of each a sufficiency.	

Mix the bark with five pints (2839·66 C.c.) of the water to which the acid and the glycerin have been added, and macerate in a covered vessel for forty-eight hours, stirring frequently; then transfer to a percolator, and when the fluid ceases to pass, and the contents of the percolator have been properly packed, continue the percolation with water until fifteen pints (8518·98 C.c.) of liquid have passed, or that which is passing has ceased to give a precipitate on the addition to it of an excess of solution of soda. Evaporate the percolated liquid in a porcelain or enamelled iron vessel at a temperature not exceeding 180° F. (82°·2 C.) until it is reduced to 20 fluid ounces (567·94 C.c.).

Put 50 fluid grains of this liquid (3·245 C.c.) (*a*) with half an ounce (14·198 C.c.) of distilled water into a stoppered glass separator capable of holding 4 fluid ounces (113·588 C.c.); add to this 1 fluid ounce (28·397 C.c.) of benzolated amylic alcohol and half a fluid ounce (14·198 C.c.) of solution of soda, shake them together thoroughly and repeatedly, then allow them to remain at rest until the spirituous solution of the alkaloids shall have separated and formed a distinct stratum over the dark-coloured alkaline solution of the other constituents of the extract. Run off the latter by the stop-cock, add a little more distilled water to wash away any still adhering alkaline solution from the separator and its contents, and having run off this as before, as completely as possible, decant the spirituous solution into a small porcelain or glass dish the weight of which is known. Evaporate by the heat of a water bath until a perfectly dry residue is left. The weight now of the dish and its contents, after deducting the known weight of the dish, will give that of the alkaloids, and this (in grains) multiplied by 2 will give the parts by weight of the alkaloids in 100 fluid parts of the liquid (*a*). (Or, the residue in grammes multiplied by 30·76 will give the weight of alkaloids in grammes per 100 C.c. of the liquid.)

Having thus ascertained the alkaloidal strength of the liquid (*a*) every fluid part of it (in grains or C.c.) containing 5 grains (0·325 Gm.) of total alkaloids is first to be brought to the volume of 85 (5·5 C.c.) grains by evaporation, or if necessary by dilution with water, then 12 5 fluid grains (0·78 C.c) of rectified spirit are to be added, and the final adjustment of the volume to 100 fluid grains (6·5 C.c.) is to be effected by the addition of distilled water. The finished liquid extract will thus contain 5 grains (or grammes) of the alkaloids of the bark in every 100 fluid grains (or cubic centimetres).

Dose—5 to 10 minims (0·059 to 0·59 C.c.).

Here is an array of numbers; and if the above performance is in any way typical of what we are to get, I know of nothing more likely to bring the simplicity of the metric system into disrepute. It must evidently be adopted solely, or not at all; and if adopted in these half-measures, there will be a tendency to round off the above decimals to approximate numbers, as formerly done in the Codex, and more recently in the sixth revision of the United States Pharmacopœia (as shown below), resulting, doubtless, in all kinds of subsequent discussion from wranglers and "half-minim" hunters, that such a noble instrument of precision should be thus mauled. Here are examples of the rounded-off system from th U.S.P. (sixth revision, 1883):—

Trochisci Magnesiæ.

	Grains.	Grammes
Magnesia	300	19·50
Nutmeg	15	1·00
Sugar	900	58·50

Mucilage of tragacanth, a sufficient quantity.
(For 100 troches.)

Trochisci Morphinæ et Ipecacuanhæ.

	Grains.	Grammes.
Sulphate of morphine	5	0·32
Ipecac. powder	16	1·00
Sugar	2000	130·00
Oil of gaultheria	2	0·13

Mucilage of tragacanth, a sufficient quantity.
(For 200 troches.)

Another aspect of the question bearing upon the introduction of these centigrammes and milligrammes for dispensing purposes is, How shall we weigh them? Is the balance we are accustomed to see in a glass case to supplant our dispensing hand-scales—the busy instrument which, like the mortar, being so essential to the daily performance of our art, was conspicuously enshrined as a sacred emblem in our coat of arms?

Times may have changed, and the question is not new; and this is Jacob Bell's opinion of the subject:—He said, "he was not so enthusiastic as some persons appeared to be in favour of an alteration of our weights and measures to the decimal system. He was quite sensible to the existing evil, . . . but would prefer reform to revolution." And the opinion of the late Professor Redwood is doubtless embodied in the following quotation from the preface to the British Pharmacopœia of 1867, which is as true to-day as when written.

"The Council are not insensible to the advantage that would result from the adoption of one uniform system of weights and measures, to be used alike for all substances and in all countries, and they observe with satisfaction the efforts which have been made for the realisation of this object; but considering the

* Read at the Pharmaceutical Conference at Bournemouth.

paramount importance of avoiding errors in preparing and dispensing medicines, they cannot recommend that, in such operations, a system should be adopted which has been as yet but little used, and is to a great extent unknown in this country; and on this account they have not employed the metrical system, even as an alternative, excepting in the processes for volumetric estimations, which are now so arranged that the same solutions may be made and used either with British weights and measures or with those of the metrical system."

Let us now hear one or two authorities, illustrating the struggle of the metric system in France—its native land:—

"It is very important to weigh and measure medicines with uniform weights and measures; the metric or decimal system admits of this being easily accomplished. However, the difficulty of understanding the value of grammes, kilogrammes, decigrammes, etc., and the capacity of litres, decilitres, etc., has caused the use of the ancient pound, with its ounces, drachms, scruples, and grains to be preferred" (*Dictionnaire Universel de Materière Médicale et de Thérapeutique Générale*, par Mérat et De Lens, Paris, 1833, vol v., p. 408).

Here is a quotation from Gray's Pharmacy:—"The French philosophers, for parade, have vapoured much of a new weight to be deduced primarily from an admeasurement of a degree of the earth's surface. The initial weight to be called a gramme, from which the other terms are deduced decimally. Although the new chemical books in French nominally use the gramme, yet in all their processes for practical purposes it will be found that they are mere reductions of the common weight to the decimal scale, so that the new metrical system has only mystified, to use a French word for hoaxing, the students, and produced a similar discrepancy between books and the laboratories, as the new nomenclature has produced in many instances, between books and the shop. Indeed, their government has lately given up the point, and allowed the use of the old pound, ell, etc., only ordering them to be divided decimally, as is done in England with long measures, whenever convenience requires it, without any coercion" ('Elements of Pharmacy,' by S. A. Gray, London, 1823, p. 14).

The same author, in his supplement to the Pharmacopœia, 5th ed. London, 1832, p. xxxvi. (latterly edited by Redwood), says:—"Before the Revolution there was only one pile of weights in common use in France; in endeavouring to introduce one upon philosophical principles there are now no less than four. The Revolutionists, misled by the apparent facility of a decimal scale, introduced the metrical system in 1795. The academicians complain much that the great government departments of the navy and artillery have never adopted this weight, not considering the great expense that it would occasion to recast all the artillery and balls.

The faculty of medicine at Paris, in translating their Codex Medicamentorum, or Pharmacopœia, into this new system of weights, did not esteem it necessary to use the exact reduction, but adopted a system of round numbers, and in some parts quoted both the old and their new weights, that the preparers might use either; thus a third system of weights was established. For example—

Old French Weight.	Exact Metrical Weight, Grammes.	Round Number of the Codex.
1 lb.	489·51	500·
1 oz.	30·594	32·
36 grains.....	1·91	2·
20 grains.....	1·062	1·

It is not a little singular that the medical faculty of Paris should, like that of London, prefer creating a new pile of weights rather than employ the same as are used by all other persons. In 1812 the metric system was abandoned, but instead of reverting to the old pound of Charlemagne, a new pound was decreed; and thus four systems of weights are in common use, including that of the Codex. The confusion thus introduced by continual alterations may be easily conceived."

In conclusion, by all means let the metric system be sanctioned for purposes of foreign trade, yet surely there is no reason that our Pharmacopœia and English pharmacy should lose their identity on that account. Moreover, while medicine should be the last of the arts to adopt any measures not well understood, let us in matters of science stick to science, and in matters of our art stick to art, and if we would improve our art by the application of science let it be in the direction of making wonders plain rather than plain things wonders. And in this adoption of the metric system, if an appeal were made to the pharmacists and dispensers of this country I doubt not that an overwhelming majority would vote with the cock in the fable; for you will remember that while pursuing his art of scratching he turned up a sparkling gem, and in expressing his sentiments respecting it, he said, "Doubtless this is a very fine thing, but give me the grain!" And in his choice he displayed considerable sagacity, for in the grain he recognised his bread and butter.

The PRESIDENT (Mr. Martin) said this was an extremely able and interesting paper, which he hoped would provoke a useful discussion. Perhaps the President of the Pharmaceutical Society, who gave evidence before the Select Committee on the subject, would have something to say.

Mr. MICHAEL CARTEIGHE said this paper was in some respects amusing, and it no doubt brought before them some of the statements which had been made from time to time with regard to the want of logic and accuracy in the metric system. He did not quite know what the author wished the Conference to discuss; were they to consider the advisability of using the metric system in all the daily avocations of life, or to confine themselves to pharmacy? Perhaps for the purpose of the discussion it would be convenient to consider principally how far the introduction of the metric system into the Pharmacopœia as a process of manufacture and preparation, irrespective of the dose—which was not proposed to be included—would be a disadvantage. The author seemed to think that if this system were introduced in the directions for preparations, it must at some future time be also introduced in the dose. That was possible, but it did not by any means follow, and that was the defect of the paper throughout. The logic underlying the paper was perfectly sound, but all systems of weights and measures were natural systems, and nothing would prevent the great mass of the community from continuing that system which was a natural system in their own particular country any more than laws of the most penal character, which existed in some parts of Europe, would prevent a man born a German from speaking his native language in a French land, or a patois like it. Every Swiss child was compelled by law to learn both French and German in order that he might be able to earn his living in any canton of the Federation, but nevertheless he had a third language, a patois, which nobody could understand but his neighbours. It did not follow that that patois should continue to be the standard of language. He agreed with Mr. Elborne that the French themselves in their domestic life in buying and selling did use the old system, and he saw no harm in their using it at all, but he knew that the application of the metric system to the enormous business of the country saved a great deal of error and friction, and tended to increase trade in the highest sense of the term. If the metric system was only one to be used on paper it would be extremely useful. He did not propose to give any opinion whether the metric system was good or bad, it was too late in the day to rake up those old arguments. It did not matter a bit what the standard was; a standard might be made in all sorts of ways. The old standard which formed the basis of the English system of a pendulum beating seconds was probably the most scientific of all, but for practical purposes it was a matter of little consequence what the standard was; but it was a matter of great consequence that all English-speaking people, whether in Canada, Australia, or America, and even those not English speaking, should be to some extent in touch with us, and that we should be in touch with them. There was a time when

we were proud of our insular position, and there were advantages in it, but the insularity had received serious knocks of late years, and we found that other European nations could do a great many things which we once did. It was necessary, therefore, to consider how far in a matter of this sort it was not desirable from a trade aspect to adopt the metric system. His contention was that it was absolutely impossible for us to go on with the idea of having an Imperial Pharmacopœia unless there were introduced into it, side by side with the British system, the metric system for the purpose of manufacture. He had grave doubts himself, as he expressed in the evidence he gave before the Committee, whether ten years would be enough to educate medical men to think in doses on the metric system. He might say further that one of the members of the Committee spoke to him afterwards in reference to having the system adopted voluntarily, which he had recommended, and said he was rather inclined to agree with the opinion expressed by Mr. Goschen some years ago, when Chancellor of the Exchequer, when it was proposed to deal with this subject in a compulsory way, who said that it would cost the Government that proposed it its existence, because it was just one of those things that touched every man, woman, and child, and it would be resented very largely unless it were introduced in the most gradual and natural way. Our coinage was an instance of how little people liked change. There was no reason why the metric system should be called a scientific system, but it was the system practically adopted by all the pharmacists in the world, and did Mr. Elborne seriously think that Englishmen were so wanting in intelligence that they could not manage to devise practical processes in that system? He thought they all knew what the fluid grain was, at any rate, he was quite sure that a very large number of candidates knew the metric system at the present moment a great deal better than they knew their own. There was not a single candidate he had ever examined who did know completely the basis of the system of weights and measures he had been in the habit of using all his life. It seemed to him that the dangers referred to with regard to prescribing were not quite so serious as they were represented. It did not follow that you were in a prescription to order the dose in numerals or decimals; there was no difficulty in writing a gramme though it looked very like a grain, or a decigramme, or a centigramme, or you could put milligramme and write one thousand after it. The question of safety might be dealt with hereafter. All they were concerned with was whether the introduction of the metric system would facilitate intercommunication with our own people in Canada and elsewhere. There the United States Pharmacopœia was used. The pharmacists of that country looked on themselves as go-ahead people, and they had adopted the metric system solely in the recent edition. It seemed to him that for the purpose of the preparation of medicine the system could be introduced without the slightest difficulty. The question of its introduction was not seriously before the pharmaceutical world. When it was proposed years ago to introduce it into the Pharmacopœia, all the doctors imagined that they would have to prescribe in those terms, and to have the doses so arranged. It had been pointed out, however, that that did not follow at all, but that in a standard book where directions were supposed to be given with a certain amount of accuracy, there was a convenience about the system in many ways which seemed to point to the desirability of its introduction, at any rate as an alternative system in the Pharmacopœia. His object in giving evidence was not to press the point whether the system should be introduced, but to point to the fact that such a proposition was being made, and that by the Act for consolidating the various Weights and Measures Acts, passed some years ago, the permission they formerly had to use those weights had been taken away; his object was to prevent the absurdity of a pharmacopœia being published with permission to use the metric system of weights and measures, when at the same time the representatives of the County Council might go into a pharmacy and fine a proprietor 40*s.* for having illegal weights and measures in his possession. He did not wish to speak as a person who considered the metric system as the most perfect, but it was the one used in all accurate work throughout the civilised world, and the best answer to Mr. Elborne's objections was that when a nation like the Germans used a system invented by their natural enemies, the French, the Britisher, with all his pride, might very well be content to follow.

Mr. W. A. H. Naylor said it must be admitted that when the metric system was placed in juxtaposition with the British, as was done in this paper, it did look a trifle ridiculous, but, as Mr. Carteighe had said, there would be found no difficulty in understanding the system if it were introduced, and it would certainly be a very workable one in commerce. There was something to be said in favour of the metric system. Supposing he put the question to Mr. Elborne, and asked for an immediate reply, How much hydrochloric acid was there in a given quantity of liquid extract of cinchona?—of course, in the metric system it would be seen at a glance, but it could not be seen at a glance in the ordinary system, you had to calculate the pints into ounces and into drachms in order to get at the proportion. He was not in a position to speak as a dispenser of medicine, but he thought Mr. Elborne had slightly exaggerated the point—perhaps his remarks were humorous rather than serious—with regard to requiring a balance to weigh these very small quantities. Of course, they could be weighed without any difficulty; 30 milligrammes could be easily weighed now with an ordinary pair of scales.

Dr. C. Symes said, although not a strong advocate of the metric system, he quite appreciated the advantage of using it voluntarily in the Pharmacopœia. Mr. Elborne had quoted opinions as to difficulties which arose in early days, but the very fact that his quotations from English authorities pointed out difficulties, showed that they had been considering this matter for a great many years, and had been gradually getting educated to a knowledge of it. The remarks of Dr. Redwood rather pointed to the fact that he thought some time it would be used, though the time had not come then, and that was probably twenty years ago. The fact that this had been always talked about seemed to imply that it was intended to come some time. The question was whether they should go on and progress, or abandon it altogether. Mr. Elborne admitted that for all scientific purposes the metric system was valuable, and it occurred to him when that passage was read that as they were always trying to elevate pharmacy, and to show that it was closely related to science, if they deprecated this because it was a scientific system it was rather like reducing them to the level of a common tradesman who could not grasp anything beyond a pound or an ounce. It was very desirable that they should be able to think in this system at the present moment; if one spoke of a gramme they thought of it as being about 15½ grains, but they did not want to think that at all. The gramme should at once convey some tangible quantity to the mind, just as the grain did at present. He admitted that the grain would never be superseded altogether, because they were accustomed to think about it, but if they were accustomed to think about the gramme as they did about the grain there would be no difficulty. The system from its simplicity had been very generally adopted, and if they were to keep abreast of the times, they must take the step some time or other of having it introduced voluntarily at first; probably ten or twenty years hence would be soon enough to make it compulsory. The tendency to round off figures did cause some slight discrepancy. He had noticed recently an ounce spoken of as 25 grammes, and it struck him that there was a good deal of rounding off there; they could get much nearer than that without difficulty. With regard to the doses, he did not think there would be any great difficulty, as at present they often had to deal with prescriptions in metric weights and measures, and it was far better that they should become familiar with them.

Mr. J. C. Umney said, as a wholesale druggist, he should like to say a word about the County Council regulations with regard to weights, which Mr. Carteighe had referred to. It was the absurdity which Mr. Carteighe and others took such a strong stand against. They were to check goods inwards from foreign countries with metric weights, and attar of roses they were allowed to check by Turkish weights on entry, but not to sell by Turkish weights on foreign trade. It was that inconsistency that led to the present regulations being called in question, and the County Council had now given notice that they would not interfere with the use of the metric system for export trade. Mr. Elborne had endeavoured to show the absurdity of calculating the formula of the present Pharmacopœia into the metric system, but in working on large quantities it was extremely convenient to work in thousandth parts and hundredth parts. In making extracts, etc., they were accustomed to work either with one-thousandth parts, if it was not too great a quantity, or with fiftieth, twenty-fifth, or twelve and a half, and then by simple multiplication it was easily seen what was the percentage proportion in any preparation, while the cost was much more easily ascertained than when you had to deal with a quantity of say 4·13 ozs., and attempted to work that into the cost of the product. If you had a definite quantity of twenty-five, fifty, or one hundred to work with, there was a great saving of time and labour.

Mr. Kemp said he thought Mr. Elborne had raised unnecessary

difficulties with regard to the extractum cinchonæ liquidum. He pointed out that 20 ozs. was represented by 566·99 grammes, and that there would be great difficulty in reducing the quantity when they wanted 2½ ozs., but it seemed to him as Mr. Elborne had been so many years engaged in chemical work, and had become so familiar, and had worked almost invariably in the decimal parts of everything, that the first thing that would have presented itself to his mind in this case would be to start off by bringing it into thousandth parts, and then it would be the simplest thing possible to divide by moving the decimal point, and if necessary, multiplying by two, four, or six, as the case might be. It would be quite possible to work with 1/1000th grammes or 100 milligrammes, and the proportion might go through all these formulæ with very little variation indeed. With regard to any difficulty as to the proportion of dosage, though not a prescriber, he did not see why it made so material a matter whether a pill was ordered to be 5 grains or only 4·98 grains. Medical men now ordered 10 minims of what was called a 1 per cent. solution, under the impression that they were getting 1/10th of a grain, but they were not actually. If they had the metric system when they were ordering 1/10th, or 10 minims, or whatever it might be, they would have a definite quantity easily understood by everyone. As to the difficulty which the average chemist would have of grasping these things and altering them from the present system to the metric, he thought the metric system had from the very earliest times of compulsory examinations been one of the subjects in which candidates had been examined, formerly in the Minor, and now in the First, examination, and the time was approaching when everyone who had passed an examination would at least understand sufficient of the metric system to be able to adopt it.

Mr. Parry said there were many points which did not seem quite clear in Mr. Elborne's paper. For example, he said that a 5-grain blue pill must necessarily in the metric system become pil. hydrarg. 0·325 grain. Why a blue pill was not a blue pill in the metric system, or why there should be any further difficulty in nomenclature he did not understand. Even now when a foreign prescription was presented, if Mr. Elborne required such delicate correctness in the conversion of these weights, did he weigh 15·43 grains for each gramme, and dispense it? It seemed to him that this was an attempt to reduce medicine and pharmacy to the level of an art, when it was certainly far more of a science, and to talk about the revolutionary measures which all scientists wished to welcome was without any force. No measure of any kind would be accepted unless it were certain that it would give considerable advantage in the way Mr. Carteighe had pointed out.

Mr. Michael Carteighe said there was one point in the paper which was somewhat laboured, which, with all due deference, seemed to have impressed the author more than it should. He seemed to have thought from the suggestion of the Committee which recommended the introduction of the system, that they were doing this in order that they might have a definite weight and volume, and he had shown that, having regard to the densities of different liquids, there would be a certain amount of inaccuracy in these solutions, and they would not be strictly, even then, decimal or centesimal solutions. Having regard to the fact that potent preparations, with the exception of hypodermic solutions, were made dilute, he did not think that went for very much. No doubt, with regard to such preparations as syrups and things of tolerably high gravity, when the compilers of the Pharmacopœia began to tackle the work they would not be able to do as they seemed to think they could, and as Mr. Martindale seemed to be quite sanguine about—*i.e.*, make it possible to have solids by weight and liquids by measure throughout—without considerable variation and difficulty. Nevertheless looked at as a whole, the system of relationship between the gramme and that which Mr. Elborne abused so much, the cubic centimetre, was so definite, and the error so much less than in our own system, that for practical purposes Mr. Elborne had rather overwrought that part of his argument.

Mr. Jones said there was one point Mr. Elborne had carefully avoided, but which should be remembered in discussing this matter, and that was its relation to their medical friends. They knew that they often read foreign papers, and that even foreign papers were often translated into English. They would therefore, no doubt, be glad to have the option of writing the prescriptions in the metric system. He thought, also, the author had done injustice to Jacob Bell in quoting him as an authority against this system. His words were that he wanted a reformation instead of a revolution. Now reformation was not stopping in the same place, but going forward.

Mr. Bird thought the difficulty arising from misplacing the decimal point was more apparent than real. To the practised eye, the difference between ·5 gramme and ·05 was as absolute as between 5 grains and half a grain. Then, with regard to the difficulty of weighing very small quantities, it was a common thing in pharmacy to receive a prescription ordering a one-twentieth, one-thirtieth, or one-hundredth part of a grain of some rare alkaloid. In that case how would Mr. Elborne overcome the difficulty?

Mr. Alcock said, as a teacher of pharmacy, he should like to add a word substantially emphasising what the President of the parent body had said. He feared with him that the younger members knew the metric system very well, but that their knowledge of the weights and measures of the British Pharmacopœia he was sorry to say was very deficient. His invariable question to a new man was, How many grains are there in an ounce? and he invariably told him 480. He desired to emphasise strongly the view that before adopting the metric system, which they knew very well, they should insist on students knowing the system already in use.

The President said they were greatly indebted to Mr. Elborne for this paper. As he had anticipated, the discussion had been interesting. The matter lay in a nutshell with regard to the present Pharmacopœia. As long as the legally accepted weights and measures in this country were what they were, the British Pharmacopœia must be published in those weights and measures, but probably it was wise to put the metric system side by side with it, and it was absolutely necessary if the Pharmacopœia were to have any imperial character. He did not think there would be the smallest difficulty in regard to pharmacists, because they all learned chemistry, and that was most universally taught in the metric system. Every burette was graduated in that system, and the man who used the burette in his volumetric work, and in learning his chemistry, learned the metric system. It was a question of the laws of the country. It might be they would not get the metric system adopted as the only legal standard for the next two years, perhaps not for the next six or seven years, but that it should be illegal for a man to sell a litre of a thing was in a civilised country preposterous. They should be allowed to use either measure. The new Pharmacopœia must contain the present weights and measures; there were many advantages in the old system. It was easy in many respects, and lent itself to division very easily, but that was no reason why they should not have side by side with it the metric system, which was already very largely used for manufacturing purposes, and very convenient, and it would probably make the book much more useful to English-speaking communities, and facilitate intercommunication between ourselves and foreign countries.

Mr. Elborne, in reply, said he had nothing to say against the metric system in itself; it was very nice indeed; he had worked with it for some time, and for research work or investigation he should never think of using anything else. But pharmacists did not get their living by research, and on that account he did not see any reason whatever why the metric system should be introduced into the everyday art of pharmacy. It seemed to him that this was the thin end of the wedge of the metric system, and that in a future pharmacopœia the English weights and measures would slip out altogether. The object of his paper was simply to put the case, as he thought, fairly. Some gentlemen seemed to think he had exaggerated it, but at all events, it would be useful to see what might be the possible issue of this introduction. Surgeons and physicians and men practically engaged in pharmacy were not asking for this. It was done at the instigation of manufacturers. He did not say that pharmacists should put inconveniences in the way of manufacturers, but he was inclined to think that if this system was introduced solely, it would cause much more of the preparations to fall into the hands of the manufacturers and wholesale druggists. The Pharmacopœia was intended for retail pharmacists, the quantities were worked out in pints, and it was intended that the pharmacist should prepare his own pint of tincture. Again, it was said that pharmacists were at the present time sufficiently well educated to embrace this system, but in so important a matter they did not provide for the accomplished, but for the duffers. Taking the result of a recent examination, some 60 or 70 per cent. of the men got thrown out. Mr. Naylor had charged him with being unduly humorous, but sometimes there was a certain amount of truth in a jest. One gentleman thought the medical fraternity were desirous of this change, but his experience did not accord with that. Another thought he had discredited pharmacy by alluding to it as an art, but he must adhere to that statement; pharmacy was an art, though it should be made as scientific as possible.

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SAFEGUARDS AGAINST ADULTERATION.

Adulteration is described by the authors of a recently-published work on the law and chemistry of food and drugs (see page 209) as a fine art which will soon be an exact science, those who practise it entering upon their work with a precise knowledge of the end they have in view, and with all that science and skill can do to help them in attaining that end. There may be no intention to defraud; the adulterant being sometimes added in infinitesimal proportions to act as a preservative, as in the case of boric or salicylic acid, or to meet the exigencies of trade, as when butter or peas are artificially coloured. Accidental admixture may also occur through lack of care in manufacturing or storing. In any case, by the sale of such goods an offence is committed in the eyes of the law, and it is of the greatest importance to honest traders that they should adopt such precautions as will enable them to avoid unwittingly committing offences against the laws dealing with the subject. This is the more necessary as the effects of a conviction may be exceedingly injurious, and even fatal, to a man's business prospects.

There is much force in the contention that competition and the mania for cheapness, regardless of real value, are at the bottom of the evil. A dishonest tradesman may be attracted, or a weak one tempted, by the facility with which profits may be increased by a possibly harmless addition to some comparatively expensive article. Even more insidious, however, in these days of "cutting" prices and small profits, is the temptation to buy wholesale what is "cheap," that is to say low-priced, and retail it to customers at the price of a genuine article, irrespective of the fact that it is not known to be such. Bargains of this description are quite justifiable if the retail dealer examines what he has purchased and proved it to be what it is represented as being. On the other hand, if he finds himself the possessor of an inferior article he may either offer it as such, at its true value, or utilise it in some legitimate manner.

But there can be no possible excuse for the sale of such an imperfect article as a perfect one. The sale would be a deliberate fraud if effected after examination, and if no examination took place the carelessness that allowed an unfair profit to be gained would be criminal in a lesser degree only. Pharmacists in particular should carefully protect themselves against the risk of appearing careless in respect of the purity of all medicines passing through their hands. Nothing can palliate the offence of dealing in impure and ineffective drugs and chemicals because they are low priced, not even the plea that otherwise it will be impossible to compete with a neighbouring grocer or general store. The means at the pharmacist's command are such that he can ensure the purity and quality of everything of a medicinal nature he deals in, and he may thus be enabled at times to satisfy himself that something offered at an unusually low rate is really genuine and worth taking into stock. But above all things he should decline to prostitute himself and his art for gain. Recognition of integrity may be slow in coming, and honesty of purpose may seem of little avail, but the good of humanity will, nevertheless, be served, and compensation though perhaps long-delayed cannot fail to come in the end.

INDIAN OPIUM.

According to the *Imperial Institute Journal*, Dr. George Watt, C.I.E., Reporter on Economic Products to the Government of India, has issued a circular to all opium agents throughout the opium-producing provinces, soliciting their co-operation in furnishing facts and figures of the opium industry, and further suggesting to the several opium agents that it is highly desirable that experiments should be undertaken to determine whether the low percentage of morphine in Indian opium is due to the Indian mode of preparation of the drug, or whether the alkaloid is deficient in the juice of the poppy. It appears that some time ago E. Merck, of Darmstadt, applied to the Imperial Institute to be supplied with a sample of Indian opium, in order that he might ascertain for himself whether or not it would pay to use Indian opium in the manufacture of morphine. He was supplied with a sample, but his report was unfavourable. At the same time it is pointed out that there are circumstances connected with the Indian drug which would seem to justify the suspicion that the objection to its use in European pharmacy proceeds more from prejudice than fact. "It is well known that, though the percentage of morphine is actually lower than in Turkey opium, the Indian drug is universally prescribed in India (in the ordinary European preparations and in the exact same dose) with therapeutic effects identical with the European experience acquired with Turkey opium. This circumstance has not as yet been explained, but the Pharmaceutical Society of Great Britain has recently had its attention directed to this subject."

In the circular, Dr. Watt then proceeds to state that the best authorities believe that Indian opium is probably rich in some other narcotics, to which its activity may be due, and in which the Turkey article is deficient, and that it is just probable that the latex of the plant is not actually deficient in morphine, "in other words, it has been suggested that the Indian method of collecting and manufacturing the opium may have very largely to do with its low yield of morphine. The crude product is collected by the natives in porous earthen vessels, and in consequence a large amount of its fluid contents is absorbed and drained off before it reaches the factory, and it is suggested as possible that a larger proportion of the morphine may thus be lost than there is any conception of at present." Dr. Watt suggests, therefore, that sufficient of the fresh juice should be collected

in non-porous vessels to afford about four ounces of dry opium, and this juice should be dried at once by evaporation, without allowing any portion of the fluid to be drained away. The dry opium thus prepared should be at once placed in glass-stoppered bottles. A similar quantity "procured from the self-same field, but prepared by the native process," should be also prepared and bottled, so that the comparative analysis of these samples may set at rest the question as to what loss of morphine, if any, is due to the method pursued by the cultivators, and especially to the absorption of that alkaloid by the porous vessels usually employed, and to the habit of draining away "the natural moisture," which is assumed to carry with it a large proportion of the morphine.

PHARMACY IN AMERICA AND ITS NEEDS.

IN the latest issue of the *Apothecary*, Professor OLDBERG publishes the opinion of a prominent but unnamed pharmacist, "who is earnestly and sincerely devoted to the true interests of the pharmaceutical profession," upon a number of problems affecting American pharmacy in particular, but also of considerable interest in this country. The condition of American pharmacy is regarded by this individual as highly unsatisfactory, both scientifically and commercially, the average education of the retail druggist being described as far below the standard necessary to scientific pharmacy. Nothing less than a four years' high school course, it is urged, can be considered adequate, as a general educational preparation, to entitle candidates to seek admission to any profession, and in the case of pharmacy this should be followed by sufficient courses of study and laboratory practice in chemistry, pharmacognosy, and pharmacy, included in a compulsory curriculum occupying not less than two complete years. For assistants it is thought that a one year's course of special study would suffice. "But there is nothing having a direct bearing upon the advancement of pharmaceutical education which is at this time of greater importance than compulsory preliminary and general education. It is idle to expect any substantial improvement in the educational status of the pharmaceutical profession without securing beyond preadventure, a much better grade of students and apprentices." In this passage is to be found, without doubt, the key to the whole situation, both in the United States and in Great Britain. A better educated and therefore better class of apprentices cannot fail to develop into a better class of pharmacists, but bearing in mind the quality of much of the raw material at present available, we can only wonder that pharmacy in English-speaking countries ranks so high as it does.

AMERICAN PHARMACEUTICAL ASSOCIATION.

THE forty-third annual meeting of this Association commenced at Denver, Col., U.S.A., on August 14, and Mr. CHARLES M. FORD, one of the vice-presidents, opened the proceedings by a brief speech, in the course of which he said the attendance was the largest on record. An address of welcome was then delivered by the Governor of Colorado, the Hon. A. W. MCINTYRE, after which the usual annual address was given by the President, Mr. WILLIAM SIMPSON, of Raleigh, N.C. This was commendably brief, and yet none the less pertinent in its subject-matter. Especially happy were the references to the extent and value of the education that pharmacists should possess, and this portion of the address will be reprinted in next week's Journal.

"TRICKS IN THE DRUG BUSINESS."

JUDGING from a correspondence under this title appearing in the *Weekly Scotsman*, the big gooseberry season afflicts the newspapers of the Scottish capital no less than the *Daily Telegraph* and its associates in London. A contributor to the northern oracle became suddenly overcome with curiosity regarding the nature of various medicaments, but unfortunately for him his friend "Blank, a chemist," to whom he went for relief, appears to possess an inordinate share of that humour in which his countrymen are supposed to be normally deficient. May be, however, he saw an opportunity of disproving this slander. Be that as it may, he duly "primed" the newspaper man with such fictions as that homœopathic pills are invariably simple sugar pellets, that olive oil is almost entirely supplanted by "sesame or seed oil," that all effervescing citrates are identical in composition, that aloes and ginger pills do duty for "half a dozen formulas in the Pharmacopœia," and that GREGORY'S powder is always made with carbonate of magnesia, because it is cheaper than calcined. Analysts, according to this authority, being probably ignorant of the tricks of the trade, "the fact remains that such frauds are far too prevalent, and don't entail a tithe of the risk incurred by smuggling a pound of tobacco." Naturally, the publication of this nonsense has brought several pharmacists to the front with protests, but it is doubtful whether it is worth while to take such matters seriously.

MORPHINE AND OPIUM IN CHINA.

SIR N. R. O'CONOR states in Consular Report No. 1619 that the increased importation of morphine at Shanghai and Hong-Kong for illicit purposes has been followed by increasing prevalence of the habit of injecting the drug. The practice is said to be preferred by the natives to opium smoking, because it is cheaper. At the same time the importation of opium has increased in certain districts of China where there has been a comparatively short supply of the native drug. In Ichang the trade in native opium has shown an enormous development, and the drug is exported to a considerable extent from Chungking to other provinces.

CYTISINE FROM PILOCARPINE.

DR. JOH. VAN DE MOER, of Doetinchem, Holland, writes to say that he has obtained cytisine, the alkaloid found in *Cytisus sp.*, *Ulex europæus*, etc., etc., by exposing to sunlight for six hours a solution of pilocarpine hydrochlorate in chlorine water. He is now endeavouring to prepare pilocarpine from cytisine, and expresses himself as confident that he will accomplish this very shortly. The details as supplied to us are not quite clear, but, in the event of the conversion being effected, it will be interesting to have full particulars of the means employed for the purpose.

SOCIÉTÉ DE PHARMACIE DE BORDEAUX.

ACCORDING to a brief historical account published by the Société Philomathique de Bordeaux, this Society was founded in 1834, and has continued to carry on its work regularly since then, save during the early part of the disastrous year 1871. The publication of the *Journal de Pharmacie de Bordeaux* was commenced in 1859, but its title was soon altered to *Bulletin des travaux de la Société de Pharmacie de Bordeaux*. This appears monthly, and during the thirty-five years of its existence has contained many communications of importance, by members of the Society.

REVIEWS AND NOTICES OF BOOKS.

Herbal Simples approved for Modern Uses of Cure. By W. T. Fernie, M.D. Pp. 432. Price, 5*s*. (Bristol: J. Wright and Co. 1895.)

This little volume is evidently written by one whose hobby is the study of plants from a therapeutical point of view, and who has lived long enough to have imbibed liberal views, and to be willing to learn anything that may prove of value in therapy from all schools of medicine, whether ancient or modern. The title does not give quite a correct idea of the contents of the book, since such articles as tamarinds, radishes, potatoes, pears, peaches, parsnips, oranges, nutmegs, ginger, cinnamon, and cloves are included, some of which are not herbal simples in the limited sense of the words. The author has arranged his material alphabetically. The meaning and derivation of the name, both vernacular and botanical, is in many cases given. A good deal of the folk-lore of plants, and many appropriate quotations from ancient and modern classical as well as scientific writers, are used to emphasise statements. The author, although a member and fellow of allopathic colleges, does not scruple to avail himself of the experience acquired by homœopaths or even by herbalists. Indeed, he points out in the introduction that preparations of about sixty of the simples enumerated can only be obtained from homœopathic chemists. He wisely, however, does not recommend such powerfully poisonous plants as monkshood, deadly nightshade, hemlock, or henbane, and the like dangerous herbs for internal use, "these being beyond the province of domestic medicine." To those engaged in the practice of pharmacy the book will prove interesting reading, as forming a kind of summary of the works of the older herbalists, and will be especially useful on this account, in the midland and northern manufacturing counties, where there is often a large local demand for "herbs," as well as for the reason that it gives a large number of vernacular names that are only used locally.

The folk-lore concerning the origin of the names of herbs may prove interesting reading to the botanist, but he will probably be inclined to question the accuracy of some of the statements made, even if he be a "lumper" rather than a "splitter" of species. Thus the following statements: "The wood anemone, or medicinal *pulsatilla*, with its lovely pink-white petals and drooping blossoms, is one of our best known and most beautiful spring flowers" and "Botanists do not distinguish it virtually from *Anemone pulsatilla*," and "The wild angelica (also called masterwort) is not useful as a simple until cultivated in our gardens, the larger variety being chosen for this purpose, and bearing the name of archangelica"—upset all our preconceived ideas as to the limits of species. But with the exception of bold statements of this kind, which are perhaps the result of the liberality of view that characterises the author's work, and of an occasional lapse of memory, such as the name *Pimpinella sesquisorba* (p. 270), there is little to criticise. The author has evidently kept his eye on the current literature concerning the constituents and uses of plants, for he has even given the plants which are supposed to afford some of Count Mattei's remedies. In a few cases, however, as in that of the nettle, he does not appear to know that the plant contains an alkaloid (*Pharm. Journ.* [3], xxiii., p. 3). But the pharmacist, the physician, the botanist, the lover of folk-lore, and the dabbler in domestic medicine will all find this little book worth perusal, and will doubtless derive from it instruction, amusement, and often valuable suggestions. An index of diseases, with the appropriate herbal remedies under each, concludes the book. The work may perhaps be regarded as a sign of the reaction against synthetic remedies, which appears to be setting in both in this country and on the Continent, in favour of a closer examination of the constituents of plants that have been used with comparative success for many generations, and some of which, such as *Convallaria*, *Anemone pulsatilla*, etc., have already been shown to contain active constituents possessing the properties formerly attributed to the herbs.

The Law and Chemistry of Food and Drugs. By H. Mansfield Robinson, LL.D. (Lond.), and Cecil H. Cribb, B.Sc. (Lond.), F.I.C. Pp. 499. Price, 8*s*. (London: The Rebman Publishing Company, 11, Adam Street, Strand. 1895.)

This work is accurately described as a practical manual for persons administering the law of food and drugs adulteration, for persons trading in provisions and drugs, and for the general public. Each class will find much to interest and much to profit it in the book. Thus the authors give the exact text of the statutes, full references to all leading cases and authorities for the use of lawyers and analysts, practical hints to traders how to avoid committing offences or to defend themselves when prosecuted, and plain directions to purchasers of food and drugs how to take samples, have them analysed, and set the law in motion. There is also a list of rough and ready tests to ascertain adulteration where complete analyses are debarred on the ground of expense. It is a distinct novelty to find the treatment of the law on the subject in the same volume as the chemistry, and the book is yet of convenient size. It should therefore prove of great value to persons conducting prosecutions, cross-examining scientific witnesses, etc., on account of its portable character no less than because of the well-arranged information it contains.

The arrangement of the work follows the practical treatment of the subject, the various offences being summarised so that a trader can see at a glance what they are. Each offence is then fully dealt with, and the various defences available to persons prosecuted are set forth. The method of obtaining samples of adulterated food is next dealt with, the analysis of samples is discussed, and then follows a description of the legal proceedings to be taken, with the practice on appeals to higher courts. Full references are given to a hundred and eighty-nine cases, the still existing remedies at common law by indictment for graver offences are set out, and the civil remedy by action for damages is treated of for the first time in a book on this subject. Hints to traders and forms of all summonses, inspectors books, orders and circulars of Government departments, and the text of all statutes on the subject are supplied in addition. Finally, a practical summary, in alphabetical order, of the chemistry of the commoner articles of food and drugs is given in Part II., with details as to quantity of sample to be taken, usual price, constituents of the article, its usual adulterations, modes of detecting them, and notes of police court cases. This information should prove of as great value to traders as to inspectors and others.

It may be noted that the section headed "Drugs" is unduly abbreviated, five pages out of one hundred times as many being scarcely sufficient to exhaust the subject. So far as it goes, it appears to faithfully represent the ideas of public analysts generally, and the writer—besides quoting with evident approval Mr. Otto Hehner's plaint that the British Pharmacopœia authorities had not made matters smooth for the body he represented in compiling that work—remarks that the Pharmacopœia "is constructed altogether regardless of the possibility of analysis." It is satisfactory to note that it is fully recognised that no standard for drugs has yet been legalised, though "the British Pharmacopœia has been adopted [as a standard] as a matter of expediency, and

where a medicine is asked for by the name it bears in that work, the purchaser may reasonably regard himself as prejudiced if he does not receive it compounded as therein described." Notwithstanding the brief space devoted to drugs and their adulteration, pharmacists will find the work of great utility, both for reference in analytical work and for consultation in seeking how to avoid some of the pitfalls that may lie in their path.

Revue des Médicaments nouveaux et de quelques Médications nouvelles. By C. Crinon. Pp. 438. Price, 4 francs. (Paris: Rueff et Cie., éditeurs, 106, boulevard Saint-Germain. 1895.)

This is the fourth edition of an extremely useful little book. It treats of such comparatively novel substances as agathin, airol, alphol, alumnol, argentamine, borosalicylate of sodium, bromethylformine, carbonates of creosote and guaiacol, chloralose, cristallin, dulcin, formaldehyde, gallanol, helenin, lactol, mallein, phenosalyl, phosphoglycerates, serums (artificial and antitoxic) steresol, etc. Information concerning better-known substances, such as creosote, digitalin, guaiacol, kola, etc., is brought up to date. In each case, as far as possible, the method of preparation, physical and chemical properties, distinctive characters, physiological and therapeutic action, formulæ for pharmaceutical preparations and doses, are given, so that the book should be found extremely useful by pharmacists.

A Text-Book of the Science and Art of Bread-Making; including the Chemistry and Analytic and Practical Testing of Wheat Flour and other Materials Employed in Baking. By William Jago, F.I.C., F.C.S., Chemist to the National Association of Master Bakers and Confectioners of Great Britain and Ireland, etc., etc. Pp. 648. (London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1895.)

The appearance of this book is a satisfactory sign of the change which at last is coming—all too slowly—over the conduct and practical management of many industries in this country. Very slight consideration serves to show that the baker is dealing in his every-day work with substances and operations involving chemical, physical, and biological changes. Mr. Jago's book embodies an endeavour to inculcate a knowledge of the scientific principles underlying the operations of bread-baking in place of the rule-of-thumb methods which have prevailed amongst bakers from the earliest times. No doubt many of the large bakeries founded in recent years are conducted on scientific lines, but to the ordinary master baker Mr. Jago's book should be of valuable assistance, enabling him to correct and control the knowledge gained by practical experience.

Some preliminary chapters are devoted to an explanation, in simple language, of chemical and physical matters, a knowledge of which is necessary for the appreciation of the later chapters, in which the technique of the bread-making art is dealt with from the wheat grain to the finished loaf. Yeast naturally receives a good deal of attention, the properties of the various kinds being very fully described. Methods of analysis, chemical and microscopical, and valuation of different samples are also given. In the sections on wheat and flour a very large number of analyses are given, followed by a discussion of the connection between chemical composition and the milling and baking characteristics of the various kinds found in commerce. The result of this discussion is to show the baker, desiring to give his bread any particular character or flavour, how to select his flour with tolerable certainty of attaining the end desired.

The chapter on bread making is eminently practical, the advantages, character of bread produced, yield, etc., being given under each method described. Under baking powders the author draws attention to an anomaly of the law on adulteration. On page 391, after discussing the use of alum in bread making, he concludes: "As alum is injurious, and as it is used with the object of enabling inferior flour to be substituted for that of good quality, to the prejudice of the consumer, it is rightly considered as an adulterant, and its use made penal." Yet in one of the High Courts it has been decided that the sale of alumed baking powder is not illegal, because baking powder is not food within the meaning of the Act.

Bakehouse design is fully treated of by Mr. Jago, numerous plans being given, which comprise all the improvements made in recent years. Sanitary requirements are insisted upon with considerable vigour, and in such a way as to suggest that many bakeries at the present time fall far short of the ideal plans described by the author. Under bakehouse machinery the appliances which are described afford considerable matter for reflection, *e.g.*, the introduction of steam-power in operations such as kneading, mixing, measuring, etc., which had previously for centuries been accomplished by manual labour.

The concluding portion of the book deals with the analysis of flour and materials used in baking. To chemists this is perhaps the most useful part of a very interesting volume. There is no doubt that analysts will find it a valuable book of reference on a specialised branch of their work. Mr. Jago must be commended for the practical manner in which he has treated his subject. His intimate knowledge of details should suffice to disarm any suspicion which a "practical" baker might feel towards one approaching an eminently practical subject from a theoretical standpoint.

An Introduction to the Study of Disinfection and Disinfectants. By Samuel Rideal, D.Sc. (Lond.) Pp. 328. Price, 12*s.* 6*d.* (London: Charles Griffin and Company, Limited, Exeter Street, Strand. 1895.)

The author would have been quite justified in describing this work as a treatise rather than an introduction, for he deals with his subject in a most exhaustive and systematic fashion. In the first chapter definitions of terms are given, and with regard to these the only criticism that can be made is that the definition of the term "disinfectant" is not sufficiently complete. A true disinfectant, besides masking odours and killing germs and their spores, should oxidise the chemical products of those germs, and render them harmless. This, indeed, should be recognised as the chief function of a disinfectant, and at the present time it is necessary to carefully differentiate between deodorants, antiseptics, germicides, and disinfectants, though these classes may and often do overlap.

Mechanical disinfection (light, filters, etc.), disinfection by heat, and chemical disinfectants (metallic and organic) occupy the next ten chapters. With regard to these, which constitute the major portion of the book, it must be said that the work appears to have been done very thoroughly, even commercial preparations of more or less indefinite composition being considered and having their properties described. It would seem to be almost impossible to refer to the book respecting the disinfectant, germicidal, or antiseptic powers of any substance in which such powers are to any extent recognised, without finding some information, and that usually of a satisfactory nature.

The concluding chapters deal with practical sanitary methods, disinfecting processes, food preservation, the legal statutes and regulations concerning hygiene and kindred topics, and, finally, methods of analysis—bacteriological and chemical—for determining the antiseptic and germicidal value of substances. A bibliography and the index complete a volume which is bound to prove of great value both as a practical guide and a work of reference.

NOTES AND NEWS.

Elementary Science Classes.—The forty-second report of the Department of Science and Art shows a considerable falling off in these classes. Thus in 1894 there were 152 science schools (2602) less than in 1893 (2754), the number of science classes had decreased by 908 (10,341 to 9433), and the number of pupils had decreased by 10,311 (193,431 to 183,120). The abolition of grants for second-class passes in the elementary stages seems to have been the chief cause of these results, but the foundation of numerous technical classes all over the country has also doubtless produced some effect.

Opening of the Medical Schools.—On October 1 and 2 the Metropolitan Medical Schools will celebrate the opening of the new session in the usual way, introductory addresses being delivered at most of the institutions. Mr. George D. Pollock will speak at St. George's Hospital, Dr. W. J. Mickle at the Middlesex, Dr. Monckton Copeman at the Westminster, Professor J. R. Bradford at University College, and Mr. A. P. Laurie at St. Mary's Hospital. St. Thomas's will be specially distinguished by an address from Sir Edwin Arnold, author of the 'Light of Asia' and other well-known books.

Women as Apothecaries.—Women have made headway as doctors, but the *Humanitarian* has never heard of them as apothecaries or chemists in England. "In Paris there is only one chemist's shop controlled by a woman, but Brussels rejoices in five. It is not easy to see why women should not qualify as chemists and make up prescriptions, especially when the higher walks of the healing art are open to them." Our contemporary is evidently unaware of the fact that a number of the fair sex are duly qualified members of the pharmaceutical profession in Great Britain. In America, too, the woman-pharmacist has "come to stay," as our transatlantic cousins would express it. And this in spite of the supposition that the dissolute man would shrink from the obligation of having to confess all his requirements to a woman-pharmacist. Whether or no, if this "important" *clientèle* is not to be driven away, it will be indispensable to divide off a part of the counter as "gentleman's department," remains to be seen, but the objection is certainly not logical, for if a nurse be allowed to assist at a lithotomy, a female chemist might well, as the *Humanitarian* suggests, be permitted to execute an order for capsules or specialties.

The Treatment of "Black-eye."—According to the *Practitioner*, in the treatment of "black-eye," there is nothing to compare with the tincture or strong infusion of capsicum mixed with an equal bulk of mucilage and a few drops of glycerin. The bruised surface should be painted with a camel-hair pencil, and when dry the operation should be repeated once or twice. Blackening of the bruised tissue may sometimes be prevented if the application be used directly after the injury is inflicted. The same remedy is said to be beneficial in rheumatic sore or stiff neck.

Citric Acid from Cane Sugar.—Dr. I. L. Phipson maintains his position with respect to the possibility of preparing citric acid from cane sugar (see *Ph. J.*, June 29, p. 1193, and July 27, p. 74). He now refers (*Chem. News*, lxxii., 100) to the fact that Maumené had announced the formation of two new organic acids under similar conditions (see *Ph. J.*, May 4, p. 961), and suggests that those who have failed to confirm his results used too much sulphuric acid in the experiment, and did not separate the organic acid by alcohol.

Ang-Khak, a Fungoid Pigment.—The Chinese export to Java for colouring foods and beverages purple, a pigment produced by a special fungus which is propagated on boiled rice, though it thrives on any kind of carbohydrate in the presence of oxygen. A trace of arsenic is used to prevent the growth of other organisms, but does not interfere with the development of "ang-khak." The colouring-matter can be extracted with chloroform, and dissolves freely in alcohol, ether, glacial acetic acid, acetone, etc., but only sparingly in water and dilute acids, and not at all in turpentine, benzene, glycerin, or carbon disulphide.

"The Pharmacy of the Soul."—This is the title selected by Mrs. Woodhull Martin for an article in which Voltaire, Aristotle, Haeckel, Goethe, and St. Hilaire are freely quoted, but where references to pharmacy are distinguished by their absence. True, the opening paragraph commences with the question "Is there a pharmacy of the soul as well as of the body?" but, as in the story of 'Alice in Wonderland,' "answer came there none." However, the article is to be continued, so we shall await with interest the next issue of the *Humanitarian*. Meanwhile it may be suggested that for "pharmacy" one should read "pharmacology" in this instance.

Photography of the Heavens.—The Observatory of Paris is engaged in making, by means of photography, a map of the starry firmament. Mdlle. Klumpke, one of the assistants of the observatory to whom the task has been entrusted, has already succeeded in taking 180 photographs, some of which contain as many as 1500 stars, while others contain but a dozen, the average number being 335 per plate. It is estimated that the grand total will amount to over three millions of stars.

Dr. Thomas Stevenson, Government Visitor to the Pharmaceutical Society's Examinations in London, will have the sympathy of the pharmaceutical body in connection with the loss he has sustained by the death of his son, Harold Stevenson, who, being on a visit to Whitby, was drowned whilst bathing from the beach (see page 212). The deceased was an expert swimmer, but it would seem, however, that he was swimming beyond the notice board indicating danger, and in a position where it was impossible to render him assistance.

Medicine Stamp Duty.—The report of the Inland Revenue Commissioners for the year ended March 31, 1895, shows the large increase of £21,671 in the amount received for medicine stamps, the total almost equalling that for 1892, which is the highest on record. The figures for the last five years are as follows:—

Year ending March 31.	Medicine Stamp Duty.	Amount of Increase.	Amount of Decrease.
1891.....	£225,701	—	—
1892.....	£240,062	£14,361	—
1893.....	£220,325	—	£19,737
1894.....	£213,210	—	£ 7115
1895.....	£234,881	£21,671	—

New Dictionary of Therapeutics.—The first part of what is announced as the completest and most practical dictionary of therapeutics has just been published by August Hirschwald, of Berlin. The title is 'Encyclopaedie der Therapie,' and it is being edited by Professor O. Liebreich, with the co-operation of Dr. M. Mendelssohn and Dr. A. Würzburg. It will form three volumes, to be issued in nine parts, and will be completed within two years.

ENGLISH NEWS.

[Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.]

MR. STEPHEN HARRIS, Chemist, High Street, Droitwich, was unanimously elected Vice-Chairman of the Droitwich School Board on Monday, August 25.

IS BEESWAX A DRUG?—A case came before the Newport borough magistrates on August 28, in which Charles Simmonds, grocer, of Chepstow Road, Maindee, was summoned under the Food and Drugs Act for selling adulterated beeswax.—Detective-sergeant Faulkner, inspector under the Act, gave evidence as to purchasing beeswax from the defendant, which, upon being analysed, was found to consist of 5 per cent. of natural beeswax, 8 per cent. of resin, and 87 per cent. of paraffin.—It was contended that beeswax is not a drug, and its use in pills being simply to bind the pill together.—The Bench decided, however, that the beeswax is a drug, and although they exonerated defendant from all blame, found that a technical offence had been committed, and ordered him to pay the costs.

FATAL BATHING ACCIDENT AT WHITBY.—Mr. George Buchannan, coroner, held an inquest on August 30, on the body of Harold Thomas Stevenson, aged 27, solicitor, Brixton, son of Dr. Thomas Stevenson, the eminent scientific analyst of the Home Office. The facts deposed to were that deceased went with his brother to bathe on Whitby sands, and undressed at a point beyond the regular bathing ground. There was a rough sea breaking at the time, but deceased, who was a good, strong swimmer, swam out for a considerable distance. It is assumed that he got into a strong outsetting current and was unable to return. After struggling for some time he sank. The jury returned a verdict that deceased was accidentally drowned.

EXETER MAGISTRATES AND MEDICATED WINE LICENCES.—At the annual general licensing meeting for the city of Exeter, held on Wednesday, August 28, before Messrs. J. Knapman (in the chair), G. Franklin, and W. Brown, Mr. F. H. H. Orchard made an application on behalf of Messrs. Henry Gadd, J.P., and Joseph Wippell, chemists, for a new licence to sell wines and sweets in respect of their premises, 97 and 98, Fore Street. He remarked that he need not say one word to their worships with reference to the character of the applicants, because they were gentlemen well known to them. He was desired to state that they had no intention to sell wines in the ordinary sense. They carried on the business of wholesale and retail chemists, and they desired the licence in order to comply with the law in reference to medicated wines now sold by chemists. Similar applications had been granted to Mr. Wynne Tighe and other chemists in the city.—Mr. Knapman (who is a retired chemist, after consultation with his brother magistrates) said: In this case the Bench have no alternative but to grant the application, but I regret the necessity chemists find in asking for these licences. I speak knowing something of the circumstances by which chemists are surrounded, but it seems a case of one has it and the other must.—Mr. Orchard: The application is not in consequence of any desire on their part. The Inland Revenue Authorities insist upon licences for the sale of medicated wines.—The Chairman: Formerly, medicated wines were permitted to be sold without licences, but I am aware the Inland Revenue Authorities now insist upon licences, and these gentlemen are obliged to come here in self-defence. Personally, I very much regret the extension of this sort of thing.—Mr. Orchard: They are not desirous of selling wines in the ordinary sense of the term. The necessity for these applications conveys an erroneous impression.—The Chairman: Unfortunately the licence gives them the power.—Mr. Orchard: But I don't think they ever take advantage of it.—The Chairman: No, I think they are a body of men above that sort of thing.—Mr. Franklin: I am personally obliged to the Chairman for having expressed himself in the way he has.—Mr. Orchard: I take no exception to it. I am only sorry the Excise Authorities require them to do such a thing.—The licence was then granted.

At the conclusion of the business Mr. Lemon, chemist, of High Street, came forward to make an application for a licence to sell medicated wines.—Mr. Knapman said he was one interested in the applicant's premises, and, therefore, he was prevented by law from taking any part in it, and as there were only two other justices, they could not help him. He, however, could renew his application at the adjourned Licensing Sessions on September 24, when sufficient justices would be in attendance.—Mr. Lemon said it seemed rather hard that he should have been "kicking up his heels for two hours" to no purpose. If justices took honours they should do their duty.—Mr. Franklin: At any rate, we are here.—The Chairman: We are not makers of the law.—Applicant then withdrew.

NEW PREMISES at the Bideford Infirmary and Dispensary, for providing a children's ward and accommodation for out-patients, erected at a total cost of £767, were opened last week, a public luncheon being held in honour of the event. The Mayor (Mr, H. Ascott) took part in the proceedings.

THE CAMBRIDGE PHARMACEUTICAL ASSOCIATION.—Between thirty and forty members and friends of the above Association took part in a summer outing on Thursday, August 29, from which they journeyed to Hunstanton, reaching there about 4.30. While some enjoyed the luxury of a sea bathe, others had the various strata and rock formations explained to them by Mr. Keeping, the curator of the Geological Museum, who was one of the party, and those who went on a botanical search were rewarded with some good finds. About 7 o'clock they all met at Robert's Hotel for tea, the remainder of the evening being spent in strolling about the beach and pier. Home was reached about 10.30, with many regrets at the closing of a most pleasurable outing.

BRIGHTON ASSOCIATION OF PHARMACY.—The annual excursion of this Association was held on Thursday, August 29, at Tunbridge Wells. The train left Brighton at 10.13; carriages met the train at Tunbridge Wells and at once drove to Penshurst; after visiting Penshurst Place, open by the courtesy of Lord de L'Isle, and seeing the state rooms, picture gallery, and park, lunch was provided at 2.30 at the "Swan" Hotel, Tunbridge Wells. At 4 o'clock there was a drive to the High Rocks, Tunbridge Wells, the time before tea being spent in visiting the rocks and grounds, in which the tea was provided. Later, the visitors left for home, having spent a most enjoyable day.

CHEMIST'S WINE LICENCE.—At the Brewster Sessions, held at Lancaster last week, Mr. A. Stewart applied on behalf of Mr. Wm. Wyatt, pharmaceutical chemist, 34, New Street, for a licence to sell wine by retail off the premises. Mr. Stewart said the application was one of the ordinary character, to put chemists in the proper position for selling medicated preparations.—The Bench granted the licence.

SCOTTISH NEWS.

[Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.]

PROCEEDINGS UNDER THE PHARMACY ACT.—The case of Richard Bremridge, 17, Bloomsbury Square, London, W.C., Registrar under the Pharmacy Acts, 1852 and 1868, with the concurrence of Robert Laidlaw Stuart, Procurator Fiscal of Midlothian, *versus* William McCallum, was brought before Acting-Sheriff Sym, at the Sheriff Court House, George IV. Bridge, Edinburgh, on Friday, August 30.

Mr. Peter Morison, junior S.S.C., appeared for the complainer. Mr. Thomas Trotter, advocate, instructed by Mr. James Mullo Weir, S.S.C., appeared for the respondent.

The respondent was charged with having, in the shop occupied by the Edinburgh and Leith Drug Company, Limited, 4 and 5, Crichton Place, Leith Walk, Edinburgh, on February 27, sold a quantity of chloral hydrate to Thomas Allan, also with having at same time and place sold a quantity of opium as an ingredient of a quantity of Bow's Liniment to the said Thomas Allan, and also with having committed the same offences by selling the same poisons on March 6, to the said Thomas Allan.

The Sheriff-Clerk having called the respondent's name, he appeared to answer the charge.

Mr. Trotter said he appeared for the respondent. There were some points as to the relevancy of the complaint which he desired to look into before the case proceeded. As he had only a short time ago been instructed, there had not been time to do so, and therefore he asked his lordship for an adjournment in order to give him time.

Mr. Morison, for the complainer, said he had no objection. He might mention that the complaint was in the usual form, and its relevancy had been already several times debated. It had also on two occasions passed the High Court of Justice without challenge.

The Sheriff, after consultation with parties, fixed the adjourned diet for Thursday, September 19, at 12 noon, on the understanding that, if the relevancy was sustained, the trial would proceed on that date.

Edinburgh Pharmacy Athletic Club.—The Golfing Section held their monthly medal competition for August on Friday (30th) and Saturday (31st). There was a good turn-out, including several new members playing for the first time. The result was a tie between Messrs. Greig and Robertson, which will be decided on Saturday, September 7.

IRISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

The Carlisle Circus Apothecaries' Hall, Belfast, formerly owned by Mr. J. J. Goskar, whose very sudden death some time since caused much regret, is now owned by Messrs. R. W. McKnight and Co., who are there carrying on an excellent business in one of the most populous districts of Belfast. The establishment is in a district where the population continues rapidly to increase, and apparently every effort is being put forth for the development of the business.

Pharmaceutical Establishments in Belfast.—We recently drew attention to the very rapid increase of pharmaceutical business concerns in all parts of Belfast. An important addition to the list has just been made by the old-established firm of Messrs. Samuel C. Nicholl and Co., of this city. This medical hall they have opened in Ballymacarrett, which is the County Down portion of Belfast, and forms in itself the fourth town in Ireland. It is to Belfast what Birkenhead is to Liverpool, and Salford is to Manchester. Ballymacarrett if separated from Belfast would form the fourth town in Ireland; and to meet the requirements of this populous and rapidly increasing district, in the suburbs of which are Knock, Bloomfield, Strandtown, and Belmont, etc., the necessities for a high-class family dispensing establishment, Messrs. Samuel Nicholl and Co., of Donegall Place, Belfast, recently secured highly suitable premises at the junction of the Newtownards Road and Strandtown Road. This new branch house occupies a most commanding position in a district of the city which has hitherto felt the necessity for such a useful acquisition. The establishment is triangular in shape and two storeys high. The premises have been entirely refitted and remodelled, and are admirably adapted for the purpose for which they are now being used. To the right and left as one enters is the retail department, in which is a magnificent range of mahogany show cases, containing a very large and varied assortment of homœopathic, patent, and proprietary medicines, drugs, and chemicals, toilet requisites, perfumery, and high-class surgical appliances. In the centre is the compounding department, which is separate from the retail, and is under the direct supervision of the proprietors. The large new plate-glass windows in the front of the shop give the place a bright and pleasing appearance. The compounding department is replete with all the accessories necessary for a high-class trade, and is elaborately fitted up. A qualified assistant is always on the premises, both at night and on Sundays, so that patrons can always rely on being promptly attended to. Ample storage accommodation has been provided in the upper part of the building. The shop floor is laid with encaustic tiles, supplied by the firm of Messrs. John Adams and Co., Belfast, while Messrs. Riddel and Co., Belfast, are responsible for the heating of the establishment by means of high-pressure pipes. The remodelling of the premises has been carried out in a most satisfactory manner. Messrs. Nicholl's branch establishment will be known as the Conus Water Medical Hall, Knockburren, Ballymacarrett.

The Adulteration of Milk.—The Public Health Committee of the Belfast Corporation have had before them a deputation representing the Dairymen's Association. They presented a memorial on the subject of milk adulteration, pointing out the desirability of having the milk standard raised and steps taken to prevent the introduction of chemicals for the purpose of preservation and other ingredients as colouring matter. The Committee thanked the deputation for their attendance, and directed a report to be submitted to the city analyst, with the request that he would consider it and attend the next meeting of the Committee with reference thereto.

Pharmaceutical Chemists' and Apothecaries' Assistants' Association of Ireland.—A debate which was to have been held on Friday evening, the 30th ultimo, on the question "Is a new B.P. necessary, or not?" has been postponed to the 6th instant, in consequence of the unavoidable absence of two of the speakers; the small attendance attributed to it being "Horse-Show Week."

Mr. W. F. Wells, member of the Pharmaceutical Council, has returned to business. Although not yet fully recovered from the effects of his late accident, it is hoped that it is only a question of time. He appears much benefited by his rest at the sea-side.

The Employer Dismissed!—One often sees a notice to the effect that "Mr. So-and-So is no longer in our employment"; but the announcement of Mr. J. V. Byrne, L.R.C.S. and A.H.I., in the *Drogheda Argus* of last Saturday, "that he has no longer any connection with the "Medical Hall, 12, West Street, Drogheda," appears to be "the other way about."

FOREIGN NEWS.

[*From our Special Correspondents.*]

Pharmaceutical Congress at Marseilles. — A French Pharmaceutical Congress under the auspices of the Syndicate of the Bouches du Rhone Department, will be held on the 28th of this month at Marseilles, where all the French Syndicates are invited in order to discuss questions relating to the interests of the pharmaceutical community. It is expected that all the departments of France will send delegates to represent them. In addition to the meetings, the programme will include visits to the places of interest in the neighbourhood and sea-trips around the coast.

M. Marchand, head of the well-known patent medicine house, 13, rue Grenier St. Lazare, Paris, has just retired, after a successful business career extending over thirty years. The business will in future be carried on under the title of Monot, Bartholin and Cie. M. Marchand, who started in quite a small way, has succeeded, by dint of hard work and trading with a very small margin of profit, and reducing the expenses to the smallest possible degree, in raising the annual return to the magnificent sum of six million francs. All transactions are strictly cash, thus saving the expense of book keepers. The travellers that are sent out every morning to all the pharmacies in Paris take down their order on an invoice, which is sent in with the goods in the evening. The new firm, which is composed of six individuals comprising several old employés, estimate that by close attention to details they will be enabled to augment their gross annual return this year by one million francs.

Consumption of Alcohol in France.—The consumption of alcohol in France has obtained such enormous proportions, with consequent degeneration of the public health, that the Academy of Medicine is seriously taking up the question with the view of determining which kinds of the many forms of alcoholic stimulants are most objectionable. Dr. Laucereaux, one of the members of the Academy, says that in his opinion the greatest mischief is caused

by the immoderate use of common wine as drunk by the working men of Paris, who think it absolutely necessary during their day's work to absorb about four litres of this liquid per day, the consequences of which are enlarged liver, and in three or four years' time, if the habit is still continued, cirrhosis permanently manifests itself. During twenty years' experience, Dr. Laucereaux has never observed similar morbid symptoms in drinkers of alcohol in the form of brandy and absinthe, hence his conclusion that to common wine is to be attributed this state of the liver. Occasionally the same malady is observed among the men employed in the wine districts of Lausanne, but as its appearance is of much more frequent occurrence in Paris, it is concluded that falsification and the presence of calcium sulphate, used for clarifying purposes, are largely responsible. The remedy suggested is to lower the rate of duty—now so high in Paris, that adulteration is largely practised.

THE CAMPAIGN AGAINST CUTTING PRICES.—In the *Pharmaceutical Journal* of August 17 a short account was given of a project suggested by the Société de Prévoyance des Pharmaciens de Paris for the repression of the cutting of specialties. At a recent meeting of that society it was proposed that these measures should be submitted to the Association Générale des Pharmaciens de France (of which M. Petit, the well-known chemist, is President) with the object of obtaining the collaboration of that important community, so that general action may be taken, embracing the whole of the French body of pharmacists. A letter was accordingly sent to that Society, inviting them to discuss the project, and a reply has been received from M. Petit, who writes that he is convinced of the importance of the question, a favourable solution of which would establish a thorough understanding among pharmacists. He intends to bring the proposition before his Council and will support it, and he hopes that their united efforts will permit them to reconcile the interests of the makers of specialties with those of the retailers, and thus be the means of taking away from cutting chemists the weapons by which they have done so much injury to the profession.

FORMIC ALDEHYDE IN CONSUMPTION.—Now that a cure for consumption is an object of research in all countries, it may be interesting to reproduce portions of a letter written to the *New York Herald* (Paris edition) this week testifying to the efficacy of a new method of inhalation of formol, for annihilating the tuberculosis microbe. The advantages of formic aldehyde as an antiseptic have already been expounded, its volatility and non-poisonous character leading eminent practitioners to conclude that it would render great service if a suitable means of administration could be discovered, but unfortunately up to the present its inhalation by consumptives was found to be impracticable, on account of its liability to provoke coughing and sometimes hæmorrhage. Dr. Ghirelli, of the Villeponte Hospital for chest diseases, has, according to the *New York Herald* correspondent, discovered a means of administering the vapour without the attendant ill-effects. This consists in admixing with formol a proportion of carbonic acid gas which can then be respired without causing irritation of the air passages. Dr. Ghirelli's treatment is very simple, consisting only of the inhalation of this vapour and the injection of a special serum subcutaneously. Two cases are cited where the beneficial effects were remarkable—one was that of an office clerk whose condition was pronounced hopeless; after a five weeks' treatment he had recovered his voice, cough had disappeared, and is now almost restored to perfect health—the other, a porter at the central markets, was incapacitated by weakness from lifting the smallest weight, has after three months' treatment returned to his former occupation of carrying heavy burdens. Dr. Ghirelli first instituted his method of cure at the Consumption Hospital at Villeponte fifteen months ago, and his success then decided him to open a clinic in Paris, rue la Boetie, and at the Maison du Peuple Français.

OINTMENT FOR TREATMENT OF FAVUS.—Pirogoss employs this ointment: Flowers of sulphur, 15 parts; carbonate of potassium, 4 parts; liquid pitch and tincture of iodine, of each 50 parts; lard, 100 parts. The ointment is applied spread upon linen to the previously shaved parts; after twenty-four hours this application is thoroughly washed off and a fresh dressing applied. When desquamation is abundant cease the application of the ointment and substitute salicylated zinc ointment. Cure should take place in two or three weeks (*Rev. de Thérap.*, xlii., 414, after *Annal. Derm.*).

POISONING CASES AND INQUESTS.

Belladonna.—An inquest was held on August 29, at Maidstone, on the body of H. J. Harris, aged 2, son of Dr. Harris, of Thurnham. The child drank from a bottle in mistake for water a quantity of embrocation, consisting chiefly of belladonna, and died about ten hours afterwards. It was stated that the bottle was marked with the words "Not to be taken." Verdict: "Accidental death."

Chloroform.—Thomas Hocker, aged 83, died on August 22, in the Cleveland Street Sick Asylum, London, while undergoing an operation, from the effects of chloroform. Verdict: "Death from misadventure."

Laudanum.—Ada Emily Marriott, aged 23, of Westfield Lane, Mansfield, died on August 27 from the effects of an overdose of laudanum and cresoline. Verdict: "Deceased died from the effects of taking an overdose of laudanum and cresoline."

Laudanum.—Hugh B. M'Whirter, late of 109, Forth Street, Glasgow, died on September 1 at the County Hotel, Manchester, from the effects of an overdose of laudanum, self-administered. Verdict: "Deceased had died through taking an overdose of laudanum."

Sulphuric Acid.—William Hunt, of Whitchurch, died on August 31 from the effects of sulphuric acid, self-administered. Verdict: "Death by misadventure."

PUBLICATIONS RECEIVED.

THE LAW AND CHEMISTRY OF FOOD AND DRUGS. By H. MANSFIELD ROBINSON, LL.D. (Lond.), and CECIL H. CRIBB, B.Sc. (Lond.), F.I.C. Cr. 8vo, pp. 519. Price 8*s*. (The Rebman Publishing Company, Limited, 11, Adam Street, Strand, London.) From the Publishers.

ANNUAL REPORT OF THE COMMITTEE OF THE MANCHESTER AND SALFORD SANITARY ASSOCIATION for 1894. Pp. 62. From the Association.

THE CAUSES OF THE NEGLECT OF SUPPURATIVE EAR DISEASE. By JAMES ERSKINE, M.A., M.B. Pp. 18. Reprinted from the *Glasgow Medical Journal*. (Alex. Macdougall, 68, Mitchell Street, Glasgow.) From the Author.

FIFTY-FIFTH ANNUAL ANNOUNCEMENT OF THE MISSOURI MEDICAL COLLEGE for 1895–96, and Catalogue of Session 1894–95. Pp. 30. (Missouri Medical College, St. Louis, Mo.) From the College.

SUPPLEMENT TO THE YEAR-BOOK OF THE IMPERIAL INSTITUTE for 1895. Pp. 84. (Offices of the Imperial Institute, South Kensington, S.W.) From the Institute.

LES EXTRAITS FLUIDES. By M. DUYK. Pp. 15. (Charles Vande Weghe, 12, place de la Vieille-Halle-aux-Blés, Brussels.) From the Author.

THIRTY-NINTH ANNUAL REPORT OF THE WANDSWORTH BOARD OF WORKS, AND THE ANNUAL REPORT OF THE MEDICAL OFFICERS OF HEALTH FOR 1894.

EYESIGHT AND SCHOOL LIFE. By SIMEON SNELL, F.R.C.S. (Ed.). Pp. 70. Price 2*s*. 6*d*. Bristol: John Wright and Co., Stone Bridge. 1895. From the Publishers.

OBITUARY.

BRIVEAU.—On July 22, Frederick Merrick Briveau, Chemist and Druggist, Borough.

Baxter.—On August 23, William Baxter, Chemist and Druggist, Wisbech. (Aged 74.)

HORTON.—On August 31, Horatio William Horton, Chemist and Druggist, Holloway. (Aged 59.)

SULPHATE OF NICOTINE WASH for Mange in Sheep: Sulphate of nicotine, 100 grammes; infusion of tobacco, 1100 grammes (10 parts in 100). Dissolve and filter. To be diluted with eighty times its weight of water for washing sheep. As a local application dilute with 50 parts of water (*El Memorandum*).

NEW REMEDIES.

[*The notes given under this heading embody recent suggestions in therapeutics. They cover both new drugs and preparations, and old ones under new aspects. The word "parts" is used to represent parts by weight, both for solids and liquids.*]

PHOSPHIDE OF ZINC IN HAY FEVER.—Bosworth claims most excellent results from the following formula :—

℞ Zinc. phosphidi ..... grs. viij.
Ext. belladonnæ ..... grs. x.
M. fiat mass in pil. 40 div.

Sig.: One pill three times a day after meals.

If there is impairment of the general nutrition, he adds one grain of arsenious acid to the above prescription (*Pract.*, lv., 205).

BINIODIDE OF MERCURY IN INFANTILE DIARRHŒA.—Luff considers biniodide of mercury a safer and more powerful antiseptic in these cases than the bichloride. He considers the milk ptomaine tyrotoxicon to be one of the chief factors in the causation of diarrhœa, and believes the biniodide of mercury renders the ptomaine insoluble and inert. Bichloride of mercury is powerless to precipitate the milk ptomaine. He prescribes the biniodide in the following form :—

℞ Liq. hydrarg. perchlor. .... ♏ij.
Pot. iodidi .... gr. ¾.
Chloral hydratis .... gr. j.
Aquæ ad..... ℥j.

This forms a teaspoonful which he gives every four hours to a child six months or under, every three hours to one of six to twelve months, and two teaspoonfuls to a child of more than one year (*Pract.*, lv., 208).

EUROPHEN IN LEPROSY. — According to Goldschmidt, the reputed specifics, such as chaulmoogra oil, are useless; he has obtained the most satisfactory results with europhene in the form of subcutaneous injection; a dose of 1 cubic centimetre of the following solution being given :—Europhen, 1 part; expressed oil of almonds, 20 parts. Filter and sterilise for twenty-four hours (*Rev. Inter. de Méd. et Chirurg.*, vi., 264).

EMULSION OF CREOSOTE WITH MILK FOR RECTAL INJECTION.—Surchet finds that of all the methods hitherto suggested for the suspension of creosote for rectal injection, none are so satisfactory as a simple emulsion made with milk. A good sample of creosote may be mixed with fresh milk in any proportion from 1 to 10 per cent. without causing coagulation of the casein; in fact, the proportion may be raised to 25 per cent. If coagulation takes place it is due to inferior creosote containing phenols. Pure creosote mixes perfectly with milk by simply shaking, and after standing for several days the creamy layer on the surface does not show a drop or the slightest floating disc of separated creosote. This creosote emulsion may be diluted with water without separation; it keeps indefinitely. The author has kept a milk emulsion containing 5 per cent. of creosote for four months, and a diluted solution of 60 parts of this emulsion in 190 parts of water remained unaltered for a similar period. For extemporaneous preparation of the emulsion, 43 drops (1 gramme) of pure beech-wood creosote are counted into a quarter of a glass of milk, well stirred up, and the glass filled up with water. For hospital use a 1 in 30 solution is prepared with beech-wood creosote, 16 grammes, fresh milk sufficient to produce half a litre. This is to be diluted with water before injection. Guaiacol may be similarly combined. Among other substances which readily emulsify in milk the author cites eucalyptol. Not only is the milk injection useful, but the same vehicle may be employed for administering creosote in the ordinary way. The prescribed dose is stirred into a bowl of milk, which is readily taken by the patient, and is much better tolerated by the stomach than when taken in any other form (*L'Union Pharm.*, xxxvi., 289).

CACTINE IN CARDIAC HYPERTROPHY.—Campbell has given cactine, the active principle of *Cactus mexicana*, in doses of 1 milligramme, administered in pilular form, with good results in this form of cardiac disease (*Rev. de Thérap.*, xlii., 448, after *Montreal Med. Journ.*).

CITRIC ACID IN DIPHTHERIA.—Laser has recently made a number of experiments on artificial cultures, on diphtheria membranes produced in guinea-pigs and on diphtheritic throats in human beings, from which he concludes that citric acid rapidly kills the germs and promotes recovery in diphtheria. In bouillon cultures the bacilli were killed in five minutes by 10 per cent. citric acid solution. In diphtheria the throat was washed with a 10 per cent. solution of citric acid every hour, and a teaspoonful to a dessertspoonful of the solution was taken internally each hour. It was also found advantageous to give children slices of lemon to eat. Two or three lemons were used in this manner daily. These observations seem to agree with those made by Koch with reference to the effect of citric acid upon the cholera bacillus (*Mod. Med.*, vol. iv., 148).

CANTHARIDIN IN CYSTITIS.—Trendenberg has employed cantharidin in minute doses in the following solution :—Cantharidin, 1 milligramme, dissolved in 1 gramme of alcohol diluted to 100 grammes with distilled water. A teaspoonful was given three or four times a day. Of fifty-six cases thirty-two were completely cured. The cantharidin treatment also succeeded in three cases of gonorrhœal cystitis where santal oil had failed (*British Medical Journal, Epit.*, July 13, p. 6, after *Wien. Klin. Woch.*).

THYROID EXTRACT IN UNIVERSAL ALOPECIA.—Dr. Beevor has given 5-grain tabloids of thyroid gland three times a day for ten weeks in a case of universal alopecia, in which, before treatment, the hair fell almost when touched. After the treatment the hair ceased to fall, did not readily pull out, and a downy growth has appeared on the shaved scalp (*British Medical Journal*, 2, 95, 77).

COMMERCIAL NOTES.

CASTOREUM AND CIVET.

BY P. L. SIMMONDS, F.L.S.

A SUBSTANCE which has largely gone out of use in pharmacy is castoreum, which much resembles the fetid gum resins, and was formerly employed as an antispasmodic in hysteria, chorea, and epilepsy, associated with sexual disorders. It is still employed to a small degree in certain diseases, and used by homœopathists. It is not officinal in the pharmacopœias of the United States, Australia, Germany, and Italy. It is a substance of a peculiar nature found in two pear-shaped bags in the inguinal region of the beaver, containing several fats, salicin, resin, and volatile oils.

There are two qualities, the Siberian or Russian castor and the American, but the former is very scarce, and the latter is almost all imported by the Hudson's Bay Company. But the beaver has been so much hunted for its fur that the animal is getting scarce in North America. The Siberian castor contains 4·6 per cent. of castorine, whilst Canadian contains under 2 per cent.

Castoreum has a strong, penetrating, unpleasant odour, and a bitterish and somewhat acrid taste.

In its recent state it has an orange colour, which deepens as it dries into bright reddish-brown. During the drying, which is allowed to go on in the shade, a gummy matter exudes through the sac, which the Indians delight in eating. Castoreum is never adulterated in the fur countries. In the hunting districts it is extensively used for enticing the lynx to enter into the snaring cabins.

From 1848 to 1855 the imports of castoreum by the Hudson's Bay Company ranged from 1000 to 4000 lbs. annually. After that they varied from 3500 to 5000 lbs., which they reached in 1866. Then they fluctuated from 3000 to 6100 lbs., which they reached in 1870. Since that they have gone down from 2500 lbs. to 1344 lbs. in 1894. The price used to range from 7*s.* to 25*s.* per lb. In 1888 it reached 50*s.* per lb. Since then the price has averaged £2 6*s.* 4*d.* per lb.

The civet cats are chiefly remarkable for the highly odoriferous secretion from which the perfumers used to prepare the old-fashioned musk. When good this substance is of a clear yellowish or brown colour, and of about the consistence of butter or honey; undiluted the smell is powerful and very offensive, but when largely diluted with oil or other ingredients, it becomes an agreeable perfume. It is much employed by native practitioners in India, under the name of *Kusterii*, the Oriental name in most of the Eastern languages for musk, which it somewhat resembles. Important medicinal virtues were formerly attributed to civet; it, however, no longer forms an article in the materia medica, and the virtues ascribed to it as a valuable stimulant and aphrodisiac probably possessed no foundation.

NOTES AND QUERIES.

[The information given in this column includes both notes of practical interest to pharmacists, and replies to queries which seem to possess sufficient interest to readers generally.]

PROTECTING DARK-ROOM FROM FIRE.

Qæro has partly covered his dark-room with black paper waterproofed with bitumen, as used by manufacturers for wrapping plates, and is afraid of fire, a gas flame being in close proximity, and asks for some protective solution. We do not see that there is much danger, but soak a little glue in cold water for twenty-four hours, then dissolve by heat, making about a 5 per cent. solution; when the glue is all dissolved, and whilst still hot, add about 1 oz. of glycerin, 1 oz. of sal ammoniac, 1 oz. of borax, and 1 oz. of sulphate of ammonia to every pint, and give the paper a fairly thick coat, repeating if necessary. This will render it quite fire-proof.

PREPARATION OF BLUE TRANSPARENCIES.

J. E. Howard asks for the proper proportions of gelatin and water for coating glass to make blue transparencies, as described in our issue for June 22. Nelson's No. 1 photo gelatin should be used, and 500 grains should be soaked in a pint of distilled water for some hours, and then melted in a water bath, and after filtration through flannel it will be ready for use. A capital way to use up spoilt negatives for this purpose, which does away with the bother of recoating the glass with gelatin, is to place them in water till the gelatin is soft, then immerse in a 10 per cent. solution of potassium cyanide till all the silver is dissolved, or in a 1 : 6 solution of hypo., to every 100 parts of which 10 parts of potassium ferridcyanide (previously dissolved in a little water) is added. After the silver is all dissolved wash well, and they will be ready for use.

SALOL FOR STOPPING HOLLOW TEETH.

Hitherto a variety of gutta-percha has been frequently used for this purpose, but salol is recommended on the ground that it will retain its position in the tooth, even at a comparatively high temperature, and that mixtures of it with aristol, iodoform, or camphor can readily be made. The cavity to be filled is first thoroughly dried, and at the same time the salol, or mixture of salol and other medicament, is liquefied by heat in a test-tube. This preparation is then injected into the cavity, using a hypodermic syringe, and after allowing it to solidify any excess can be removed by alcohol or ether on cotton wool. It is also claimed for this method that the stopping can be readily removed if needed, and should it accidentally become melted, no danger need be feared. [*Reply to "Dens."*]

OXYPHOSPHATE OF COPPER IN DENTISTRY.

Anies considers this preparation invaluable as a dental cement in extreme cases (*Journ. Brit. Dent. Assoc.*, xvi., 499). It is made by mixing black oxide of copper with a solution of phosphoric acid. A phosphate of copper *per se* is formed, which is held in solution in an excess of phosphoric acid. The cement is used in a plastic state, and penetrates the tubuli of the dentine, exerting a positively embalming effect. It is insoluble in the fluids of the mouth after crystallisation. It is contra-indicated for crown setting from its caustic nature, but is valuable for filling purposes where the conditions admit. It cannot be used indiscriminately, as it might cause an occasional devitalised and mummified condition of the pulp.

DISPENSING CREOSOTE IN PILLS.

G. van Nerom, in a recent issue of the *Annales de Pharmacie*, recommends the following process in place of those usually employed for dispensing creosote, guaiacol, terpinol, and similar remedies:—

Creosote	10 parts	
Powdered Castile soap	10 „	
Liquorice powder	5 „	or *q.s.*

If additional remedies are prescribed, they are mixed with the soap previously. It is claimed for pills so prepared that they will keep any length of time without any separation of the medicament, and that they do not become unduly hard. That they disintegrate readily may be shown by placing one in water for a few minutes.

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

COMMUNICATIONS FOR THE CURRENT WEEK'S JOURNAL SHOULD REACH THE OFFICE NOT LATER THAN WEDNESDAY MORNING. TELEGRAMS CAN BE RECEIVED ON THURSDAY MORNING. ALL COMMUNICATIONS RESPECTING EDITORIAL MATTERS MUST BE ADDRESSED "EDITOR, 17, BLOOMSBURY SQUARE, LONDON," AND NOT IN ANY CASE TO INDIVIDUALS SUPPOSED TO BE CONNECTED WITH THE EDITORIAL STAFF OF THE JOURNAL.

ALL INSTRUCTIONS from Members, Associates, and Students of the Pharmaceutical Society, respecting the transmission of the Journal, must be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London, W.C.

BUSINESS communications—including advertisements, orders for copies of the JOURNAL, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Cheques and money orders should be made payable to "Street Brothers."

CORRESPONDENTS who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names—of course not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS for illustrations should be done with pen and Chinese ink, and consist of clean, sharp lines, without shading by washes. They should also be prepared twice the desired size, so as to allow for reduction.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

QUERIES addressed to the "Editor" will be replied to as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries."

REPRINTS of articles cannot be supplied unless authors communicate with the Editor before publication.

LETTERS.

SOLUBILITY OF STRYCHNINE SULPHATE.

Mr. JOHN MITCHELL, of 30, Union Street, Inverness, writes as follows:—"In a recent 'Handbook of Pharmacy,' by Coblentz, I observe that the solubility of strychnine sulphate is 1 in 5 of glycerin. Instead of the present tendency of liquor strychninæ hydrochlor. depositing very frequently, I would consider that a liquor strychninæ sulph. prepared by first dissolving the strychnine sulph. in glycerin, and then adding water would be a vast improvement on our present liquor. The glycerin would preserve the solution as well as dissolve the alkaloid after being first converted into the sulphate."

ANSWERS.

ARTHUR MCKELLAR.—You must address an application for registration to "The Comptroller, Patent Office (Designs' Branch), 25, Southampton Buildings, Chancery Lane, London," and should first send for a copy of the official instructions how to proceed.

"G. W."—You will probably find Shirley Hibberd's 'Field Flowers' (Groombridge and Sons, London) the best book to commence with.

R. J. BELL.—Send 4½*d.* in stamps to Street Brothers, 5, Serle Street Lincoln's Inn, W.C., for the copy of the Journal you require.

J. H. SMITH.—You do not say what the drug was supposed to be. Was it offered as ipecacuanha, or what?

S. WILLIAMS.—If your instructions addressed to the publishers had been sent to the Secretary, in accordance with the instructions printed at the head of this column, you would have had no cause for complaint.

COMMUNICATIONS, LETTERS, ETC., have been received from Messrs. Alcock, Barritt, Bell, Bentley, Bilson, Butler and Tanner, Carter, Cheetham, Cowie, Duncan, Evans, Fairweather, Gane, Greaves, Greenish, Griffiths, Henry, Hill, Howard, Hyslop, Kirkby, Lewis, Long, McKellar, Mitchell, Newbery, Pennie, Picken, Poole, Shaw, Smith, Vogt, Walker, Wyatt.

EDUCATION IN PRACTICAL PHARMACY.

BY G. S. TAYLOR,
Pharmaceutical Chemist.

Much has been said, much has been written, on the subject of pharmaceutical education, but if the results at recent examinations are to be taken as evidence, very little has been done. Is it that teachers are incapable of teaching, or learners incapable of learning? Many reasons for such results may be, and are, given; but there is no valid reason why a youth of average ability should fail to pass the qualifying examination of the Pharmaceutical Society. On giving notice of his intention to "go in" for this examination a candidate is required to produce—"A certified declaration that for three years he has been registered and employed as an apprentice or student, or has otherwise been practically engaged in the translation and dispensing of prescriptions. I fear that in a very large number of cases the production of this certificate is looked upon as a mere matter of form; now whether that is the case or not I do not know, but this I do know, it is in many cases a false statement, and members of the Board of Examiners will bear me out when I say that very many candidates appear before them to be examined in practical dispensing who do not even know how to handle scales, spread a plaster (possibly attempting to do this on the wrong side of the leather, and declaring they "always do it on that side" where they were apprenticed), and who show in making pills, suppositories, etc., that it is work they are unaccustomed to. On the face of this, what other conclusion can be arrived at than that the declaration s untrue? If it were true, how about the teaching, and how about the learning? Every pharmacy affords ample opportunity for an apprentice to acquire the knowledge that is required of him in the subjects of practical pharmacy, dispensing, and materia medica; unfortunately proof is not wanting to show that a very large number of apprentices neglect these opportunities, putting off work with "there's plenty of time," and relying on a short "course" at a "school" to "prepare" them for the Minor examination. And what is the result? They are anxious to pass, and in attempting to cram into their heads in a few weeks what they ought to have been packing into it in a steady, orderly, and methodical manner half as many years, they appear in the examination room physically and mentally exhausted, and in a very large number of instances they fail.

A youth before entering the ranks of pharmacy should pass the "First" examination, or, preferably, its equivalent; I say preferably its "equivalent," for this is the term usually employed to indicate the examination of some educational body other than the Pharmacentical Society. As a matter of fact, most if not all of the so-called equivalents are far in advance of the too elementary "First" examination, and some of them occupy as many days as this does hours. No one should be accepted as a pupil who does not possess a certified knowledge far in advance of the meagre syllabus of the "First" examination, and the reform of the latter is of the greatest importance to British pharmacy. Here let me impress upon the student the absolute necessity of keeping up his knowledge of Latin, arithmetic, and the other subjects in which he has been examined; don't put the books away and think they are done with, as you will assuredly find the knowledge of the greatest possible service to you in pursuing your studies and calling. Many errors in reading prescriptions arise from ignorance of Latin, especially of Latin numerals, government of prepositions, etc., and simple rules which ought never to be forgotten. Arithmetic is all-important, and its importance should not on any account be lost sight of, as in every branch of pharmacy, and chemistry too, a very practical knowledge of arithmetic is required and essential to the successful carrying out of processes and experiments.

During apprenticeship, whether or no you receive the amount of attention that your employer ought to give you, neglect no opportunity of seeking information. The contents of all the drawers and bottles should be carefully examined, and the Pharmacopœia and other books that may be available read with a view to ascertaining as much about the drugs and chemicals as possible. In this way, and by experimenting on every possible opportunity, even if you have no regular course of instruction during apprenticeship, you will gain a vast fund of information, much of which, indeed, cannot be learned out of the pharmacy. Above all things, don't go about grumbling at your employer's neglect, which may be fancied instead of real, and taking no pains to help yourself. To show what can be done with little material and to encourage others, the late Mr. Brown, of Manchester, often quoted his experiences; when a young man he accepted a situation as assistant to a gentleman who prided himself on exceptional skill in plaster spreading, and who took delight in exhibiting it in comparison with the attempts of those less expert. Young Brown couldn't stand this, so he got a sheet of brown paper and a lump of plaster, spread, scraped off, and re-spread until he became as dexterous as his employer!

Finally, when the time arrives for you to enter the examination room, do not enter it under an impression that members of the Board are anxious to "pluck" you, or that "traps" will be laid for you, "catch" questions asked, or set you. If you entertain such ideas, disabuse your mind at once, and go in with the feeling and knowledge that the Board consists of a body of gentlemen who will, if you behave as such, treat you as a gentleman, courteously and considerately too. Don't talk to your fellow examinees; notices politely requesting this are often overlooked. If I tell you that the most disagreeable duty any member of the Board has to fulfil is to examine an ignorant candidate and reject him, you will possibly sympathise with the examiner in his often difficult task. Let me say also that it is "bad form" to criticise in unbecoming terms the action of an examiner whom you suspect of "plucking" you. Especially ungentlemanly is it when done in the pages of a trade journal, since his position prevents him defending himself. Ignorance and, to some extent, unbecoming language and conduct before an examiner are the best of all possible reasons for sending you back to your studies for a time, and no other cause than these is ever allowed to have any weight in reckoning up a candidate's achievements. We are often met with the statement that the examinations are much "stiffer" than they were; possibly this is so, but on the other hand, see what facilities the present offers compared with the past! Books, classes, lectures, laboratories, scholarships, and the curtailment of hours of business, all favour the student of the present day, and if he neglects to take full advantage of all these opportunities he only has himself to blame.

To those who have just entered the ranks of students in pharmacy I would say, in conclusion, you have chosen a vocation which calls for the exercise of a certain amount of self-denial, inasmuch as you must, if you wish to succeed, devote some of your leisure time to study, which youths entering on other pursuits are not called upon to do, but you will reap a reward for this in many ways. Do not allow the examination to be your goal, have an object beyond that, and do not be afraid of work. Lose no opportunity, learn your business thoroughly; much can be done by self-teaching, much more if you have a competent teacher and follow his instructions. Cultivate habits of observation, neatness, and carefulness, as you must be methodical and accurate to become a good and successful chemist; and above all, studiously avoid drifting into slovenly and careless ways.

THE STUDY OF PHARMACOGNOSY.

BY WILLIAM KIRKBY, F.L.S.

Pharmaceutical Chemist.

Materia medica, or, more correctly, that branch of it now designated pharmacognosy, is usually considered to be the easiest and the driest part of the curriculum of the pharmaceutical student If, as frequently happens, the subject is treated simply as a miscellaneous collection of facts, some few of which may bear a not too evident connection with each other, and must be committed to memory in little assorted parcels, then it must be confessed that pharmacognosy becomes a bore and not a pleasure. But there is really no need for such to be the case, providing certain conditions exist before the study of it is begun. It cannot be too strongly insisted upon that the cardinal sciences—chemistry and botany—upon which pharmacognosy depends must be acquired to some considerable extent before any attempt is made to master its otherwise bewildering and apparently unconnected details.

In deference to a pretty general demand for as short a curriculum as possible, the courses of study pursued in the schools are not the best adapted for teaching the subject, because the foundation of pure science is laid at the same time that an effort is made to rear a superstructure of applied science in the subjects of pharmacognosy and pharmacy. Hence, unless the student has previously devoted some attention to chemistry and botany, he is not in a position to take full advantage of the lectures and laboratory work in pharmacognosy. Very often it is suggested that young men during their apprenticeship should begin their preparation for the technical examinations by committing to memory the specific names and natural orders of plants yielding drugs. It would be much better for them to undertake the concurrent study of the two sciences named. These cannot fail to prove interesting, and they will beget an interest in materia medica and pharmacy.

Something more than a quick observation is required to recognise commercial specimens of drugs with certainty; there is needed an intelligent apprehension of the fact that the specific characters of a drug are not the result of a number of happenings, but that they are the effects of determinable physiological laws. In order to know within what limits the characters of a drug may vary with the varying circumstances conditioning the life of the plant, it is necessary to be tolerably well acquainted with the life history of plants in general.

Similarly, without a good grounding in chemistry it is impossible to obtain an intelligent, and that means also interesting, knowledge of the constituents of drugs. Without it the interdependence of the various proximate principles cannot be understood. The relations of the tannins one to another and to their concomitant colouring matters, of allied alkaloids, of the terpenes, and of the odorous alcohols, aldehydes, and ketones will remain obscure no matter how ably explained by text-book or teacher. In fact, to commit to memory the names of the principles of drugs without understanding the chemistry of them is to mummify a real live science.

Assuming that the mental equipment of the student is adequate for the purpose, what is the best plan to adopt in the prosecution of the study of pharmacognosy? The teacher generally follows one of two plans. Either he deals with the drugs according to the natural arrangement in orders, or he takes them in what may be termed morphological groups, that is to say, all the roots are in one group, and all other plant members and products are in similar groups. The apprentice whose time is not so strictly limited as that of the student attendant upon lectures is under no necessity to strictly pursue either of these arrangements. Indeed, he will find it advantageous to use both. The natural system will give the greatest help in the study of the botanical descriptions and the chemistry, by making clear the affinities of the plants, and by exhibiting the alliance which obtains between the proximate principles obtained from different species of the same order, many of which principles are characteristic of the natural orders. The alternative plan is to be preferred when working at the general characters and the histological structure, because by bringing into juxtaposition all the official drugs belonging to one of the groups the differences between them are more readily noted and fixed in the memory, and the very characteristic structural pecularities of each assist the student to distinguish between them with ease and with but little strain upon his memory. This scheme can yield its best results only when the previous training in botanical histology has been sufficient to enable the worker to apprehend the features which are really characteristic. This is no royal road to "spotting," but it is the best means to help one to master all the characters which, combined, constitute the identity of the drug in hand. Further, it enables the examinee to furnish an answer to the question, "Why do you say it is so-and-so?" It is to be hoped that the time is not far distant when that portion of the "Minor" examination which deals with the recognition of drugs will be so conducted as to make the candidates set forth in writing a statement of the reasons upon which is based their identification of the drugs.

To assist in learning the general characters of a drug, a description of it in some good text-book should be read, with a typical specimen in the hand, and each feature duly observed. After the elapse of a few days the specimen should be once more taken up and the student's own description written, without the aid of notes, and afterwards compared with the text-book. Practical work is of no less importance in pharmacognosy than in chemistry, therefore, every drug should be examined microscopically. In undertaking this, let the student be warned to refrain from attempting to permanently mount all his specimens in the hope of making a collection. He should rather treat them with reagents and make a structural analysis of each. By so doing he will learn to use and trust his own eyes, and will be spared the ignominy of having to confess that he does not recognise a microscopical preparation, although conversant with the written description of it.

Looking beyond the examinations—in the ordinary course of business, parcels of drugs do not always conform to the text-book type, and this variation is likely to increase rather than decrease, in so far as certain characters are concerned. The characters, which we may call adventitious ones, due to influences other than those affecting th plant itself, such as methods of collection, preparation for the market, and the contingencies of transport, are almost certain to vary more and more as better and constantly improving means of collection and transport are devised. Natural characters, as the presence of hairs, papillæ, lenticels, etc., and the histological structure should have a far higher value attached to them than the manner in which a root is sliced, or the angle of the cut edge of a bark, or the kind of bundle into which leaves or herbs are packed. The man whose knowledge of pharmacognosy rests on a foundation of science is not likely to be led astray by variations of characters belonging to the adventitious category.

The surest and easiest way to obtain a knowledge of pharmacognosy suited for the examination room and for use in commercial pharmacy is to practically apply a sound knowledge of chemistry and botany.

PHARMACEUTICAL EDUCATION IN A COUNTRY TOWN.

BY GEORGE VOGT.

Some months ago, the President of the Pharmaceutical Society, in an address, expressed an opinion to the effect that the education of an apprentice, so far as it led to the attainment of the Minor qualification, might be conducted in one of two ways; either by a curriculum of several months in one of the many pharmacy schools, which I need scarcely say is the method usually adopted, especially by those who have neglected opportunities for study during the term of apprenticeship; or the course of education might be spread over the whole term of apprenticeship so that the student, by a small effort, may readily pass his qualifying examination immediately on the attainment of his majority.

Whilst not depreciating the value of a curriculum at a first-rate school, the object of this communication is to show how the alternative method is being worked in a country town.

The population is about 15,000, and the number of pharmacies is seven, in which eight apprentices are employed.

There is no other town exceeding or approaching it in size within a radius of twenty-two miles, so that it follows there is very little scope for a local pharmaceutical association such as obtains in the larger provincial centres.

Business is chiefly agricultural, and therefore, as the Society's local secretary here humorously puts it, "pharmacy here should be spelt with an 'f' (farmacy)."

The doctors all dispense, so that physicians' prescriptions are to some extent comparative rarities.

To compensate for these seeming evils there are advantages, and in the first place amongst these must be put the reasonableness of the working hours, each day (Saturday excepting) shops close at 7 p.m., nd on Saturday, which is the market day, all shutters are up about 8.30 p.m. Thursday from 1 o'clock is regarded and sacredly kept as a holiday. Of Sunday duty comparatively nothing is known.

Sir John Lubbock's Bill would not affect this town much, and I believe it would be correct to say that in no town are the leisure hours of those engaged in shops so jealously guarded as here.

To the apprentice this state of affairs is a great boon, and having so much time placed at his disposal, the diligent student has every opportunity of utilising any facilities for the acquirement of knowledge which may be at hand.

Of these there is an abundance in the shape of science classes conducted under the Science and Art Department. Classes are held in inorganic and organic chemistry, both practical and theoretical. The Science School laboratory will accommodate thirty students with comfort, and is well equipped with apparatus for practical work of an advanced character, including polariscope, spectroscope, vapour density apparatus of various kinds, balances' and all apparatus necessary for gravimetric and volumetric work.

The chemistry lectures more than cover the requirements of the Minor, and are attended by every apprentice who has passed his Preliminary examination. In 1893, under the revised syllabus of organic chemistry, only twenty-seven students throughout the country obtained first-class in the advanced stage, and three of these were young chemists' apprentices from this town. The syllabus exceeds the Major requirements for organic chemistry.

After spending the first two years in the study of chemistry, the student usually adds botany to his studies. This is exceedingly well taught, microscopes being freely used and the students themselves perform section cutting, mounting, staining, etc. An hour lecture is first given, and then about an hour spent upon practical work. The district is rich in wild flowers, and field botany is well studied. The Herbarium Prize has already found its way here.

I need hardly say that a course of this kind, followed three sucl cessive years, removes all fear with regard to the chances of success when the botany of the Minor faces the student.

A good collection of all the drugs required for recognition is also an attractive feature in the Science School for the would-be druggist. Each drug is kept in a fair-sized, wide-mouthed, stoppered bottle, and the whole collection are kept in glass cases.

No recognised class in materia medica is held, but the students are allowed to examine the specimens freely, and with a 'Maisch' at hand and 'Pharmacographia' to fall back upon, together with hints from a qualified man who is a teacher in the institution, much of the terror of materia medica disappears. The drugs are examined for microscopic as well as macroscopic characteristics. The remaining subjects are such as may be practically studied in the course of business. Where apprentices are kept the principals conscientiously permit the manufacture of the Pharmacopœia preparations, such as are used in the business, and can be satisfactorily prepared by apprentices under the supervision of the principals, even though a slight pecuniary loss may be incurred through not obtaining them from wholesale houses.

Practice in dispensing which is out of the ordinary run, and in the making of preparations not usually made or required in the shops is obtained during spare moments, which if used during a five years apprenticeship, amount to no small length of time when pieced together. Proctor's 'Lectures on Pharmacy,' and the 'Art of Dispensing' are much used as text-books. Prescription reading is studied from the old autograph prescriptions found in the older businesses, the grammatical construction, etc., being studied from Ince's 'Latin Grammar of Pharmacy,' and Pereira's 'Selecta è Prescriptis.'

The knowledge acquired by this steady process during the apprenticeship contrasts vividly in its solidity against the flimsiness of the six months' education or cram. Not only this, but the knowledge is pleasurably gained, and in several cases has led to students entering into the medical profession and achieving honours there.

In proof of the success of this method a case may be cited in which the student left his shop work on the Friday for London, went through the practical portion on Saturday, the following Saturday was able to wire his success, and on Monday was behind the counter again, this occurred last year. In the July examination this year, at which the percentage of failures was so heavy, a student from here was successful after only a four weeks' course in one of the London schools. Both of the students were complimented by their examiners in botany and chemistry respectively.

An interest in current pharmaceutical literature is also stimulated and responded to, and the suggestion of adopting a periodical educational competition for the students of the Society in this Journal would perhaps not be out of place here. A high value would be put upon it by the students, and greater interest created in them for their Journal. The competitions, although not officially recognised, would serve to some extent to fill the wide gap at present existing between the Preliminary and Minor examinations.

If this communication will induce anyone to utilise existing agencies to the fullest extent for the advancement of true pharmaceutical education the words will not have been penned in vain.

PHARMACEUTICAL EDUCATION.*

BY FRED. W. HAUSSMANN.

The successful practice of every scientific profession presupposes a knowledge of its fundamental principles. Probably every department of science has a different system of instruction, yet each aiming to accomplish the same end, namely, the most satisfactory manner of educating the coming professional man.

To point out the most successful system of instruction has been, in every profession requiring a higher grade of education, the object of much speculation, not only by teachers actively engaged in this work, but also by practical men, who view their calling from a business standpoint. Of course, any individual requested to express an opinion on such matters can only give judgment from his personal observation and experience; it is, therefore, impossible, owing to the different conditions under which this experience is obtained, to have all the views coincide. If it were only the teachers whose views are desired, uniformity could easily be attained, but since pharmacy has also important business features, the opinions of able business men in our vocation must also be considered.

In the successful practice of pharmacy it is not only necessary to acquire the rules of buying and selling and the various business customs, and also the more important and indispensable scientific information; and it is, therefore, more largely the latter upon which the consideration of pharmaceutical education must dwell. It is a subject on which many suggestions have been made by eminent teachers as well as by practical pharmacists; its various phases have been ably presented, and the consensus of opinion is that the present standard should be raised.

To effect this desirable advance we must as thoroughly as possible educate the present apprentice, and look upon him as the future practical pharmacist and professional co-worker.

The early training almost invariably shapes the character of the individual, and not only his own, but also the future of his profession depends upon it. It must naturally be the wish of the apothecary to have competent help, and to insure this he should see to it that his assistant possesses the necessary theoretical, as well as practical knowledge.

It rests with the pharmacist himself to secure the proper individual for an apprentice, and a certain amount of discrimination must be exercised. Let us look at the material which he has to choose from.

In our larger cities there is a choice between two classes of youths—one whom circumstances have favoured with the opportunity for obtaining a good literary education; the other the poorer class, who have had but a limited education, often not going beyond a grammar-school training. The former, unfortunately, are in the minority. The reasons for this probably are the meagre compensation which the apprentice is obliged to accept for his services in the beginning, the long hours, and perhaps the disinclination to do the usual menial work; and the question may arise whether the ultimate compensation, as pharmacist, is proportionate to that afforded by other professions. It is very likely for this reason that so many well-educated pharmacists enter the medical profession sooner or later.

With this class it is hardly necessary to dwell upon the extent of the possessed knowledge, which may have been developed in classical or in scientific studies. But the great advantage here lies in the fact of the individual having a thorough educational foundation, which enables him to more easily master the new science; he will not only find the various subjects less difficult, but a new field is open to him wherein to apply the learning he has previously acquired.

Let us consider the most important branches taught at high-schools or literary colleges regarding in particular their usefulness in pharmaceutical studies. The advantage of a thorough training in arithmetic, a fair knowledge of the principles of algebra, and similar mathematical branches, is apparent; and an understanding of higher mathematics—such as geometry and trigonometry—will be found a useful aid in the study of pharmacy. Most academies prescribe a course of Latin, which finds valuable application in the practice of the pharmaceutical profession. A knowledge of etymology is perhaps a substitute, but it can only be regarded as an imperfect one. Aside from the application of Latin to pharmacy itself, it is important in the studies which pertain to it, as, for instance, botanical nomenclature; and, while the Latin of prescriptions is somewhat different from that of the classics, it is easily comprehended with the aid of the latter.

Of this class we may select as a type one whom circumstances rather than inclination, lead into pharmacy.

Commencing usually at the age of fifteen, often even younger the youth is compelled, usually by adverse circumstances, to seek an early occupation for the purpose of earning a few dollars. His duties are well known to everyone—going on errands, bottle-washing, and general cleaning being the daily routine. Frequently it is hardly considered worth while to encourage a possible desire for study, or to instruct him in the many opportunities for practical information, because it is questioned whether he will ever advance sufficiently to assume the responsibility of clerkship.

Honesty with a certain amount of intelligence gradually leads to his advancement; and the time approaches when he is to enter college, and then the necessity for close application to study becomes apparent.

If it is his intention to learn the profession, the intelligent apprentice should from the beginning endeavour to remedy the deficiences in his early education. To successfully accomplish this he must have the encouragement of his employer, who can best point out his defects and aid in correcting them by proper suggestions.

One of the first deficiencies to remedy in the greater number of our apprentices is penmanship. The average school training does not produce a very good penman, and a fluent hand is a desirable accomplishment in the drug business.

Orthography and composition are frequently found to have been neglected; especially the latter, in the art of being short and concise in the expression of ideas.

Arithmetic—in particular, decimals and proportion—requires thorough study; the former being important in connection with the metric system, which is now official, the latter in the determination of specific gravity and similar operations.

A knowledge of geography is essential to the intelligent study of materia medica and botany. Other branches of more or less importance may also be suggested; but those mentioned should be regarded as indispensable to the proper study of pharmacy.

* Reprinted from *Merck's Market Report*.

RESORCIN AS A REAGENT FOR ALBUMIN IN URINE.—Carrez proposes to employ a solution of 1 part of resorcin in 2 parts of cold water as a test for albumin in urine. A little of this reagent is put into a test tube, and an equal volume of the suspected urine carefully run on. In the presence of albumin a white ring is formed between the two liquids. Alkaloids, urates, and urea give no precipitate; peptones, however, are thrown down, but redissolve on warming. The reaction is said to be as delicate as that with nitric acid (*Repert. de Pharm.*, vii., 213, after *Scalpel*).

THE PHARMACEUTICAL INSTITUTE AT BERN.

Foremost amongst similar institutes at present in existence stands the Pharmaceutical Institute of the University of Bern, the arrangement of which was designed by Professor Tschirch, under whose auspices the Institute has recently been completed. So well adapted is the Institute to afford in every respect a fitting education for the pharmacist of to-day, that a brief account of it will be of interest to most of the readers of the *Pharmaceutical Journal*.

It will, no doubt, be generally known that Professor Perrenoud, who succeeded Professor Flückiger in the pharmaceutical educational department in Bern, had at his disposal for that purpose a "chemical laboratory" and a "pharmacognostical collection"; these conditions obtained when Professor Tschirch, in the spring of 1890, after the death of Professor Perrenoud, took charge of the pharmaceutical department, and continued to exist until 1893, when the Bernese Grosser Rath placed means at his disposal for the formation of a suitable Institute, a decision which was naturally hailed with joy by both professor, staff, and students.

Thirteen years of work in Berlin had made Professor Tschirch thoroughly familiar with all that was necessary to assure for the Institute the position it now occupies. The space placed at his disposal consisted of the entire first floor of a large building originally intended for a cavalry barracks, but never actually used for that purpose. Situated near the outskirts of the town it labours under what would at first sight appear to be the disadvantage of abutting directly on the railway, which passes immediately behind the house, but as the foundation rests upon the solid rock the vibration that might be expected is practically imperceptible. In this building the Pharmaceutical Institute will soon enjoy the congenial company of other departments of the university.

PRINCIPAL CHEMICAL LABORATORY.

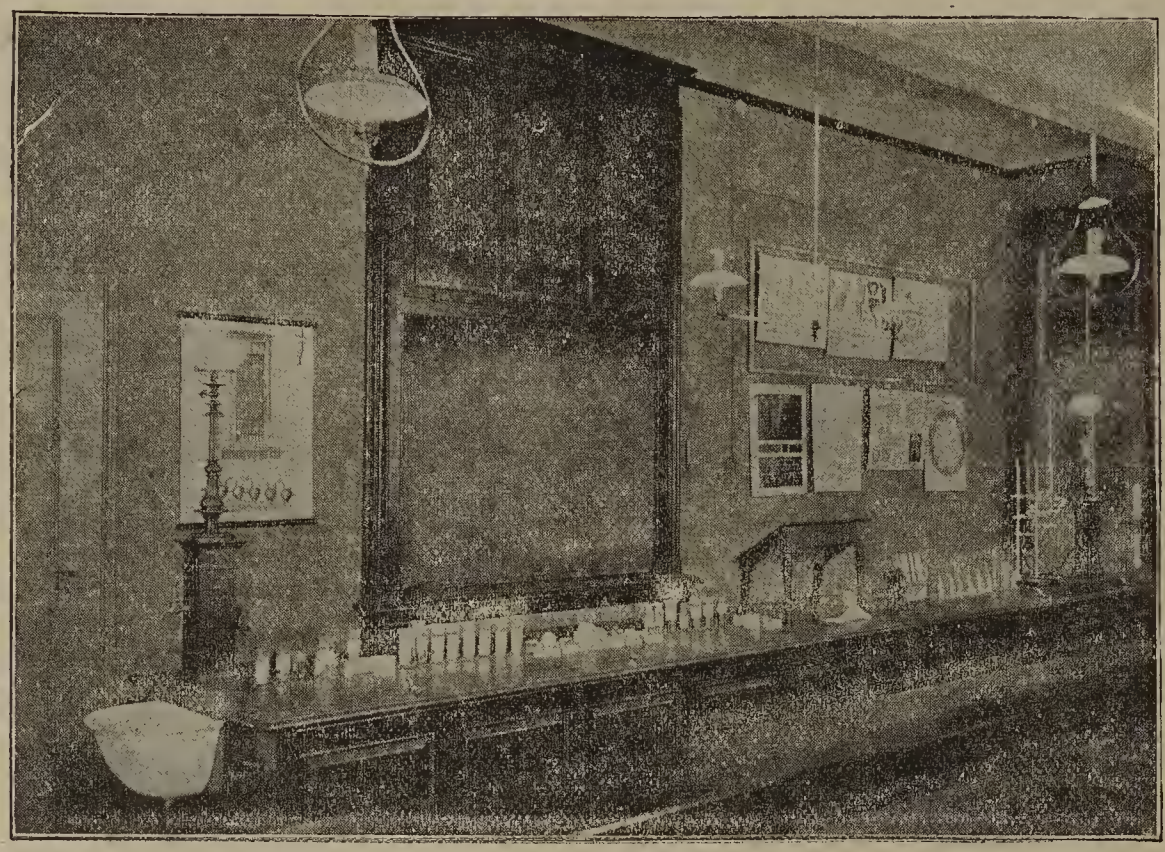
Ascending an unpretentious stone staircase the visitor passes through a vestibule into a long corridor, running north-east and south-west, nearly but not quite the whole length of the building, a matter of some 200 feet. Into this corridor all the rooms of the Institute open directly. In order that the suitability of the various arrangements may be comprehended, it must be observed that only such students as have already acquired in the University a theoretical knowledge of the subjects taught in the Institute are allowed to work there; for theory and elementary work, therefore, no provision was necessary.

In the principal chemical laboratory one is struck by the amount of space allotted to each student; a room 55 feet by 23 feet is designed to accommodate sixteen students. Four benches, each measuring about 9 feet by 5 feet, cross the room at right angles, and afford to each of sixteen students a working space of about 4 feet 6 inches by 2 feet, with four gas burners. The working bench itself is comparatively high, 3 feet 3 inches, but exceedingly convenient; below are drawers and cupboards, the latter retreating by several inches to afford room for the knees. The ends of the benches are fitted with sinks, water supply, small taps for filter pumps, draining boards, etc. Against the walls four capacious fume chambers, one for each

HISTOLOGICAL LABORATORY.

bench, fitted with gas and water-supply are placed. These, however, are not intended for the use of sulphuretted hydrogen, for which a special chamber fitted with effective means of ventilation is provided elsewhere.

This reservation of particular rooms, or parts of rooms for particular operations, is prominent throughout the whole Institute. Thus in the principal laboratory, two long narrow wall-benches are reserved exclusively for such operations as distillation, hot filtration, exhaustion by Soxhlet apparatus, etc., each of which takes up a considerable amount of room, and would materially interfere with the student's work if carried out on his working bench. In addition, two smaller tables, provided with steam as well as water and gas, are set aside, one for distillation and hot filtration by steam heat, the other, enclosed in a fume cupboard, for evaporation on the steam bath. Lastly, two still smaller tables are reserved for glass-blowing and crucible operations. Each of these is provided with blow pipes, large and small, worked with a simple water-jet apparatus. Common to all sixteen students is one large copper drying oven divided into sixteen compartments and continuously heated by steam.



LECTURE THEATRE.

In the laboratory for more advanced students a similar arrangement has been observed. Two benches, like those in the principal laboratory, accommodate eight students. In the centre a slate bench, some 10 feet long, plentifully supplied from the centre with gas and water, serves for all the students for distillation, whilst against the wall a long narrow one, fitted with gas and air exhaust pipes, is reserved for exsiccators, of which all sizes and descriptions are represented. A third table is set aside for distillation, evaporation, etc.; this is provided with gas, water, steam, air exhaust, and compressed air pipes, the latter serving to assist evaporation by supplying a current of air in any desired direction; it is further provided with numerous copper steam baths which can be put into operation by simply opening a steam tap. Two roomy fume chambers and a drying oven with eight compartments complete the principal fittings of this laboratory.

DIRECTOR'S BUREAU.

In addition to these laboratories a small room is assigned as private room to the principal assistant, whilst two larger ones serve for the director as a private bureau and as a laboratory for private work, and for forensic and other investigations; here, too, gas, water, steam, air exhaust, and compressed air are supplied. A separate room, part of which is partitioned off by glass, contains a fume-chamber in which alone operations involving the use of sulphuretted hydrogen can be performed. The gas is generated in a Kipp's apparatus and stored in a gasometer, from which it is drawn by gas-pipes and taps as required. Ventilation is ensured by gas-jets in a flue as well as by a capacious zinc pipe in which is a fan worked by a water-jet. By confining the use of sulphuretted hydrogen to a room so provided with special means of ventilation, freedom of the laboratory from the disagreeable smell of the gas is ensured.

In the boiler-room a steam boiler is placed for the supply of steam to the laboratories, and is in constant use during the session. The apparatus for producing compressed air and the air pumps are also

situated here, as well as a hydraulic press and numerous stills for the evaporation of large quantities of liquids produced in the various operations. A collection of chemicals exclusively of pharmaceutical importance is arranged in glass cases in a separate room.

In the microscopical section the histological laboratory occupying the same space as the principal laboratory, attracts attention by its size. It is lighted by six windows with south-eastern aspect, and receives, therefore, during part of the day direct sunlight. To obviate the inconvenience arising from this, the windows are provided with blinds of a bluish colour, which neutralises the yellow of direct sunlight. A bench fixed by carriers to the wall, so as to avoid vibration, is carried round the room. Each student is provided with the necessary reagents, as well as with a small microscopic lamp for heating slides and watch-glasses, and an argand burner for use in the evening. To concentrate the artificial light, and to neutralise its yellow colour, glass globes, such as are commonly used by cobblers, filled with solution of copper sulphate, are provided. At each end of the room a blackboard is placed, whilst the necessary diagrams are suspended from a beam. Operations involving the use of Schulze's maceration mixture, acids, etc., are conducted in a fume chamber, whilst cases ranged round the room contain various material, together with a small herbarium. Supplementary tables are placed in the centre of the room. In addition to these rooms the Institute is provided with a library and reading-room, which serves also as a balance-room, and a dark room for photographic work, which serves for common use of all the students.

Museum.

At the extreme end of the corridor, as far removed as possible from the laboratories, and therefore free from disturbance by the noise incidental to laboratory operations, are the lecture theatre and museum. Together they occupy the entire width of the building, but are separated from one another by a wall. The theatre is nearly square and provided with a long oblong lecture table plentifully supplied with gas and water; the writing desks in front of the benches are wide and flat, so as to ensure the safety of the specimens handed round during the lecture. Black screens to the windows allow of the theatre being darkened for optical projections. Directly behind the lecturer is a black-board, which can be raised, disclosing a ground-glass movable screen. This opens into the museum, and all the necessary specimens can thus be passed directly from museum to lecture theatre, an arrangement which must commend itself to every lecturer.

Museum

In the museum the collection of drugs has been arranged with the greatest care, and with the special object of assisting the students, who are permitted to use it at certain times, to open the cases, remove and examine the specimens—provided that they undertake to replace them without damage; this system is found to work well, the little injury done to the specimens being quite insignificant when compared with the immense advantage reaped by the students. The cases on the floor are low enough to be easily reached by the hand, whilst the upper are made accessible by a gallery

carried round the room. The drugs are arranged according to the natural orders, and scrupulous care has been taken to give the student as complete an idea as possible of each from pharmacognostical, botanical, microscopical, and chemical points of view. With that object the various parts used are exhibited, framed illustrations of the habit of growth of the plant, of its more detailed morphology and structure taken from one or more of the numerous atlases placed at their side, together with the adulterations and more important chemical constituents. The educational value of this arrangement cannot be overestimated, and as the object of the museum is essentially educational, it is the most suitable that could have been adopted. The student acquires in this way a complete grasp of each drug, and his mind is freed from the pernicious idea that pharmacognosy consists simply in the distinction and identification of drugs. The centre of the room is occupied by a trophy composed of the various serons, cases, etc., in which drugs are exported.

Laboratory for Advanced Students.

The course of study in the Institute occupies part of the student's time during the second semester, and nearly all of it during the third and fourth semesters. It includes pharmaceutical and toxicological chemistry, urine analysis and the chemistry of food substances, pharmacognosy, and practical work in the chemical and histological laboratories. Further study (for the degree of doctor) includes pharmacology, toxicology, physiological chemistry, etc., and practical work in the laboratory for advanced students in the Institute; this work usually takes the shape of the investigation of some subject of chemical or pharmacognostical interest.

The following is the course of study recommended, but not enforced, by the University, assuming the student to commence work in the autumn:—

1, Semester (winter):—Physics, inorganic chemistry, botany (cryptogams) and practical microscopy, zoology, mineralogy, practical chemistry (qualitative analysis).

II. Semester (summer):—Physics, organic chemistry, botany (general and special) and botanical excursions, practical microscopy (pharmacognosy and applied botany), practical chemistry (gravimetric and volumetric analysis).

III. Semester (winter):—Pharmaceutical and forensic chemistry (inorganic), practical microscopy (pharmacognosy), practical physics, chemistry of food substances, urine analysis, practical chemistry in the laboratory of the Pharmaceutical Institute (including the preparation of chemicals, toxicological and pharmaceutical analysis).

IV. Semester (summer):—Pharmaceutical and forensic chemistry (organic), pharmacognosy, practical microscopy (pharmacognosy), repetitorium of physical chemistry and botany, practical chemistry in the laboratory of the Pharmaceutical Institute (including the preparation of chemicals, toxicological and microscopical analysis).

If the study be prolonged beyond this course, the following subjects are recommended:—pharmacology, bacteriology (including practical work), physiological chemistry, physical chemistry, hygiene, forensic medicine, toxicology, practical work in the field of pharmacognosy and pharmaceutical chemistry in the laboratory of the Pharmaceutical Institute.

Museum: Collection of Serons, etc.

As already observed, this course is carried out partially in the University (especially Semesters I and II.), partially in the Pharmaceutical Institute. The conduct of the latter is entrusted to Professor Tschirch, who is aided by at least two assistants.

In the course of study the time and attention paid to pharmacognosy attracts particular attention. The eminent success attending an endeavour to give to pharmacognosy the

position that it should justly occupy, affords a striking and sufficient answer to the opinion, not uncommonly advanced, that this subject has been "eviscerated" by chemistry and botany. In the second, third, and fourth semesters four hours every week are devoted to practical microscopy in the field of pharmacognosy, as distinguished from general botany. In the first of these three (the second semester of study) anatomy illustrated by drugs is dealt with, in the second food substances and spices, in the third drugs; during the last the lectures on pharmacognosy are delivered. The examination includes the microscopical analysis of a mixture of three or four powdered drugs.

THE VALUE OF A GOOD GENERAL EDUCATION.*

BY WILLIAM SIMPSON.

The value of a good general education, in its bearing upon the particular pursuit in which one may be engaged, is not commonly well understood. Some good people look upon a college education as a key to all prosperity, a sort of "opensesame" to fortune's treasure house; while, on the other hand, many, who are nothing if not practical, hold that the earlier a young man devotes himself exclusively to his chosen pursuit the better his chance of success. I need hardly say to a body like this that neither of these views contains the whole truth. It is possible, of course, to spend too much time in aimless study, and we may even acquire at college the indolent habits of a bookworm; but these are by no means the necessary results of education properly so called. They are rather the results of faulty methods and ideals, which are now happily giving way to something better.

A young man may be said to be well educated, I think, when, having first been trained to right use of his senses, he has further learned to digest and to assimilate what he reads. The maxim "through hand and eye to the brain" points us, no doubt, to nature's way, the wisest and best way, of training the young; but education ought not to stop here. The mind also needs to be developed and trained till it is able, not only to interpret rightly what the senses report, but to deal intelligently with words and ideas, to seize their meaning with as firm a grasp and as clear an insight as belong to hand and eye in the world of matter and motion. Indeed, I am not sure but the ability to read intelligently (by which I mean the power not only to get from the printed page all that the writer intended to convey, but to compare the matter thus acquired with similar matter already known, and to estimate it at its true value). I am not sure, I say, that the ability to read in this way ought not to be ranked even higher than the ability to observe for one's self, however keenly, the objects and phenomena of the material world. There is no need, however, to measure these powers one against the other. There is no necessary antagonism between the two. On the contrary, they go hand in hand, each aiding the other and doubling its efficiency. Nothing is understood that stands alone. To understand a thing is to place it in its right relation to surrounding objects, and the more numerous the points of contact the more complete the understanding. To be able to give from memory the name of an object and one or two of its properties is hardly to know it at all; but in a profession like ours, certainly "a little learning is a dangerous thing." It is with a view to saving our apprentices from mistakes on this point that we would insist upon their postponing the study of pharmacy till the mind has been so far developed by previous study as to have a wholesome appetite for genuine knowledge, and has been so far trained as to be able to acquire it. If such a requirement should have the effect of excluding the imcompetent and the indifferent, so much the better for them, for us and for the public; for, to repeat what has been expressed above, in a profession like ours, with its grave responsibilities, incompetence is sin.

The advice, "know something of everything and everything of something," seems especially appropriate to druggists. Some knowledge of Latin, as we are all aware, is of direct use to the apprentice in throwing light upon the nomenclature of the business; but its chief value lies in its power to illumine the mind itself—to light up the whole intelligence by cultivating a sense of the right use of words, the real nature of language. Substantially the same may be said of mathematics, science, history—in fact, any study that teaches one to consider the meaning of words, to compare, to discriminate, to classify, to reason—in a word, to think for one's self. Consider for a moment the difficulties in the way of an apprentice without such mental discipline. He must commit to memory an endless succession of disconnected facts, which he, through ignorance of general principles, has no power to arrange and classify. These facts are conveyed in language that to him is virtually an unknown tongue; and all these difficulties he must encounter with a mind untrained to habits of systematic application.

* Being part of the presidential address delivered at the 43rd Annual Meeting of the American Pharmaceutical Association.

PRESCRIPTION DIFFICULTIES AND WAYS OUT OF THEM.*

BY AUGUSTUS BRADLEY, RALEIGH, N.C.

The difficulties encountered by the pharmacist in the prescription department are mostly attributed to the phenomenon, incompatibility. The latter term has been defined as a chemical decomposition, a pharmaceutical dissociation, or a therapeutical opposition of the constituents. In deciding whether a prescription is incompatible or not, let the physician's intended therapeutical result be the rule for the pharmacist to pursue. Picture in your mind the chemical and pharmaceutical characters of each ingredient, dose, etc., before commencing, and by no means let your procedure be purely mechanical. The following chemical and physical peculiarities are submitted in condensed form, in the belief that, if strictly adhered to, the careful dispenser will obviate and promptly account for many a difficulty:

Acetates are soluble.

Arsenates are insoluble, except those of the alkali metals.

Arsenites are insoluble, except those of the alkali metals.

Bromides are soluble, except mercurous and silver bromides; those of antimony and bismuth are decomposed by water, forming oxysalts.

Carbonates are insoluble, except those of the alkali metals.

Chlorides are soluble, except those of lead, mercury (mercurous), and silver.

Citrates are soluble, except those of manganese, the mercurous, those of silver, strontium, aluminium, barium, bismuth, cadmium, calcium, lead, and zinc.

Cyanides are insoluble, except mercuric and those of the alkali metals and earths.

Hydrates are insoluble, except those of barium, strontium, calcium, lead, and the alkali metals.

Iodides are soluble, except those of antimony, bismuth, gold, lead, mercury, platinum, and silver.

Nitrates are soluble.

Oxalates are insoluble, except those of antimony, chromium, iron, the stannic, and those of the alkali metals.

Oxides are insoluble, except those of barium, strontium, calcium, and the alkali metals.

Phosphates (ortho) are insoluble, except those of the alkali metals.

* From the *Proceedings of the North Carolina Pharmaceutical Association.*

Sulphates are soluble, except those of antimony, barium, calcium, ead, the mercurous, and those of silver and strontium.

Sulphides are insoluble, except those of barium, calcium, strontium and the alkali metals.

Sulphites are soluble, except those of aluminium, antimony, barium, bismuth, calcium, cobalt, copper, ferrous, lead, manganese, nickel, silver, stannous tin, strontium, and zinc.

Tartrates are soluble, except those of antimony, barium, bismuth, cadmium, calcium, copper, ferrous, lead, manganese, mercuric, mercurous, nickel, silver, strontium, and zinc.

Acids (free) decompose and are neutralised by hydrates and carbonates.

Hydrates and carbonates decompose glucosides and precipitate alkaloids.

Oxidising agents—such as nitric, picric, and chromic acids, the bichromates and permanganates—form explosive compounds when brought into contact with alcohols, ethers, carbohydrates, sulphur, phosphorus, sulphides, or any organic matter.

Potassium permanganate and silver nitrate can be best made into pills with cacao butter and petrolatum.

Iodides yield precipitates with the alkaloids.

Bromides precipitate morphine and strychnine salts on standing, but the addition of a few drops of dilute hydrochloric acid prevents the change.

Benzoates, salicylates, and borates precipitate alkaloidal salts in solution, and likewise their own corresponding acids in acid solutions.

Chemicals, on being dissolved in the medicated waters, generally produce cloudiness, owing to displacement of the volatile oil.

Alkaloids are mostly precipitated by potassio-mercuric iodide, auric chloride, tannic acid, phospho-molybdic acid, picric acid, and stannic chloride.

Glucosides are decomposed by mineral acids, and ferments into glucose and allied products, which sometimes differ altogether in therapeutical value.

With aqueous preparations containing resinous or gummy tinctures, the addition of a sufficient quantity of acacia to produce emulsification is always admissible.

Acacia is precipitated by lead subacetate, alcohol, borates, sulphuric acid, iron salts, and silicates.

Tragacanth is precipitated by alcohol.

The terebinthinate compounds are incompatible with bromine, potassium iodide, nitric acid, and sulphuric acid.

Fixed and volatile oils are all more or less incompatible with the mineral acids.

Tannins yield precipitates with gelatin, alkaloids, iron preparations, gelatinised starch, and tartar emetic.

Aqueous solutions of the ferments—trypsin, etc.—require the addition of a little chloroform to insure preservation.

Solutions of the digestive ferments should be preserved by antiseptics, such as alcohol, glycerin, sodium chloride, borax, boracic and salicylic acids, thymol, etc.

Undiluted solutions of the ferments should not be mixed with strong tinctures or astringents.

Pepsin is inactive in alkaline solutions, with lime water, sodium, bicarbonate, ammonium preparations and soluble salts of bismuth.

Pancreatic ferments are destroyed by high temperature and acids.

Pancreatin and pepsin should not be prescribed together in solution—acid or alkaline—as their activity cannot be so held combined.

The alkaline hydrates, in solution, convert chloral into chloroform.

Alkalies in combination with preparations of ipecacuanha destroy the emetic principle of that root—emetine.

HOW TO NAME A PLANT.

(*Continued from p.* 8.)

Natural Orders.

Having ascertained, in the manner already described, the sub-class to which a plant belongs, the next step is to ascertain its natural order.

Here the student meets with a considerable difficulty, for systematic botanists differ in their opinions concerning the number of natural orders that should be regarded as distinct, and in consequence almost every work on systematic botany has a different number of the natural orders. Thus in some works, *Ulmaceæ*, *Moraceæ*, *Cannabinaceæ*, and *Artocarpaceæ* are considered to be distinct natural orders, and in others they are classed as sub-orders of *Urticaceæ*. The difficulty is still further complicated by the fact that many of the more modern text-books on systematic botany arrange the natural orders according to the order in which their evolution is believed to have taken place, and others, again, are led by the recent advance in our knowledge of the anatomy or histology of plants to class such apetalous families as *Polygonaceæ*, and *Ceratophyllaceæ* under *Thalamifloræ*. But although there is no doubt that changes of this kind must be made as knowledge of the microscopical structure of plants and of their life history progresses, such changes are not yet adopted in works on descriptive botany or floras, and consequently are practically useless for the purpose of running down the name of a plant, although useful for giving a general or bird's-eye view of the natural affinities of plants, and of the groups into which the majority of the natural orders are by common consent arranged.

It is wisest, therefore, in each country to work by the leading flora or systematic work of that country, and it is obvious that the larger the groups in which the natural orders are arranged, the easier it is to narrow down the search, for as there are at least 200 natural orders, some of which include from 100 to 700 genera, some of the latter comprising 300 species, or even up to 600, it would be practically impossible to go through them all, unless the divisions were as few as possible.

The work which in this country and in our colonies must be adopted, for many years to come, as the standard work on systematic botany is unquestionably Bentham and Hooker's 'Genera Plantarum,' and those who are concerned to name and describe plants must follow it for naming foreign plants until a new edition can be published.

For naming British plants, however, any analytical key, such as is given in most floras, may be used. The most convenient of these are Hayward's 'Botanist's Pocket Book' (Bell and Co.), Notcutt, 'Handbook of British Plants,' and Babington, 'Manual of British Botany.' The first two are of a convenient size for the pocket, and in them the diagnostic characters are reduced to a minimum. For those who are content with the natural order of a plant, and do not require the name of the genus or species, the two charts in Holmes' 'Botanical Note-Book' will be found very convenient and workable.

In using the analytical keys to the natural orders in the works mentioned, the beginner must not make the common mistake of supposing that it is unnecessary to know the exact meaning of every word in the analysis. He must make up his mind that the analytical key is absolutely useless, and will lead him astray if he does not follow out every step laid down, and understand distinctly the meaning of every term employed. Most floras contain a glossary of botanical terms, so that there is no excuse for laziness in such a matter. Having then carefully followed the directions given, he will soon arrive at the natural order, and continuing the analysis given under the natural orders he will also soon find out the genus

and the species. There are, however, a few difficulties in finding out the species.

The diagnostic characters only are given in the pocket floras, but it often happens that other characters are noticeable which lead the student to suppose that the plant is not the right one. Thus, supposing that he has on one occasion found *Silene inflata* with glabrous leaves, as they normally are, and on another occasion he finds a plant that looks like it, but is covered with short hairs, he will naturally conclude that it is a different plant. In such a case Babington's 'Manual of British Botany' (van Voorst) may be consulted, and he will there find that Jordan has described such a form under the name *S. puberula.*

In fact only the diagnostic features, which are usually italicised in descriptive works, should be regarded in deciding if any given plant is a species, or only a variety or form. If the plant agrees with the diagnostic characters, it may be considered to belong to that species, if it has others besides those italicised, but yet not mentioned in the description, it may be regarded as a form, variety, or hybrid, according to the features it presents. There are systematic botanists who take species "in a large sense," and do not trouble to describe varieties, *e.g.*, Bentham's 'Hand-book of British Flora'; and there are others, like Jordan, who recognise that a species in its own centre may produce numerous forms (or as gardeners call them, strains), and sometimes hybrids, which under certain conditions of soil, moisture, and temperature, may continue to be propagated, and such botanists give these plants varietal or formal names, or recognise them as hybrids, as has been done in the 'London Catalogue of Plants.' Only in rare cases where the natural order seems correct, but the genus or species seems abnormal, should reference be made to an illustrated flora, such as Sowerby's 'English Botany,' or Bentham's 'Illustrated Hand-book of the British Flora,' in order to see if the plant resembles the figure of the species to which it is supposed to belong.

Those who are able to refer to a really good herbarium will find it the best plan to do so in cases of doubt, since illustrations do not always comprise every detail, and it not unfrequently happens that the particular point about which the student is in doubt can be more easily determined by a comparison with an actual specimen. The best means of determining the natural order and name of a garden or exotic plant will be treated in another article.

(*To be continued.*)

HINTS ON PHOTO-MICROGRAPHY*

BY J. HOWARD MUMMERY, M.R.C.S., L.D.S.

(*Continued from p.* 6.)

In taking photographs with low powers of the microscope, no great difficulty comes in provided the specimens chosen are suitable for the purpose, but the photography of objects such as bacteria, with high powers, is a matter requiring great patience and perseverance, and it is in obtaining good results with a magnifying power of 1000 and over that the utmost refinements of the art are called into play.

An expensive and elaborate apparatus is not necessary in order to obtain good results.

Dr. Neuhauss, of Berlin, whose photographs of bacteria are justly celebrated, worked with an ordinary bellows camera which he had himself adapted to the purpose, and an erection of boxes on which he placed the microscope, making the connections with cardboard adapters, and obtaining his illumination from an ordinary round-wicked Argand oil lamp. There is no doubt, however, that a special apparatus has many advantages; such a one as I have here to-night, although not nearly so elaborate as many that are now made, enables one to do the work with a minimum of fatigue, and ensures rigidity, which is a very important point. The first desideratum is, of course, a very firm and solid base-board, not supported on legs attached to it, but on a very firm and solid table, and for high power work, wherever possible, on a cemented basement floor, for vibration is the great bugbear of the photographer.

The bellows should be capable of considerable extension, and blackened cardboard diaphragms inserted at intervals to cut off all reflected rays; a small amount of reflection from the interior of the bellows or of the microscope tube will give rise to ghosts in the negative — an unpleasant kind of phantom which generally manages to blurr the one important part of the negative. The photographer with the microscope will find there is a perversity in things inanimate, and a persistent tendency to thwart him which he could hardly have given them credit for. It is always the best negative that breaks itself—I will not say gets broken, for it seems to go out of its way to court destruction.

To prevent these ghostly reflections, a careful examination of the interior of the camera should be made every now and then, and the slightest reflecting surface should be touched with a dead black paint; the best I know for this purpose is "flat black" sold by Messrs. Naylor, of James Street, Oxford Street, a paint which appears to be absolutely without lustre. The microscope tube should be lined with black velvet. Any microscope will serve our purpose that is rigid in the horizontal position, and nose-pieces should not be used to carry the lenses, but they should be screwed directly into the microscope body to ensure accurate centring.

A good sub-stage condenser is a very important part of the apparatus, and the high angle achromatic Abbe condenser of Zeiss is one of the best to employ, as it transmits a very large cone of achromatic light. It should be furnished with an iris diaphragm. If an oil lamp is employed as the radiant, a bull's-eye or similar condenser should be placed immediately in front of the flame, so arranged as to convey parallel rays to the back of the sub-stage condenser. I prefer a large flat wick lamp, with the edge of the flame towards the object, not having had much success with the round wick employed by Dr. Neuhauss.

A means of using the fine adjustment while focussing at a distance is of course requisite. In the apparatus here shown this is obtained by a brass rod covered at one part with india-rubber; this bears upon a friction wheel, and by means of a cord and pulleys works the fine adjustment. There are, of course, many modifications of this focussing apparatus.

The portion of the apparatus on which the microscope and lamp are placed is pivoted so that it can be rotated and the adjustments made while the operator is in a sitting position, before it is returned to its place in front of the camera.

For use with the orthochromatic plates, coloured glass screens are required—yellow glass of different shades being the most generally useful; a colour called signal green is valuable in photographing certain shades of red.* Many prefer to use fluid light filters instead of glass. A solution of picric acid forms an excellent pale yellow filter, and different strengths of a solution of bichromate of potash are useful when darker tints are required.

If sunlight or the lime or electric lights are employed, Zetnow's light filter is most valuable. It consists of dry nitrate of copper 2½ ounces, dry chromic acid 2 drachms, water 4½ ounces.

If the lime light is employed, of course the exposure time is very much shortened, but the eyes must be protected in focussing with dark spectacles or a deep coloured glass placed below the stage.

* Read before the Odontological Society of Great Britain.

* If the glass is placed well behind the microscope it need not be worked glass, but if placed within or near the sub-stage, it must be optically worked; the two surfaces must be quite parallel.

I think perhaps our purpose will now be better served if I describe the steps to be taken in making the adjustments and exposure for photographing an ordinary object — first, supposing we are using a low power such as an inch or half inch, and secondly, with a high power such as a one-twelfth oil immersion at such an extension as will give a magnifying power of 1,000 diameters.

It is not every good microscopic object that is suited for the purposes of photography. An object showing great differences of density in different parts is particularly unsuitable, as by the time the thicker parts of the specimen are sufficiently exposed the thinner parts are hopelessly over-exposed.

We will suppose, however, we have chosen a good thin and even section of dentine or enamel, unstained. The first thing to do is to sit down to the turn-table, and having placed the eye-piece in the tube of the microscope, accurately adjust the centre of the flame to the centre of the field of the lens, using the flat surface of the flame, then place the object on the stage and carefully choose the best part of it, seeing that the lighting is fairly even. Removing the eyepiece we return the turn-table to its place, allowing the tube of the microscope to pass within the brass flange on the camera without touching it. A focussing screen carrying a piece of white cardboard is now placed in the camera—the little door at the side is opened, and again sitting down by the microscope, the projected image is focussed with the coarse adjustment on the cardboard. We now judge if the field on the paper is evenly lighted, and probably find it advisable to adjust the bull's-eye condenser near the flame so as to diffuse the light evenly over the object and its projeoted image.

This method of preliminary rough focussing saves a great deal of unnecessary fatigue in focussing through the screen at the back of the camera, but once having obtained the focus on the card, we close the side door and put a plate-glass screen in its place ; a very little adjustment with the focussing rod and fine adjustment with a focussing lens will give the true focus of the object.

Removing the screen, we substitute the filled dark slide, and after closing the shutter of the camera, pull out the slide and all is ready for exposure. Being sure that the apparatus is free from vibration, we open the shutter and give the exposure—such an object as this with a good light would require perhaps from ten to fifteen seconds.

If, however, we wish to photograph a slide of bacteria and magnify it a thousand times, we shall have to take further precautions, and as such a preparation will have been stained with an aniline dye, colour difficulties will have to be met. To obtain a negative magnified to this extent, a one-twelfth oil immersion lens, preferably an apochromatic lens of high angle, should be used in combination with a special projection eye-piece, although of course, by greater extension of the camera, an eye-piece can be dispensed with.

Place the substage condenser in position and with a half-inch lens focus down upon the condenser until the little hole in the centre of the cap is exactly in the middle of the field of the lens, then carefully centre the aerial image of the edge of the flame which is projected by the lenses of the condenser. Replace the half-inch by the one-twelfth and again see that condenser and flame are properly centred, as although it is much easier to make these adjustments with the lower power the optical centre of the immersion lens may not quite correspond with it. In photographing a coloured preparation such as this, almost the full aperture of the condenser should be used—that is, the iris diaphragm should be open to nearly its full extent.

Another point is that the angle of aperture of the condenser should be equal to that of the objective if we wish to take full advantage of the latter.

The condenser and light being now centred, place the object upon the stage and focus down upon it. This being a coloured object we shall have to employ a coloured screen, and if the stain is methyl violet or gentian violet a pale yellow screen will suit it best. The turn-table is now adjusted, the paper screen placed in position and viewed through the door—a rough re-adjustment of the focus with the coarse adjustment will be found necessary, and it must be seen that the edges of the disc are quite sharp ; if not, the screw collar on the eye-piece must be shifted and an increased and even illumination obtained by means of the bull's-eye as before.

In focussing with the fine adjustment the glass screen may now be dispensed with and the focussing glass, which may be either a Ramsden eye-piece or a spectacle lens of 8-inch focus as recommended by Mr. Bousfield, used upon the aerial image in the camera. With a long extension of the camera, the rays which form the image being nearly parallel, there is a considerable range in which the focus is quite sharp, and consequently we can dispense with the glass screen. This is often very convenient, as one's eye is not disturbed by any markings upon the surface of the glass.

If using a short extension, however, the rays being more divergent, the region of sharp focus is much more limited in extent, and it is necessary to use the glass screen in order to ensure that the sharpest focus of the object shall be exactly in the plane of the sensitive plate. We now close the shutter, examine again to make sure the focus has not altered, and very carefully insert the loaded back—open the shutter and expose. In this instance the exposure would be about six minutes, but the time must, of course, depend very much upon the nature of the slide and the depth of tint of the coloured screen.

All who undertake high power work must expect much disappointment—many negatives turning out failures, and only now and then does one secure a negative whose qualities are thoroughly excellent in every respect.

Developing a plate taken with a high power requires considerable experience and judgment. I have tried a great many developers, as hydroquinone, eikonogen, rodinal, and metol, but, like many others, I find I get the best results with pyrogallic acid and soda, and more control of the development, adding fresh soda by degrees as the image appears, and always using a small quantity of a 10 per cent. solution of bromide in the developer.

If the negative is found to be clear, but under-developed, as is very often the case, it being particularly difficult to judge the density of a photo-micrograph before clearing, it may be intensified, and I have obtained excellent results with the ordinary mercury and ammonia intensifier, being very careful to remove all traces of hyposulphite before placing in the sublimate solution and washing very thoroughly before applying the ammonia. If the negative is a little veiled, it is better not to try to intensify, but one can often procure a very satisfactory lantern slide from such a negative by a contact print with a weak light.

There are many excellent makes of lantern plates, those I have used lately being the special Ilford and the Imperial plates, developing with hydroquinone, to which is added a few drops of bromide. To obtain a perfectly clear background, which greatly adds to the beauty of the slide, I pour on and off two or three times, as recommended by Mr. Pringle, a solution of hydrochloric acid in water (about one part to eight) and then thoroughly wash.

For printing I prefer any of the gelatino-chloride papers, as they give excellent detail, glazing the surface by squeezing on to highly polished ferrotype plates.—*British Journal of Dental Science.*

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PHARMACY AS A PROFESSION.

In this number of the Journal information is given respecting the course to be pursued by those intending to enter the ranks of pharmacy, and it seems not unfitting that some remarks should be addressed to them upon the career they are about to adopt. In the first place it must be allowed that, to those who would achieve success in their calling, pharmacy, like science, is a hard taskmistress. From the earliest moment in the period of pupilage to the time when active participation in business ceases, untiring watchfulness and ceaseless mental activity are the lot of him who would become a master of his craft, and maintain or advance its position. As compensation, however, under such circumstances he may with a fair measure of confidence look to the possession of a reasonable share of the means of livelihood, though the higher prizes of fortune will almost certainly remain beyond his grasp, and he will also recognise with pride the important part taken by himself in alleviating the pain and distress of suffering humanity. Not as a source of profit should the pharmacist primarily, though necessarily, regard the labours of his everyday life, in so far as they are concerned with pure pharmacy, but as an opportunity of ministering to the needs of those who are for the time being unfortunately unable to help themselves.

To many these sentiments may seem quixotic, but a brief consideration may satisfy such that, as our words of encouragement are not too glowing, so the value of the vaguely defined ideal is not unduly exaggerated. Are not the older works of art, and many of more recent date almost always found to be better finished, finer and grander, in those instances where the artists worked for love of their art rather than for material gain? And if in the realisation of the grander conceptions of the human mind this is the case, may we not expect to find it equally true in the case of the minor and humbler products of man's labour? But, indeed, it is a matter of common knowledge that work into the performance of which the skilled hand throws himself heart and soul is invariably superior to that completed under similar conditions, save that the worker is concerned only to get it finished and out of the way. If then the pharmacist conscientiously endeavours to put his very best into every product of his hands, the result will certainly be better than if he is only anxious to do as much work as possible in a minimum of time, or to save himself trouble in dealing with difficulties. Even if no one else can detect that some medicines difficult of preparation are not exactly what they purport to be, the dispenser himself knows it and he cannot possibly enjoy the satisfaction that follows on honest labour.

To those, then, who are hesitating where the ways part, or who have already made their choice and are wondering as to the prospects offered by pharmacy as a profession, we repeat that in itself it offers nothing great as a career. But as in every other craft, honest and skilful labour always meets, sooner or later, with a fitting measure of appreciation, and this, combined with the self-consciousness of rectitude in all the petty details of everyday work, should suffice anyone of a reasonable cast of mind. Hard work is before you, and more, perhaps, than in any other profession or trade will you find it necessary to sacrifice both leisure time and personal comfort in seeking to fit yourselves for your future responsibilities. If, however, you prefer success to mere mediocrity, and value satisfactory results above your own convenience, you may depend that the practice of pharmacy offers pleasures which are neither few nor insignificant. But to attain the most gratifying results you must aim high and steadfastly keep a lofty ideal before you. At the outset you should be far in advance of the specified educational requirements, and throughout your career never hesitate to do vastly more than is generally regarded as necessary in your scientific and technical training. Attempt much, accomplish whatever you can that is good, keep a stout heart and a clear conscience, then may you be ornaments to pharmacy, and pharmacy be proud of you.

NEW YORK COLLEGE OF PHARMACY.

A historical account of this College, by Professor Rusby, has been recently published by the Faculty. Founded in 1829, the first charter was obtained for the College in 1831, and from the latter year up to the present there were 1890 graduates, the numbers ranging from 3 in 1831 to 105 in 1895. During the same period the fee for annual instruction has been raised from 4 dollars to 75 dollars. The work of the junior college year covers physics, chemistry, botany, materia medica, physiology, microscopy, and elementary pharmacy. The senior course consists of more advanced work in the same subjects, pharmacognosy receiving special attention, an hour and a half weekly for thirty weeks being devoted to the practical study of the macroscopic and microscopic characters of some 250 drugs of vegetable and animal origin. As the result of a final examination the title of Graduate in Pharmacy is conferred, and it has recently been decided to confer the title of Doctor of Pharmacy upon such persons as exhibit special proficiency in the branches of science connected with the profession of pharmacy. A year's course of post-graduate study is in process of arrangement, which will lead to this higher qualification. The work of this course will relate wholly to the higher work of the pharmacy, and the details will be added to from time to time "as the conditions of the profession shall render advisable." The President of the College is Mr. Samuel W. Fairchild, of New York, whose portrait is given in the pamphlet, together with those of the school staff and other officials.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

PRESIDENTIAL ADDRESS AT IPSWICH.

BY

SIR DOUGLAS GALTON, K.C.B., D.C.L., F.R.S.,

My first duty is to convey to you, Mr. Mayor, and to the inhabitants of Ipswich, the thanks of the British Association for your hospitable invitation to hold our sixty-fifth meeting in your ancient town, and thus to recall the agreeable memories of the similar favour which your predecessors conferred on the Association forty-four years ago.

In the next place I feel it my duty to say a few words on the great loss which science has recently sustained—the death of the Right Hon. Thomas Henry Huxley. It is unnecessary for me to enlarge, in the presence of so many to whom his personality was known, upon his charm in social and domestic life; but upon the debt which the Association owes to him for the assistance which he rendered in the promotion of science I cannot well be silent. Huxley was pre-eminently qualified to assist in sweeping away the obstruction by dogmatic authority, which in the early days of the Association fettered progress in certain branches of science. For, whilst he was an eminent leader in biological research, his intellectual power, his original and intrepid mind, his vigorous and masculine English, made him a writer who explained the deepest subject with transparent clearness. And as a speaker his lucid and forcible style was adorned with ample and effective illustration in the lecture-room; and his energy and wealth of argument in a more public arena largely helped to win the battle of evolution, and to secure for us the right to discuss questions of religion and science without fear and without favour.

It may, I think, interest you to learn that Huxley first made the acquaintance of Tyndall at the meeting of the Association held in this town in 1851.

About forty-six years ago I first began to attend the meetings of the British Association; and I was elected one of your general secretaries about twenty-five years ago.

It is not unfitting, therefore, that I should recall to your minds the conditions under which science was pursued at the formation of the Association, as well as the very remarkable position which the Association has occupied in relation to science in this country.

Between the end of the sixteenth century and the early part of the present century several societies had been created to develop various branches of science. Some of these societies were established in London, and others in important provincial centres.

In 1831, in the absence of railways, communication between different parts of the country was slow and difficult. Science was therefore localised; and in addition to the universities in England, Scotland and Ireland, the towns of Birmingham, Manchester, Plymouth and York each maintained an important nucleus of scientific research.

ORIGIN OF THE BRITISH ASSOCIATION.

Under these social conditions the British Association was founded in September, 1831.

The general idea of its formation was derived from a migratory society which had been previously formed in Germany; but whilst the German society met for the special occasion on which it was summoned, and then dissolved, the basis of the British Association was continuity.

The objects of the founders of the British Association were enunciated in their earliest rules to be:

"To give a stronger impulse and a more systematic direction to scientific inquiry; to promote the intercourse of those who cultivated science in different parts of the British Empire with one another, and with foreign philosophers; to obtain a more general attention to the objects of science, and a removal of any disadvantages of a public kind which impede its progress."

Thus the British Association for the Advancement of Science based its utility upon the opportunity it afforded for combination.

The first meeting of the Association was held at York with 353 members.

As an evidence of the want which the Association supplied, it may be mentioned that at the second meeting which was held at Oxford, the number of members was 435. The third meeting at Cambridge, numbered over 900 members, and at the meeting at Edinburgh in 1834 there were present 1298 members.

At its third meeting, which was held at Cambridge in 1833, the Association, through the influence it had already acquired, induced the Government to grant a sum of £500 for the reduction of the astronomical observations of Baily; and at the same meeting the General Committee commenced to appropriate to scientific research the surplus from the subscriptions of its members. The committees on each branch of science were desired "to select definite and important objects of science, which they may think most fit to be advanced by an application of the funds of the society, either in compensation for labour, or in defraying the expense of apparatus, or otherwise, stating their reasons for their selection, and, when they may think proper, designating individuals to undertake the desired investigations."

The several proposals were submitted to the Committee of Recommendations, whose approvol was necessary before they could be passed by the General Committee. The regulations then laid down still guide the Association in the distribution of its grants. At that early meeting the Association was enabled to apply £600 to these objects.

I have always wondered at the foresight of the framers of the constitution of the British Association, the most remarkable feature of which is the lightness of the tie which holds it together. It is not bound by any complex central organisation. It consists of a federation of sections, whose youth and energy are yearly renewed by a succession of presidents and vice-presidents, whilst in each section some continuity of action is secured by the less moveable secretaries.

The governing body is the General Committee, the members of which are selected for their scientific work; but their controlling power is tempered by the law that all changes of rules, or of constitution, should be submitted to, and receive the approval of, the Committee of Recommendations. This committee may be described as an ideal Second Chamber. It consists of the most experienced members of the Association.

The administration of the Association in the interval between annual meetings is carried on by the Council, an executive body, whose duty it is to complete the work of the annual meeting (*a*) by the publication of its proceedings; (*b*) by giving effect to resolutions passed by the General Committee; (*c*) it also appoints the Local Committee and organises the *personnel* of each section for the next meeting.

I believe that one of the secrets of the long-continued success and vitality of the British Association lies in this purely democratic constitution, combined with the compulsory careful consideration which must be given to suggested organic changes.

The Association is now in the sixty-fifth year of its existence. In its origin it invited the philosophical societies dispersed throughout Great Britain to unite in a co-operative union.

Within recent years it has endeavoured to consolidate that union.

At the present time almost all important local scientific societies scattered throughout the country, some sixty-six in number, are in correspondence with the Association. Their delegates hold annual conferences at our meetings. The Association has thus extended the sphere of its action: it places the members of the local societies engaged in scientific work in relation with each other, and brings them into co-operation with members of the Association and with others engaged in original investigations, and the papers which the individual societies publish annually are catalogued in our Report. Thus by degrees a national catalogue will be formed of the scientific work of these societies.

The Association has, moreover, shown that its scope is coterminous with the British Empire by holding one of its annual meetings at Montreal, and we are likely soon to hold a meeting in Toronto.

CONDITION OF CERTAIN SCIENCES AT THE FORMATION OF THE BRITISH ASSOCIATION.

The Association, at its first meeting, began its work by initiating a series of reports upon the then condition of the several sciences.

A rapid glance at some of these reports will not only show the enormous strides which have been made since 1831 in the investigation of facts to elucidate the laws of Nature, but it may afford a slight insight into the impediments offered to the progress of investigation by the mental condition of the community, which had been for so long satisfied to accept assumptions without undergoing the labour of testing the truth by ascertaining the real facts.

This habit of mind may be illustrated by two instances selected from the early reports made to the Association. The first is afforded by the report made in 1832, by Mr. Lubbock, on "Tides."

This was a subject necessarily of importance to England as a dominant power at sea. But in England records of the tides had only recently been commenced at the dockyards of Woolwich, Sheerness, Portsmouth, and Plymouth, on the request of the Royal Society, and no information had been collected upon the tides on the coasts of Scotland and Ireland.

The British Association may feel pride in the fact that within three years of its inception, viz., by 1834, it had induced the Corporation of Liverpool to establish two tide gauges, and the Government to undertake tidal observations at 500 stations on the coasts of Britain.

Another cognate instance is exemplified by a paper read at the second meeting, in 1832, upon the State of Naval Architecture in Great Britain. The author contrasts the extreme perfection of the carpentry of the internal fittings of the vessels with the remarkable deficiency of mathematical theory in the adjustment of the external form of vessels, and suggests the benefit of the application of refined analysis to the various practical problems which ought to interest shipbuilders—problems of capacity, of displacement, of stowage, of velocity, of pitching and rolling, of masting, of the effects of sails, and of the resistance of fluids; and, moreover, suggests that large-scale experiments should be made by Government, to afford the necessary data for calculation.

Indeed, when we consider how completely the whole habit of mind of the populations of the Western world has been changed, since the beginning of the century, from willing acceptance of authority as a rule of life to a universal spirit of inquiry and experimental investigation, is it not probable that this rapid change has arisen from society having been stirred to its foundations by the causes and consequences of the French Revolution?

One of the earliest practical results of this awakening in France was the conviction that the basis of scientific research lay in the accuracy of the standards by which observations could be compared, and the following principles were laid down as a basis for their measurements of length, weight, and capacity: viz., (1) that the unit of linear measure applied to matter in its three forms of extension, viz., length, breadth, and thickness, should be the standard of measures of length, surface, and solidity; (2) that the cubic contents of the linear measure in decimetres of pure water at the temperature of its greatest density should furnish at once the standard weight and the measure of capacity.* The metric system did not come into full operation in France till 1840, and it is now adopted by all countries on the continent of Europe, except Russia.

The standards of length which were accessible in Great Britain at the formation of the Association were the Parliamentary standard yard lodged in the Houses of Parliament (which was destroyed in 1834 in the fire which burned the Houses of Parliament); the Royal Astronomical Society's standard, and the 10-foot bar of the Ordnance Survey.

The first two were assumed to afford exact measurements at a given temperature. The Ordnance bar was formed of two bars on the principle of a compensating pendulum, and afforded measurements independent of temperature. Standard bars were also disseminated throughout the country, in possession of the corporations of various towns.

The British Association early recognised the importance of uniformity in the record of scientific facts, as well as the necessity for an easy method of comparing standards and for verifying differences between instruments and apparatus required by various observers pursuing similar lines of investigation. At its meeting at Edinburgh in 1834 it caused a comparison to be made between the standard bar at Aberdeen, constructed by Troughton, and the standard of the Royal Astronomical Society, and reported that the scale "was exceedingly well finished; it was about 1/500 of an inch shorter than the 5-feet of the Royal Astronomical Society's scale, but it was evident that a great number of minute, yet important, circumstances have hitherto been neglected in the formation of such scales, without an attention to which they cannot be expected to accord with that degree of accuracy which the present state of science demands." Subsequently, at the meeting at Newcastle in 1863, the Association appointed a committee to report on the best means of providing for a uniformity of weights and measures with reference to the interests of science. This committee recommended the metric decimal system—a recommendation which has been endorsed by a committee of the House of Commons in the last session of Parliament.

British instrument makers had been long conspicuous for accuracy of workmanship. Indeed, in the eighteenth century practical astronomy had been mainly in the hands of British observers; for, although the mathematicians of France and other countries on the continent of Europe were occupying the foremost place in mathematical investigation, means of astronomical observation had been furnished almost exclusively by English artisans.

The sectors, quadrants, and circles of Ramsden, Bird, and Cary were inimitable by Continental workmen.

But the accuracy of the mathematical instrument maker had not penetrated into the engineer's workshop. And the foundation of the British Association was coincident with a rapid development of mechanical appliances.

At that time a good workman had done well if the shaft he was turning, or the cylinder he was boring, "was right to the 1/32nd of an inch." This was, in fact, a degree of accuracy as fine as the eye could usually distinguish.

Few mechanics had any distinct knowledge of the method to be pursued for obtaining accuracy; nor, indeed, had practical men sufficiently appreciated either the immense importance or the comparative facility of its acquisition.

The accuracy of workmanship essential to this development of mechanical progress required very precise measurements of length, to which reference could be easily made. No such standards were then available for the workshops. But a little before 1830 a young workman named Joseph Whitworth realised that the basis of accuracy in machinery was the making of a true plane. The idea occurred to him that this could only be secured by making three independent plane surfaces; if each of these would lift the other, they must be planes, and they must be true.

The true plane rendered possible a degree of accuracy beyond the wildest dreams of his contemporaries in the construction of the lathe and the planing machine, which are used in the manufacture of all tools.

His next step was to introduce an exact system of measurement, generally applicable in the workshop.

Whitworth felt that the eye was altogether inadequate to secure this, and appealed to the sense of touch for affording a means of comparison. If two plugs be made to fit into a round hole, they may differ in size by a quantity imperceptible to the eye, or to any ordinary process of measurement; but in fitting them into the hole the difference between the larger and the smaller is felt immediately by the greater ease with which the smaller one fits. In this way a child can tell which is the larger of two cylinders differing in thickness by no more than 1/5000th of an inch.

Standard gauges, consisting of hollow cylinders with plugs to fit, but differing in diameter by the 1/1000th of an inch or the 1/10,000th of an inch, were given to his workmen, with the result that a degree of accuracy inconceivable to the ordinary mind became the rule of the shop.

To render the construction of accurate gauges possible, Whitworth devised his measuring machine, in which the movement was effected by a screw; by this means the distance between two true planes might be measured to the one-millionth of an inch.

These advances in precision of measurement have enabled the degree of accuracy which was formerly limited to the mathematical instrument maker to become the common property of every machine shop. And not only is the latest form of steam engine, in the accuracy of its workmanship, little behind the chronometer of the early part of the century, but the accuracy in the construction of experimental apparatus which has thus been introduced has rendered possible recent advances in many lines of research.

Lord Kelvin said in his presidential address at Edinburgh, "Nearly all the grandest discoveries of science have been but the rewards of accurate measurement and patient, long-continued labour in the sifting of numerical results." The discovery of argon, for which Lord Rayleigh and Professor Ramsay have been awarded the Hodgkin prize by the Smithsonian Institution affords a remarkable illustration of the truth of this remark. Indeed, the provision of accurate standards, not only of length, but of weight, capacity, temperature, force, and energy, are amongst the foundations of scientific investigation.

In 1842 the British Association obtained the opportunity of extending its usefulness in this direction.

* The litre is the volume of a kilogramme of pure water at its maximum density, and is slightly less than the litre was intended to be, viz., one cubic decimetre. The weight of a cubic decimetre of pure water is 1·000013 kilogramme.

In that year the Government gave up the Royal Observatory at Kew and offered it to the Royal Society, who declined it. But the British Association accepted the charge. Their first object was to continue Sabine's valuable observations upon the vibrations of a pendulum in various gases, and to promote pendulum observations in various parts of the world. They subsequently extended it into an observatory for comparing and verifying the various instruments which recent discoveries in physical science had suggested for continuous meteorological and magnetic observations, for observations and experiments on atmospheric electricity, and for the study of solar physics.

This new departure afforded a means for ascertaining the advantages and disadvantages of the several varieties of scientific instruments, as well as for standardising and testing instruments, not only for instrument makers, but especially for observers by whom simultaneous observations were then being carried on in different parts of the world, and also for training observers proceeding abroad on scientific expeditions.

Its special object was to promote original research, and expenditure was not to be incurred on apparatus merely intended to exhibit the necessary consequences of known laws.

The rapid strides in electrical science had attracted attention to the measurement of electrical resistances, and in 1859 the British Association appointed a special committee to devise a standard. The standard of resistance proposed by that committee became the generally accepted standard, until the requirements of that advancing science led to the adoption of an international standard.

In 1866 the Meteorological Department of the Board of Trade entered into close relations with the Kew Observatory.

And in 1871 Mr. Gassiot transferred £10,000 upon trust to the Royal Society for the maintenance of the Kew Observatory, for the purpose of assisting in carrying on magnetical, meteorological, and other physical observations. The British Association thereupon, after having maintained this observatory for nearly thirty years, at a total expenditure of about £12,000, handed the observatory over to the Royal Society.

The 'Transactions' of the British Association are a catalogue of its efforts in every branch of science, both to promote experimental research and to facilitate the application of the results to the practical uses of life.

But probably the marvellous development in science which has accompanied the life-history of the Association will be best appreciated by a brief allusion to the condition of some of the branches of science in 1831 as compared with their present state.

GEOLOGICAL AND GEOGRAPHICAL SCIENCE.

At the foundation of the Association geology was assuming a prominent position in science. The main features of English geology had been illustrated as far back as 1821, and among the founders of the British Association, Murchison and Phillips, Buckland, Sedgwick, and Conybeare, Lyell and De la Beche, were occupied in investigating the data necessary for perfecting a geological chronology by the detailed observations of the various British deposits, and by their co-relation with the Continental strata. They were thus preparing the way for those large generalisations which have raised geology to the rank of an inductive science.

In 1831 the Ordnance maps published for the southern counties had enabled the Government to recognise the importance of a geological survey by the appointment of Mr. De la Beche to affix geological colours to the maps of Devonshire and portions of Somerset, Dorset, and Cornwall; and in 1835 Lyell, Buckland, and Sedgwick induced the Government to establish the Geological Survey Department, not only for promoting geological science, but on account of its practical bearing on agriculture, mining, the making of roads, railways, and canals, and on other branches of national industry.

The Ordnance Survey appears to have had its origin in a proposal of the French Government to make a joint-measurement of an arc of the meridian. This proposal fell through at the outbreak of the Revolution; but the measurement of the base for that object was taken as a foundation for a national survey. In 1831, however, the Ordnance Survey had only published the 1-inch map for the southern portion of England, and the great triangulation of the kingdom was still incomplete.

In 1834 the British Association urged upon the Government that the advancement of various branches of science was greatly retarded by the want of an accurate map of the whole of the British Isles; and that, consequently, the engineer and the meteorologist, the agriculturist and the geologist, were each fettered in their scientific investigations by the absence of those accurate data which now lie ready to his hand for the measurement of length, of surface, and of altitude.

Yet the first decade of the British Association was coincident with a considerable development of geographical research. The Association was persistent in pressing on the Government the scientific importance of sending the expedition of Ross to the Antarctic, and of Franklin to the Arctic regions. We may trust that we are approaching a solution of the geography of the North Pole; but the Antarctic regions still present a field for the researches of the meteorologist, the geologist, the biologist, and the magnetic observer, which the recent voyage of M. Borchgrevink leads us to hope may not long remain unexplored.

In the same decade the question of an alternative route to India by means of a communication between the Mediterranean and the Persian Gulf was also receiving attention, and in 1835 the Government employed Colonel Chesney to make a survey of the Euphrates valley in order to ascertain whether that river would enable a practicable route to be formed from Iskanderoon, or Tripoli, opposite Cyprus, to the Persian Gulf. His valuable surveys are not, however, on a sufficiently extensive scale to enable an opinion to be formed as to whether a navigable waterway through Asia Minor is physically practicable, or whether the cost of establishing it might not be prohibitive.

The advances of Russia in Central Asia have made it imperative to provide an easy, rapid, and alternative line of communication with our Eastern possessions, so as not to be dependent upon the Suez Canal in time of war. If a navigation cannot be established, a railway between the Mediterranean and the Persian Gulf has been shown by the recent investigations of Messrs. Hawkshaw and Hayter, following on those of others, to be perfectly practicable and easy of accomplishment; such an undertaking would not only be of strategical value, but it is believed it would be commercially remunerative.

Speke and Grant brought before the Association, at its meeting at Newcastle in 1863, their solution of the mystery of the Nile basin, which had puzzled geographers from the day of Herodotus; and the efforts of Livingstone and Stanley and others have opened out to us the interior of Africa. I cannot refrain here from expressing the deep regret which geologists and geographers, and indeed all who are interested in the progress of discovery, feel at the recent death of Joseph Thomson. His extensive, accurate, and trustworthy observations added much to our knowledge of Africa, and by his premature death we have lost one of its most competent explorers.

CHEMICAL, ASTRONOMICAL AND PHYSICAL SCIENCE.

The report made to the Association on the state of the chemical sciences in 1832, says that the efforts of investigators were then being directed to determining with accuracy the true nature of the substances which compose the various products of the organic and inorganic kingdoms, and the exact ratios by weight which the different constituents of these substances bear to each other.

But since that day the science of chemistry has far extended its boundaries. The barrier has vanished which was supposed to separate the products of living organisms from the substances of which minerals consist, or which could be formed in the laboratory. The number of distinct carbon compounds obtainable from organisms has greatly increased; but it is small when compared with the number of such compounds which have been artificially formed. The methods of analysis have been perfected. The physical, and especially the optical, properties of the various forms of matter have been closely studied, and many fruitful generalisations have been made. The form in which these generalisations would now be stated may probably change, some, perhaps, by the overthrow or disuse of an ingenious guess at Nature's workings, but more by that change which is the ordinary growth of science—namely, inclusion in some simpler and more general view.

In these advances the chemist has called the spectroscope to his aid. Indeed, the existence of the British Association has been practically coterminous with the comparatively newly developed science of spectrum analysis, for though Newton,* Wollaston, Fraunhofer, and Fox Talbot had worked at the subject long ago, it was not till Kirchhoff and Bunsen set a seal on the prior labours of

* Joannes Marcus Marci, of Kronland in Bohemia, was the only predecessor of Newton who had any knowledge of the formation of a spectrum by a prism. He not only observed that the coloured rays diverged as they left the prism, but that a coloured ray did not change in colour after transmission through a prism. His book, 'Thaumantias, liber de arcu cœlesti deque colorum apparentium natura,' Prag, 1648, was, however, not known to Newton, and had no influence upon future discoveries.

Stokes, Ångström, and Balfour Stewart that the spectra of terrestrial elements have been mapped out and grouped; that by its help new elements have been discoversd, and that the idea has been suggested that the various orders of spectra of the same element are due to the existence of the element in different molecular forms—allotropic or otherwise—at different temperatures.

But great as have been the advances of terrestrial chemistry through its assistance, the most stupendous advance which we owe to the spectroscope lies in the celestial direction.

Astronomy.

In the earlier part of this century, whilst the sidereal universe was accessible to investigators, many problems outside the solar system seemed to be unapproachable.

At the third meeting of the Association, at Cambridge, in 1833, Dr. Whewell said that astronomy is not only the queen of science, but the only perfect science, which was "in so elevated a state of flourishing maturity that all that remained was to determine with the extreme of accuracy the consequences of its rules by the profoundest combinations of mathematics; the magnitude of its data by the minutest scrupulousness of observation."

But in the previous year, viz., 1832, Airy, in his report to the Association on the progress of astromony, had pointed out that the observations of the planet Uranus could not be united in one elliptic orbit; a remark which turned the attention of Adams to the discovery of Neptune. In his report on the position of optical science in 1832, Brewster suggested that with the assistance of adequate instruments "it would be possible to study the action of the elements of material bodies upon rays of artificial light, and thereby to discover the analogies between their affinities and those which produce the fixed lines in the spectra of the stars; and thus to study the effects of the combustions which light up the suns of other systems."

This idea has now been realised. All the stars which shine brightly enough to impress an image of the spectrum upon a photographic plate have been classified on a chemical basis. The close connection between stars and nebulæ has been demonstrated; and while on the one hand the modern science of thermodynamics has shown that the hypothesis of Kant and Laplace on stellar formation is no longer tenable, inquiry has indicated that the true explanation of stellar evolution is to be found in the gradual condensation of meteoritic particles, thus justifying the suggestions put forward long ago by Lord Kelvin and Professor Tait.

We now know that the spectra of many of the terrestrial elements in the chromosphere of the sun differ from those familiar to us in our laboratories. We begin to glean the fact that the chromospheric spectra are similar to those indicated by the absorption going on in the hottest stars, and Lockyer has not hesitated to affirm that these facts would indicate that in those localities we are in the presence of the actions of temperatures sufficiently high to break up our chemical elements into finer forms. Other students of these phenomena may not agree in this view, and possibly the discrepancies may be due to default in our terrestrial chemistry. Still, I would recall to you that Dr. Carpenter, in his Presidential Address at Brighton in 1872, almost censured the speculations of Frankland and Lockyer in 1868 for attributing a certain bright line in the spectrum of solar prominences (which was not identifiable with that of any known terrestrial source of light) to a hypothetical new substance which they proposed to call "helium," because "it had not received that verification which, in the case of Crookes' search for thallium, was afforded by the actual discovery of the new metal." Ramsay has now shown that this gas is present in dense minerals on earth; but we have now also learned from Lockyer that it and other associated gases are not only found with hydrogen in the solar chromosphere, but that these gases, with hydrogen, form a large percentage of the atmospheric constituents of some of the hottest stars in the heavens.

The spectroscope has also made us acquainted with the motions and even the velocities of those distant orbs which make up the sidereal universe. It has enabled us to determine that many stars, single to the eye, are really double, and many of the conditions of these strange systems have been revealed. The rate at which matter is moving in solar cyclones and winds is now familiar to us. And I may also add that quite recently this wonderful experiment has enabled Professor Keeler to verify Clerk-Maxwell's theory that the rings of Saturn consist of a marvellous company of separate moons —as it were, a cohort of courtiers revolving round their queen—with velocities proportioned to their distances from the planet.

Physics.

If we turn to the sciences which are included under physics, the progress has been equally marked.

In optical science, in 1831 the theory of emission as contrasted with the undulatory theory of light was still under discussion.

Young, who was the first to explain the phemonena due to the interference of the rays of light as a consequence of the theory of waves, and Fresnel, who showed the intensity of light for any relative position of the interference-waves, both had only recently passed away.

The investigations into the laws which regulate the conduction and radiation of heat, together with the doctrine of latent and of specific heat, and the relations of vapour to air, had all tended to the conception of a material heat, or caloric, communicated by an actual flow and emission.

It was not till 1834 that improved thermometrical appliances had enabled Forbes and Melloni to establish the polarisation of heat, and thus to lay the foundation of an undulatory theory for heat similar to that which was in progress of acceptation for light.

Whewell's report, in 1832, on magnetism and electricity shows that these branches of science were looked upon as cognate, and that the theory of two opposite electric fluids was generally accepted.

In magnetism, the investigations of Hansteen, Gauss, and Weber in Europe, and the observations made under the Imperial Academy of Russia over the vast extent of that empire, had established the existence of magnetic poles, and had shown that magnetic disturbances were simultaneous at all the stations of observation.

At their third meeting the Association urged the Government to establish magnetic and meteorological observatories in Great Britain and her colonies and dependencies in different parts of the earth, furnished with proper instruments, constructed on uniform principles, and with provisions for continued observations at those places.

In 1839 the British Association had a large share in inducing the Government to initiate the valuable series of experiments for determining the intensity, the declination, the dip, and the periodical variations of the magnetic needle which were carried on for several years, at numerous selected stations over the surface of the globe, under the directions of Sabine and Lefroy.

In England systematic and regular observations are still made at Greenwich, Kew, and Stonyhurst. For some years past similar observations by both absolute and self-recording instruments have also been made at Falmouth—close to the home of Robert Were Fox, whose name is inseparably connected with the early history of terrestrial magnetism in this country—but under such great financial difficulties that the continuance of the work is seriously jeopardised. It is to be hoped that means may be forthcoming to carry it on. Cornishmen, indeed, could found no more fitting memorial of their distinguished countrymen, John Couch Adams, than by suitably endowing the magnetic observatory in which he took so lively an interest.

Far more extended observation will be needed before we can hope to have an established theory as to the magnetism of the earth. We are without magnetic observations over a large part of the Southern Hemisphere. And Professor Rücker's recent investigations tell us that the earth seems as it were alive with magnetic forces, be they due to electric currents or to variations in the state of magnetised matter; that the disturbances affect not only the diurnal movement of the magnet, but that even the small part of the secular change which has been observed, and which has taken centuries to accomplish, is interfered with by some slower agency. And, what is more important, he tells us that none of these observations stand as yet upon a firm basis, because standard instruments have not been in accord; and much labour, beyond the power of individual effort, has hitherto been required to ascertain whether the relations between them are constant or variable.

In electricity, in 1831, just at the time when the British Association was founded, Faraday's splendid researches in electricity and magnetism at the Royal Institution had begun with his discovery of magneto-electric induction, his investigation of the laws of electro-chemical decomposition, and of the mode of electrolytical action.

But, the practical application of our electrical knowledge was then limited to the use of lightning-conductors for buildings and ships. Indeed, it may be said that the applications of electricity to the use of man have grown up side by side with the British Association.

One of the first practical applications of Faraday's discoveries

was in the deposition of metals and electro-plating, which has developed into a large branch of national industry; and the dissociating effect of the electric arc, for the reduction of ores, and in other processes, is daily obtaining a wider extension.

But probably the application of electricity which is tending to produce the greatest change in our mental, and even material condition, is the electric telegraph and its sister, the telephone. By their agency not only do we learn, almost at the time of their occurrence, the events which are happening in distant parts of the world, but they are establishing a community of thought and feeling between all the nations of the world which is influencing their attitude towards each other, and, we may hope, may tend to weld them more and more into one family.

The electric telegraph was introduced experimentally in Germany in 1833, two years after the formation of the Association. It was made a commercial success by Cooke and Wheatstone in England, whose first attempts at telegraphy were made on the line from Euston to Camden Town in 1837, and on the line from Paddington to West Drayton in 1838.

The submarine telegraph to America, conceived in 1856, became a practical reality in 1861 through the commercial energy of Cyrus Field and Pender, aided by the mechanical skill of Latimer Clark, Gooch, and others, and the scientific genius of Lord Kelvin. The knowledge of electricity gained by means of its application to the telegraph largely assisted the extension of its utility in other directions.

The electric light gives, in its incandescent form, a very perfect hygienic light. Where rivers are at hand the electrical transmission of power will drive railway trains and faotories economically, and might enable each artisan to convert his room into a workshop, and thus assist in restoring to the labouring man some of the individuality which the factory has tended to destroy.

In 1843 Joule described his experiments for determining the mechanical equivalent of heat. But it was not until the meeting at Oxford, in 1847, that he fully developed the law of the conservation of energy, which, in conjunction with Newton's law of the conservation of momentum, and Dalton's Law of the conservation of chemical elements, constitutes a complete mechanical foundation for physical science.

Who, at the foundation of the Association, would have believed some far-seeing philosopher if he had foretold that the spectroscope would analyse the constituents of the sun and measure the motions of the stars; that we should liquefy air and utilise temperatures approaching to the absolute zero for experimental research; that, like the magician in the 'Arabian Nights,' we should annihilate distance by means of the electric telegraph and the telephone; that we should illuminate our largest buildings instantaneously, with the clearness of day, by means of the electric current; that by the electric transmission of power we should be able to utilise the Falls of Niagara to work factories at distant places; that we should extract metals from the crust of the earth by the same electrical agency to which, in some cases, their deposition has been attributed?

These discoveries and their applications have been brought to their present condition by the researches of a long line of scientific explorers, such as Dalton, Joule, Maxwell, Helmholtz, Herz, Kelvin, and Rayleigh, aided by vast strides made in mechanical skill. But what will our sucessors be discussing sixty years hence? How little do we yet know of the vibrations which communicate light and heat! Far as we have advanced in the application of electricity to the uses of life, we know but little even yet of its real nature. We are only on the threshold of the knowledge of molecular action, or of the constitution of the all-pervading æther. Newton, at the end of the seventeenth century, in his preface to the 'Principia,' says: 'I have deduced the motions of the planets by mathematical reasoning from forces; and I would that we could derive the other phenomena of Nature from mechanical principles by the same mode of reasoning. For many things move me, so that I somewhat suspect that all such may depend on certain forces by which the particles of bodies, through causes not yet known, are either urged towards each other according to regular figures, or are repelled and recede from each other; and these forces being unknown, philosophers have hitherto made their attempts on Nature in vain.

In 1848 Faraday remarked: "How rapidly the knowledge of molecular forces grows upon us, and how strikingly every investigation tends to develop more and more their importance!

"A few years ago magnetism was an occult force, affecting only a few bodies; now it is found to influence all bodies, and to possess the most intimate relation with electricity, heat, chemical action, light, crystallisation; and through it the forces concerned in cohesion. We may feel encouraged to continuous labours, hoping to bring it into a bond of union with gravity itself."

But it is only within the last few years that we have begun to realise that electricity is closely connected with the vibrations which cause heat and light, and which seem to pervade all space—vibrations which may be termed the voice of the Creator calling to each atom and to each cell of protoplasm to fall into its ordained position, each, as it were, a musical note in the harmonious symphony which we call the universe.

Meteorology.

At the first meeting, in 1831, Professor James D. Forbes was requested to draw up a report on the State of Meteorological Science, on the ground that this science is more in want than any other of that systematic direction which it is one great object of the Association to give.

Professor Forbes made his first report in 1832, and a subsequent report in 1840. The systematic records now kept in various parts of the world of barometric pressure, of solar heat, of the temperature and physical conditions of the atmosphere at various altitudes, of the heat of the ground at various depths, of the rainfall, of the prevalence of winds, and the gradual elucidation not only of the laws which regulate the movements of cyclones and storms, but of the influences which are exercised by the sun and by electricity and magnetism, not only upon atmospheric conditions, but upon health and vitality, are gradually approximating meteorology to the position of an exact science.

England took the lead in rainfall observations. Mr. G. J. Symons organised the British Rainfall System in 1860 with 178 observers, a system which until 1876 received the help of the British Association. Now Mr. Symons himself conducts it, assisted by more than 3000 observers, and these volunteers not only make the observations, but defray the expense of their reduction and publication. In foreign countries this work is done by Government officers at the public cost.

At the present time a very large number of rain gauges are in daily use throughout the world. The British Islands have more than 3000, and India and the United States have nearly as many; France and Germany are not far behind; Australia probably has more—indeed, one colony alone, New South Wales, has more than 1100.

The storm warnings now issued under the excellent systematic organisation of the Meteorological Committee may be said to have had their origin in the terrible storm which broke over the Black Sea during the Crimean War, on November 27, 1855. Leverrier traced the progress of that storm, and seeing how its path could have been reported in advance by the electric telegraph, he proposed to establish observing stations which should report to the coasts the probability of the occurrence of a storm. Leverrier communicated with Airy, and the Government authorised Admiral FitzRoy to make tentative arrangements in this country. The idea was also adopted on the Continent, and now there are few civilised countries north or south of the equator without a system of storm warning.*

Biological Science.

The earliest Reports of the Association which bear on the biological sciences were those relating to botany.

In 1831 the controversy was yet unsettled between the advantages of the Linnean, or Artificial system, as contrasted with the Natural system of classification. Histology, morphology, and physiological botany, even if born, were in their early infancy.

Our records show that von Mohl noted cell division in 1835, the presence of chlorophyll corpuscles in 1837; and he first described protoplasm in 1846.

Vast as have been the advances of physiological botany since that time, much of its fundamental principles remain to be worked out, and I trust that the establishment, for the first time, of a permanent Section for botany at the present meeting will lead the Association to take a more prominent part than it has hitherto done in the further development of this branch of biological science.

(*To be continued.*)

* It has often been supposed that Leverrier was also the first to issue a daily weather map, but that was not the case, for in the Great Exhibition of 1851 the Electric Telegraph Company sold daily weather maps, copies of which are still in existence, and the data for them were, it is believed, obtained by Mr. James Glaisher, F.R.S., and at that time Superintendent of the Meteorological Department at Greenwich.

NOTES AND NEWS.

Australian Lemons.—Pharmacists should be interested in the fact that a Covent Garden sale of lemons, just received from Australia, has been held. There appears to be a scarcity of the fruit, and an opportunity is thus offered for showing the capabilities of the Irrigation Colonies of Mildura and Renmark as lemon-growing districts. Five hundred cases were disposed of at prices ranging from 9*s.* 6*d.* to 14*s.* 6*d.* per case, which is regarded as an exceptionally good price at auction, but not fully representing the value of the fruit, and higher prices are confidently expected when the quality becomes known. Compared with the fruit commonly sold in England its value is said to be at least as three to one. It has a thin, smooth skin of pure pale colour, a very juicy pulp with but few pips, weighs heavily, and is of full average size.

"Noblesse Oblige!" and if pharmacy is to be and remain a profession equally respected as other professions, she should also assume a corresponding dignity and reserve; and, instead of gobbling up with avidity the uneducated errand boy and the "poor" student, she should make the "able" student the type from which she exclusively and cautiously recruits her ranks!—So says *Merck's Market Report*, and so will say every pharmacist who properly respects his profession.

The Death of Mr. Stevenson.—Dr. Thomas Stevenson writes with reference to the report of his son's death by drowning, to vindicate deceased from the suggestion of recklessness. He states that there was no danger notice-board anywhere along the shore, and that a native of Whitby assured his sons there was no danger if they could swim.

The Adulteration of Food and Drugs.—The report of the Select Committee to inquire into the question of food products adulteration has just been issued, and gives the proceedings of the Committee, minutes of evidence, etc. The Committee state that they have taken further evidence, but have not had sufficient time to conclude their investigation. They therefore recommend that a committee on the same subject should be appointed in the next Parliament. They also desire to express their obligation to Mr. Edmund Gosse, Translator to the Board of Trade, for his assistance in having made a translation and *précis* of the laws in foreign countries relating to the adulteration of food products.

Dangers of Oxygen Cylinders.—The risk attending the presence of these cylinders in case of fire was illustrated on Sunday night, when the West Bromwich Theatre was burned down. A wrought-iron cylinder containing oxygen was exploded by the heat and the force of the explosion brought down a wall.

'Science Progress' for September.—There are two papers likely to interest pharmacists in this issue: "The Decomposition Products of Proteids," by Dr. T. Gregor Brodie, and "On the Respiratory Function of Stomata," by F. Frost Blackman, M.A. The first briefly summarises the work that has been done, and enumerates the decomposition products that have been definitely obtained. In the second the author compares the results of his own experimental work with that of Stahl and others. The remaining papers are mainly geological.

Sheffield School of Pharmacy.—The inaugural meeting of the eleventh session of this school will take place at the Masonic Hall, New Surrey Street, Sheffield, on Thursday evening, October 12, commencing at 6.30, when the prizes of the last session will be distributed, and an address to the students will be delivered by the President of the local society. The President of the Pharmaceutical Society of Great Britain, Mr. Michael Carteighe, is expected to be present on the occasion.

The Cost of a Medical Education.—A medical correspondent of the *Daily Telegraph* points out that in many cases failure, and in some absolute ruin, results in the case of medical students who have not been able to properly estimate the cost of their training. He considers that this cannot fall short of £550 to £700, and in view of the fact that the majority of the students who enter year after year never qualify, he advises parents to think twice before embarking their sons in the profession.

A Successful Student.—Daniel Hanbury White, an apprentice with Messrs. Giles, Schacht and Co., Clifton, and John Stewart, Scholar of University College, Bristol, has gained a senior free studentship offered for competition by the Bristol County Council, of the estimated value of £50 per annum for three years.

Pharmaceutical Institute at Bern.—In connection with the descriptive article on this Institution (see page 221) it may be stated that the general impression left by a visit to the Pharmaceutical Institute of Bern is that the principal object in view has always been to afford the students every facility for acquiring a thorough knowledge of their work, rather than to attract a large number of pupils. This is amply borne out by the extremely practical arrangements so conspicuous in the chemical laboratories, in the care with which the specimens have been marshalled and exhibited in the museum, and the unusual freedom with which they are placed at the service of the student; the latter alone renders the collection of far greater utility than those of similar institutes in most other countries. Professor Tschirch may well be congratulated on the Institute that he has so skilfully designed and so ably directs.

Drug, Chemical, and Allied Trades Exhibition.—The London evening papers briefly reported the opening of this Exhibition at the Agricultural Hall, London, on Tuesday, and from what we are able to gather it has been attended by a fair number of pharmacists and a small proportion of the outside public. Exhibitions are being so much overdone that it is not easy to comprehend exactly what is the object of this show, and it is still more difficult to see what good can accrue to anyone concerned.

Exemption from Jury Service.—Registered pharmaceutical chemists actually in practice are exempt from service on all juries, but they should take the precaution of ascertaining whether or not their names have been inserted in the lists which will be found suspended on all church and chapel doors during the first three Sundays in this month, next Sunday being the last of the three. If any pharmacist's name is so inserted, the individual concerned must claim exemption at once, giving notice to that effect to the local overseers.

The Advantages of Fluid Extracts.—According to M. Duyk, who read a paper on fluid extracts at the recent Congress at Brussels, the special advantages of these preparations are (1), the fact that a given weight may contain in an unaltered condition and perfectly dissolved all the medicinal principles present in an equal weight of the crude drug; (2) they represent the whole of the medicinal virtue of the respective drugs; and (3) they will keep unchanged for a long period of time if properly prepared.

ENGLISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Is Prussiate of Potash a Poison?—This much debated question has been practically answered in the negative by a Kirkdale youth, who for some unaccountable reason recently swallowed about two ounces of this salt, which he was in the habit of handling in his trade as an engineer for "case hardening." Some time after taking this modest dose he was found in a comatose condition lying on the floor of his bedroom, from whence he was removed in the horse ambulance to the Bootle Hospital, after first being attended to by a doctor who applied the usual remedies. This happened on August 29, and on inquiry, one of the honorary surgeons states that the rash youth is quite well and is only being kept in hospital for observation. The symptoms were only such as would be exhibited by a person taking such a heroic dose of any potassium salt, the chief being considerable kidney trouble and diuresis. This suicidal tendency on the part of the youth has served, at any rate, the good purpose of confirming the experiments of P. Combemale and M. Dubiquet (*Comptes rendus Soc. Biol.* [9], xi., 169–172; 'Year-Book,' 1891, p. 251), and the conclusions of P. Carles (*Journ. de Pharm. et de Chim.* [5], xx., 486–489; 'Year-Book,' 1890, p. 225) that ferrocyanide of potassium is not poisonous, but acts as a diuretic by its being changed in its passage through the system into ferridcyanide, which is eliminated by the urine, the diuresis being caused by the diuretic potassium salts liberated during this chemical transformation.

Wine Licences for Chemists—At the Heywood Licensing Sessions held last week, Mr. Frank Hazlett, chemist and druggist, made an application for an off wine licence for his premises at 53 and 55, Market Street, Heywood. It was stated on his behalf that Mr. Hazlett had found it was necessary in the course of his business to sell medicated wines, a special kind of which he prepared himself from the recipe of a prominent medical gentleman. In consequence of his preparing that wine and selling it on his premises, and also for the sale of other medicated wines, the Excise authorities required him to take out a licence for the sale of wine to be consumed off the premises. The application was granted on the condition that applicant sold only medicated wines.

Mr. Wm. Highley, chemist, Drake Street, Rochdale, was last week granted an off wine licence at the Rochdale Licensing Sessions.

Chemical Instruction in Devonshire.—According to the arrangements just completed by the Devon County Council Technical Education Committee for work during the coming winter, physiology will be taken at Holsworthy, and chemistry at Dartmouth, Newton Abbot, and Okehampton. At the latter town the science and art syllabus will be adopted. Applications for a grant in payment of travelling expenses will be accepted from teachers who desire to attend classes at technical, art, and science schools.

An Overdose of Laudanum. — The Deputy-District Coroner (Mr. E. Williams) held an inquest, on September 9, at the Talbot Inn, Mansfield, touching the death of a child aged one year and nine months, the son of Ann and John Green, residing in Foundry Row, Nottingham Road. From the evidence it appeared that the child was not well on Saturday night, and as it continued to be sick on the following morning the mother and Mrs. Cowper, a neighbour, gave it a dose of castor oil, in which were poured two drops of laudanum. It continued to get worse, and about dinner-time died. Dr. Robinson, who was called about 12.30 to see the child, found it in a condition of coma. The tongue was brown, and there was every indication that the child was suffering from narcotic poisoning. From a post-mortem examination subsequently made, the doctor was able to say that death was due to opium poisoning.—The jury was satisfied that the overdose of laudanum had been ignorantly administered, and returned a verdict to that effect.

Rust Stains on White Goods.—Soak the stains in a solution of tin chloride or oxalic acid contained in a tin spoon, and rinse immediately in much water. The former solution is quicker in its action and more reliable (*Pharm. Era*, xiv., 174).

SCOTTISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Death from a Wasp's Sting.—While Miss Bessie Kerr, eldest daughter of Mr. Richard Kerr, of Cunninghamhead, was arranging some flowers, a wasp stung her on the neck. She removed the sting and applied ammonia, but her neck and face became swollen, and breathing rather difficult. She became unconscious in a few minutes, and died within a quarter of an hour after being stung. Drs. Hunter, Dreghorn, and Frew, Kilmarnock, were sent for, and they attribute the cause of death to the poison from the sting.

Proceedings under the Pharmacy Acts at Greenock — At the Sheriff Court House, Greenock, on Wednesday, Archibald Taylor was charged with having, in the shop occupied by James Kerr, chemist, 1, Lauriston Street, Hillend, Greenock, sold to Joseph Tait, on March 9, a quantity of morphine, a quantity of chloroform, and a quantity of chloral hydrate; said poisons being ingredients in a prescription dispensed by the said Archibald Taylor. Also with having on March 10, sold to Joseph Tait, in the same premises, a quantity of morphine, as an ingredient in a bottle of "Kerr's horehound, honey, and tamarinds."

A second case was against Robert Campbell Swan, who was charged with having, in the shop occupied by James Kerr, chemist, 6, Hamilton Street, Greenock, sold to Joseph Tait, on March 11, a quantity of morphine as an ingredient in a bottle of "Kerr's horehound, honey, and tamarinds."

A third case was against Gilbert Low, who was charged with having, in the shop occupied by J. M. Farquhar and Co., 14, Lynedoch Street, Greenock, sold to Joseph Tait, on March 9, a quantity of opium as an ingredient in a bottle of "Powell's balsam of aniseed."

A fourth case was against Robert Kerr, who was charged with having, in the shop occupied by John M. Farquhar, chemist, 10, West Blackhall Street, Greenock, sold to Alexander Spence, on March 11, a quantity of opium as an ingredient in a bottle of "Powell's balsam of aniseed."

The respondents all pleaded guilty and were fined 10*s.* for each offence, with expenses in each case.

Proceedings under the Pharmacy Acts at Ayr.—Peter Welsh, assistant at the Medical Hall, Troon, was charged at the instance of the Pharmaceutical Society, before Sheriff Orr Paterson at Ayr, on September 10, with three offences against the Pharmacy Act, by selling, on March 11 last, "Kerr's horehound honey and tamarinds" to Alexander Spence; second, "Collis Browne's chlorodyne," also to Spence; and third, laudanum to Joseph Tait. Welsh pleaded guilty, and the Sheriff imposed a fine of 26*s.*, with costs.

Chemists' Assistant Charged with selling Poison to Children.—In the Glasgow Sheriff's Court on Monday, Sept. 9, Hugh Lees, chemist's assistant with Mr. Matthew Dunning, at 75, Nelson Street, Tradeston, Glasgow, appeared before Sheriff Erskine Murray, and was charged with having on April 23 last, committed two separate offences within the meaning of the 1st and 15th sections of the Pharmacy Act of 1868. The indictment bore that Lees, not being a duly registered pharmaceutical chemist or chemist and druggist, did unlawfully sell by retail to (1) Joseph Sime, of 61, Dale Street, Southside, a child about six years of age, a quantity of laudanum; and (2) Charles Sime, of 61, Dale Street, a boy about ten years of age, a quantity of laudanum. The prosecution was conducted on behalf of the Pharmaceutical Society by Mr. James Barrie, of Messrs. Martin and Barrie, writers, Glasgow, instructed by Mr. P. Morrison, S.S.C., Edinburgh. Mr. J. Rutherford Hill, secretary of the North British Branch, was also present.

The charge having been read over to respondent, he pleaded not guilty, and the trial was adjourned till Friday, September 20, at 10.30, before Sheriff Guthrie.

The charges, it may be stated, have arisen out of an alleged case of suicide.

Lightning Cleaner.—Castile soap, 4 ozs.; powdered carbonate of sodium, 2 ozs.; powdered borax, 1 oz.; water of ammonia, 7 ozs.; alcohol (methylated), 3 ozs.; spirit of turpentine, 2 ozs.; ether, 3 ozs.

IRISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Pharmaceutical Society of Ireland.—A stated monthly meeting of the Council of the Pharmaceutical Society of Ireland was held on Wednesday, 4th inst., at 67, Lower Mount Street, Dublin. Mr. Wm. Hayes, President, in the chair.

Arising out of the reading of the miuutes of last meeting, at which a resolution was passed calling on the Lord-Lieutenant to expunge the name of a registered druggist from the register of the Society,

Mr. Turkington said there was wide-spread indignation amongst druggists of the north of Ireland over the action of the Council. They believed the case was one which could be met by a fine, instead of ruining a man who was a long time in the trade and had a large family.

The President, Mr. Wills, and other speakers defended the action of the Council. The gentleman in question, even after he had promised the Society he would not offend again, had continued to compound prescriptions.

The Registrar announced that Mr. Montgomery had intimated his intention of not seeking re-election on the Council.

It was unanimously decided that Mr. Montgomery should be asked to re-consider his decision.

The President announced that he did not intend to offer himself for re-election, owing to an increased demand on his time.

Several members spoke of the loss the Council would sustain if the President should resign, and requested him to re-consider his decision.

Mr. Hayes promised that he would carefully consider the matter in the course of the next few days.

Dr. E. McDowell Cosgrave wrote relative to the difference existing between the "First" examination of the Pharmaceutical Society of Great Britain and the examination of the Pharmaceutical Society of Ireland. In the English examination the students were asked to translate short sentences into Latin, and he believed this was the only difference.

A discussion arose, during which a member proposed that they no longer recognise the examination of the English Society, as the Irish curriculum was more extended.

Dr. Cosgrave's letter was referred to the General Purposes Committee for report.

Mr. Henry C. Backhouse, associate druggist, wrote requesting a new certificate in place of one which had been partially burned.

It was agreed to request Mr. Backhouse to forward the remnants of the old certificate, when a duplicate certificate would be forwarded and a fee of 10*s.* 6d. charged.

The following were elected members of the Society:—Messrs. James Johnston, Magdala House, The Plains, Belfast, L.P.S.I.; David Lawson Kirkpatrick, 73, Donegall Pass, Belfast, L.P.S.I.; Robert Morrow, 25, Cornmarket, Belfast, L.P.S.I.; Robert Russell Ritson, 25, High Street, Belfast, L.P.S.I.; James A. Stewart, 22, Botanic Avenue, Belfast, L.P.S.I.

Mr. James R. Guest, 118, Georges Street, Limerick, was elected an associate druggist.

The Council then adjourned.

Refusal to Sell Drugs for Analysis.—At the Rathfriland (County Down) Petty Sessions, on the 6th inst., Sergeant Nelson (Royal Irish Constabulary) was the complainant in four summonses against Henry Bell, druggist, Rathfriland, for having refused to sell to him certain drugs—to wit, extract of ergot (liquid), laudanum, tincture of aconite, and paregoric—same being exposed for sale in his shop, at Rathfriland, on August 10.—Mr. M'Spadden (Messrs. Fryar and M'Spadden, solicitors, Rathfriland and Banbridge) defended.—Sergeant Nelson said the prosecutions were instituted under the 17th section of the 38th and 39th Victoria, chap. 63. As the evidence in the first summons would apply to the evidence in the other three, their Worships decided to hear all the cases together. Evidence having been given, the Chairman said they had decided to fine the defendant 10*s.* in each case, £2 in all, and costs. Of the six magistrates on the Bench two were medical gentlemen.

Proceedings under the Pharmacy Act.—A most important case was fixed for hearing at Lisburn Petty Sessions, on Thursday, 12th inst. The Pharmaceutical Society of Ireland, summoned Messrs. Alex. Boyd and Co. (Limited), of Lisburn, for compounding medical prescriptions, and that they did "compound a medical prescription contrary to the Pharmacy (Ireland) Act, 1875, Section 30, they not being a person properly qualified on that behalf according to law." The issue is exciting great interest in the north of Ireland as it raises the broad question of the right of incorporated companies to compound medicines. The matter will be fully argued, and it is likely not to rest there.

Irish Licentiates Abroad.—Mr. Robert Jardine, L.P.S.I.e who had to go some time ago to South Africa on account of his health, is at present managing a pharmacy in the Orange Fred State, and is doing well, according to the last accounts.

Mr. J. L. McAlister, L.P.S.I., formerly of Biarritz, France, and lately of Belfast, is evidently fond of "La Belle France," as he is reported to be at present employed in "Hogg's English Pharmacy," Paris.

Mr. Harry R. Scott, L.P.S.I., of Belfast, is going to Mentone, and Mr. J. R. Corrigan, M.P.S.I., of Dublin, intends to leave this month for South Africa.

Mr. F. J. F. Jackson, M.P.S.I., manager of Marshall's Pharmacy, Rathmines, has returned to business from his wedding tour.

Mr. Thomas M. O'Connor, L.P.S.I., formerly manager of the same pharmacy, has just started on a similar journey, having married last week Miss Mary Christina, eldest daughter of Mr. Constantine Quirke, of the Medical Hall, Tullamore, which Mr. O'Connor has been managing for some time, evidently to the satisfaction of those concerned.

The Pharmaceutical Chemists' and Apothecaries' Assistants' Association of Ireland.—This vigorous young body has just held an "indignation meeting" to "sit upon" the delinquent who was responsible for the members having to be content with an *al fresco* meeting last week. It is suggested that the custodian of the hall may have thought the prevailing glorious weather too much for even the spartan stoicism of the "caaites" in pursuit of science, and that he might safely luxuriate in the balmy breezes of the "Waxy's Dargle?"

Mr. John S. Shortt, M.P.S.I., lately in the employment of Messrs. Boyd and Co., Limited, and formerly manager of Mr. Hayes' Blackrock branch, has taken over the "Sackville Drug Hall," 27, Upper Sackville Street, Dublin.

FOREIGN NEWS.

[*From our Special Correspondents.*]

The Production of Beeswax in Chile.—The yearly production of wax in Chile amounts to about 368,000 to 460,000 quintals, of which a tenth only is consumed in the country for the churches and convents, the rest being exported. The zone of production lies between the province of Coquimbo in the north and Concepcion in the south. The price of the wax frequently varies to the market's fluctuations. The chief ports to which it is consigned are Hamburg, Liverpool, and Havre. In 1892 the price was from 60 to 72 piasters per 46 kilos, but at present its price lies between 70 and 80 francs, according to quality. Chilian wax is divided into three kinds, white, yellow, and grey. In each of these classes there are again three varieties or qualities, depending on the state of purity of the samples. As a rule the purification of these waxes is very defective; in the first place, because the refiners strive to lose as little in the cleaning process as possible, and, in the second place, from the extremely rudimentary apparatus employed for the purpose. These various waxes are, moreover, frequently adulterated, and often contain powdered sea shells, grease, and trash from the hives, added with a view of increasing the weight and lowering the cost to the maker.

A TAX UPON DOCTORS.—The fiscal authorities of the Argentine Republic, evidently holding the same views as Cæsar, "that all the world should be taxed," have decided that the doctors would help to fill their somewhat depleted coffers for them by submitting to a tax upon each prescription written for a paying patient. The exact manner in which this tax shall be levied and the amount have not so far been decided upon. At first a stamp of 10 centimos (1d.) was to be attached to each "receta" or prescription, but it is now very probable that the prescriptions will have to be written on stamped forms bearing each a registered number, which the chemist will copy in his prescription book when he sends out the medicine, thus assisting in the work of the Revenue in preventing fraud and at the same time avoiding disputes with customers by retaining the original prescription, as was at first proposed. The clients in the Argentine object just as strongly, it seems, to giving up their prescriptions into the chemist's keeping, even when they receive a copy in return, as our own do in England.

CHEMIST FINED FOR REFUSING TO SUPPLY MEDICINE.—At Castelnuovo Bocca d'Adda, near Milan, a pharmacist, Signor Achille Mizzi, has just been condemned to pay a fine of 20 francs and the costs of the prosecution by the Prefect, for having refused to dispense a prescription for a poor man unless he were previously paid 100 francs! The action was brought under article 483 of the Civil Code.

THE ACTION OF TRIONAL.—Dr. Cadet de Gassicourt read at the Academy of Medicine an account of Dr. Moncorvo's (of Rio de Janeiro) experience of the action of trional on young children. He speaks highly of the drug as possessing marked hypnotic properties in insomnia arising from varied causes. In cases of cerebral meningitis the pains, convulsions, etc., which resisted the influence of other sedatives yielded to trional, and the improvement was maintained all the time that the remedy was given, and this without disturbing the digestive functions. He recommends the administration of doses for infants of ten to twenty centigrammes of the powder suspended in milk, and he considers that up to the present it is the best hypnotic known for very young children.

THE ACERBI-LEVI POISONING CASE.—The chemist's assistant, Acerbi, and his employer, Signor Levi, of Milan, who were recently condemned, as already reported, the assistant to five months' imprisonment and a fine of 500 lire for dispensing 10 grammes of extract of conium instead of a like quantity of extract of male fern (thereby causing the death of the patient), and the employer to pay costs and 5000 lire to the deceased relatives, have just appealed to the High Court. Their counsel, Professor Körner, based his demand for the quashing of the sentence on the grounds that, from the extremely minute quantity of the medicine left in the bottle it was impossible for any analyst to say he could detect even traces of coniine, and so far as that said to have been found in the viscera was concerned they were in so decomposed a state, owing to the period they had been kept (six months) and to the small amount and weakness of the alcohol used in their preservation, that there was no probability even that it was coniine. The only evidence upon which the sentence was based was that of the doctors, who said the symptoms were those of conium poisoning. The appeal was not allowed, and the sentence of the other court was confirmed in its entirety. The case will now be carried into the Court of Cassation.

"HOMICIDE PAR IMPRUDENCE."—M. Scarmare, pharmacien of Jemmapes, has just been condemned by the tribunal of Mons for "homicide par imprudence." In dispensing a prescription ordering 30 grammes of chlorate of potash, to be divided into six powders, he made up six powders containing 30 grammes each. The patient who took one of the powders died after twelve days of intense suffering. A prosecution for damages was instituted by the relatives, and their claim of 1500 francs allowed. In addition, the pharmacien was fined 500 francs and condemned to undergo one month's imprisonment, but owing to his good antecedents he is allowed to choose any month during the next five years in which to condone his offence.

AT THE forthcoming meeting at Marseilles of the Association Générale des Pharmaciens de France various methods for combatting cutting prices will be discussed, and among others the following one, which originates from the department of the Côte d'Or, is expected to receive the general approbation of the various syndicates represented there. Makers of specialties are to be asked to have printed labels bearing the following notice: "The syndicate guarantees as authentic only the specialties sold at the marked price," to be affixed at the time of sale by the pharmacien who receives a supply on the express undertaking not to sell below the marked price under a penalty of a hundred francs. In this way the delinquent will come within reach of the law, since he will be bound directly to the syndicate. The labels will be distributed by the various presidents of local pharmaceutical societies, they being in the best position to exercise a strict watch and can easily ascertain any infringement of the rule. As falsification is largely practised, the public having great difficulty in distinguishing between genuine and false specialties, they will naturally be suspicious of those not bearing the label guaranteeing genuineness, and consequently desist from buying of the cutting chemist who will not possess a supply of labels.

NEW REMEDIES.

[*The notes given under this heading embody recent suggestions in therapeutics. They cover both new drugs and preparations, and old ones under new aspects. The word "parts" is used to represent parts by weight, both for solids and liquids.*]

PHENOL IN TETANUS.—Osherovski has successfully treated an apparently hopeless case of traumatic tetanus by subcutaneous injections of carbolic acid. Twelve drops of a 2 per cent. solution were injected every three hours as a last resource, after the tetanus had lasted ten days. In two days a marked improvement was seen. The injections were continued until twenty-eight had been given, when the patient was discharged apparently cured (*Lancet*, 2, 95, 169).

BENZO-NAPHTHOL IN TROPICAL DYSENTERY.—Clark has compared the value of benzo-naphthol with that of ipecacuanha and other drugs usually given in dysentery, and reports favourably on the new drug. In treating 137 cases of the disease in Cuba, the mortality under benzo-naphthol treatment was about 2 per cent. Forty-five grains per diem were given to adults, and a little less to children (*Lancet*, 2,95, 169).

CITROPHENE.—This is a combination of phenacetine and citric acid, forming a white powder soluble in water, having the taste of citric acid; properties which render it at the same time agreeable to take and convenient for use in hypodermic injection. Dr. Bernario finds that citrophene is perfectly innocuous, and has employed it with advantage in doses of from ½ to 1 gramme as an antithermic and analgesic in cases of typhoid, migraine, and in various neuralgias. According to the author, as much as 6 grammes may be given in twenty-four hours (*L'Union Pharm.*, xxxvi., 297, after *Sem. Médicale*).

LIQUOR ANTHRACIS IN DISEASES OF THE SKIN.—The remedy (see p. 239) is spread upon the skin by means of a camel's hair brush. It is adapted in general for all itching and scaly skin diseases, contra-indicated in acute inflammations and moist affections. In psoriasis it stands next to chrysarobin in efficiency, and has been successful in lichen rubrum, planus and pruritus ani (*Therap. Gaz.*, xix., 425, after *Archiv. Ga. de Med.*).

IODOL IN AURAL ECZEMA.—Chatellier, after an experience of over six years, has found iodol to give the best results in treating this troublesome disease. In cases of moist eczema the external parts are first washed with Van Swieten's liquor, diluted with three or four times its volume of warm water, then carefully dried with absorbent cotton and dusted with iodol powder; the auditory passage, if affected, should be filled with iodol. Dry eczema is treated with an ointment composed of iodol, 10 parts, lanolin 30 parts. If the auditory passage is affected, vaselin oil should be substituted for the lanolin (*Rev. Inter. de Méd. et Chirurg.*, vi., 264).

AMMONIACAL COLLODION FOR INSECT BITES.—The *Méd. Chron.* recommends the following application:—Strong ammonia, 40 drops; collodion, 3 grammes; salicylic acid, 30 centigrammes. Several drops are applied to the parts affected.

NOTES AND QUERIES.

[The information given in this column includes both notes of practical interest to pharmacists, and replies to queries which seem to possess sufficient interest to readers generally. Readers requiring working formulæ for special preparations should intimate their wants to the Editor, who will be pleased to assist them to the best of his ability. The word "parts" invariably indicates parts by weight.]

Extract of Suprarenal Capsules for Injection.

Langlois prepares this as follows (*Rev. de Thérap.*, lxii., 396). Suprarenal capsules of horse, 2 grammes; boiled water, 20 grammes; chloride of sodium, 12 centigrammes; fluoride of sodium, 25 centigrammes; triturate and macerate for twenty-four hours, then filter through sterilised cotton. The dose for injection is from 2 to 5 cubic centimetres. D'Arsonval prepares the extract by macerating 10 grammes of the finely divided capsules in an equal weight of glycerin (sp. g. 1·260) for twenty-four hours, then adding 5 grammes of boiled water; the mixture is macerated for half an hour, filtered through paper and sterilised by carbonic acid under pressure. The dose of this is from 3 to 8 cubic centimetres.

Aperient Powder.

The *Revue Thérapeut. Medico Chirurg.* gives the following formula:—Powdered rhubarb, 4 parts; dried sulphate of soda, 3 parts; bicarbonate of soda, 1 part; essence of peppermint (or other flavouring essence), sufficient to flavour. A teaspoonful to be taken in a glass of plain or sweetened water in the evening.

Preservation of Ginger Beer.

"Ferment" desires to know the best means for preventing stone ginger beer, made from the following recipe, turning sour:—"℞ Ginger, 1 lb.; sugar, 18 lb.; tartaric acid, 2 oz.; cr. tartar, 8 oz.; 2 lemons; boiling water, 18 galls. Stir 3 or 4 times during twenty-four hours, and at 70° Fah. add a tea-cupful of fresh brewers' yeast, stir again and let stand twenty-four hours, filter through flannel and bottle." It is not stated how long the ginger beer made by this formula keeps good, but presumably the souring occurs at an earlier period than usual with such a beverage. As the infusion is made with boiling water the unfermented liquor should be sterile (see 'White on Infusions,' *Ph. J.*, [3], xxiv., 686). The actual cause of the souring is undoubtedly the presence of bacteria producing acetic, lactic, or some other organic acid. Absolute cleanliness of all utensils, and of the room in which the brewing is carried on will result in a more satisfactory brew than would be obtained with less care. The most likely source of the acid producing bacteria is, however, the brewers' yeast. The yeast sold by brewers to bakers and others is often of inferior quality and purity, and is that produced at the beginning or end of fermentation. The yeast which is formed when the wort commences to work is contaminated by foreign organisms carried up by the yeast in rising to the surface. When fermentation becomes most vigorous, the best and purest yeast is produced, and reserved by the brewer for his own subsequent use. As the fermentation slackens, yeast of inferior quality is again produced. Microscopical examination will easily show the presence or absence of foreign organisms, but perhaps the safest plan for "Ferment" if he has any difficulty in obtaining good brewers' yeast is to try one of the many kinds of compressed yeast, which may now be obtained in a state of great purity. Another cause of souring in ginger beer is to be found in the excessive extent to which fermentation is allowed to proceed before the fluid is bottled. All the while fermentation is active the foreign bacteria, if present, are inihbited by the presence of the growing yeast. As it slackens the conditions become more favourable for the development of acid-forming bacteria. Perhaps the recent spell of hot weather has something to do with "Ferment's" troubles, since fermentation will proceed at a greater rate the higher the temperature at which it is carried on. In hot weather it would probably be found advisable to diminish the time of fermentation from twenty-four to eighteen, or even twelve hours. See that the strainer is thoroughly cleansed—preferably in boiling water—as well as the bottles and bottling implements. "Ferment" will find it advantageous to read up the subject of yeast and fermentation in some books on brewing, or in Jago's 'Science and Art of Bread Making,' recently published. (*See ante*, p. 210.)

Ichthyol for Severe Cold in the Head.—The *Pacif. Drugg. and Physician* gives the following formula. It should be used as a nasal douche:—Ichthyol, 1 part; ether and alcohol, of each 1/100 part; distilled water, 99 parts.

Solubility of Menthol.

J. Y. Failweather submits the following prescription, and asks how it should be dispensed:—

℞ Menthol	℥iii.
Cocain. hydrochlor. (5 p. c.)	ʒss.
Glycerini	ʒj.
Spt. vini rect.	*q. s.*
Aquæ ad	ʒviii.

Sig. To be used as directed.

The prescription seems to indicate that the prescriber knew that menthol was soluble in rectified spirit, but had overlooked the fact that the addition of a very small quantity of water to the alcoholic solution sufficed to cause it to separate in greasy lumps. If we interpret the *q. s.* of the sp. vin. rect. liberally, a clear mixture may be obtained, containing, however, very little water. If only just sufficient spirit is used for the solution of the menthol in the first place, then the addition of water causes the separation of the menthol at once in a very unmanageable condition. The only satisfactory solution of the difficulty would be to consult the prescriber as to his intentions. If he desired to have an aqueous lotion, as the aqua ad. ʒviii. seems to indicate, the best plan would be to emulsify the menthol with quillaia or gum, and omit the spirit altogether. If a liniment is desired, then use all spirit and omit the water.

Ointment for Ringworm of the Beard.—The following may be found useful (*Quart. Med. Journ.*, iii., 399):—

℞ Olei cadini	ʒj.
Hydrarg. oxid. rub.	gr. xij.
Hydrarg. ammoniati	gr. xlv.
Sulphur sublimat.	℈j.
Lanolin	ʒj.

Misce. ft. ungt. To be used twice a day.

Solution of Sozoiodol of Mercury.

For a solution of sozoiodol of mercury for intramuscular injection:—Sozoiodol of mercury, 5 grains; iodide of sodium, 10 grains; distilled water, 20 minims. The quantity for an injection is 10 to 15 minims (*Brit. Med. Journ.*, p. 459.)

Liquor Anthracis.

Fischel describes a remedy under this name similar to the English "liquor carbonis detergens." The liquor anthrax simplex is made by dissolving 3 ounces of coal-tar in 6 ounces of benzol, to which 6 ounces of 90 per cent. alcohol is added; the whole is well shaken and set aside at a temperature of 35° C. From the simple solution he derives a second formula, which he calls "liquor anthracis compositus." The latter is prepared in the following manner:—12½ drachms of potassium sulphate are dissolved in 10 drachms of hot sodium hydrate (15 per cent.), and warmed, together with 6 ounces of alcohol. Next, 3 ounces of resorcin, and 5 drachms of salicylic acid are dissolved in 6 ounces of alcohol. The three solutions are then mixed; all are shaken together and set aside. Finally a few drops of olei ricini and ethereal oil are added to make it more readily spread upon the skin and to deodorise it.

Dense Lantern Slides.

Developer sends two lantern slides made by the wet collodion process from an ordinary landscape negative, and complains that he cannot get them "black" or dense enough for a night effect. It is not possible to make night effect slides from good ordinary landscape negatives. The negatives must be specially made for the purpose, and the lighting of the scene must be suitable. The thinner of the slides sent is quite opaque enough, the other is too dense, and will not look well upon the screen; it will look black and heavy, but will certainly not represent night. The white sky, to commence with, would at once show the falsity. To obtain night effects the negatives should be much underexposed, and a hard chalky negative with heavy bare glass shadows tried for, then possibly a night effect could be obtained on the slide. Our correspondent complains that acid silver intensification is "expensive, troublesome, and takes a lot of time"; it is, however, the best method, and he cannot use anything more reliable, or a method that will give him better or as good results for nature subjects. If the colour of the deposit is wanted a pure black, the slides may be toned when sufficiently dense by immersion for sufficient time, which must be judged by the effect, in a solution prepared as follows:—Platinum bichloride, 15 grs.; strong nitric acid, 3 minims; water, 15 ozs. This forms a stock solution, 1 drachm of which should be diluted with 1 oz. of water for use.

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

Communications for the Current Week's Journal should reach the Office not Later than Wednesday Morning. Telegrams can be Received on Thursday Morning. All Communications respecting Editorial matters must be Addressed "Editor, 17, Bloomsbury Square, London," and not in any case to individuals supposed to be connected with the Editorial Staff of the Journal.

All Instructions from Members, Associates, and Students of the Pharmaceutical Society, respecting the transmission of the Journal, must be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London, W.C.

Business communications—including advertisements, orders for copies of the Journal, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Cheques and money orders should be made payable to "Street Brothers."

Correspondents who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for illustrations should be done with pen and Chinese ink, and consist of clean, sharp lines, without shading by washes. They should also be prepared twice the desired size, so as to allow for reduction.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Queries addressed to the "Editor" will be replied to as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries."

Reprints of articles cannot be supplied unless authors communicate with the Editor before publication.

LETTERS.

The Metric System.

Mr. Chas. H. Turver, of Blackpool, states in reference to Mr. Elborne's paper on "The Weights and Measures of the B.P. *v.* the Metric System," that as a practical man, he has found a system of grains (analogous to the metric system) not only convenient, but that a return to the ounce (of 437·5 grs.) would be very difficult. He says "My method is to do all working where various denominations are used, as ounces, drachms, scruples, etc., in simple multiples of grains weights; for this purpose I use weights from 50 to 1000 grains, etc., with convenient sizes between. Not only have errors been reduced to nearly *nil*, but all my assistants have expressed their satisfaction at its ease and accuracy. I have the greatest respect for Mr. Elborne from a scientific standpoint, but he does not speak as a practical pharmacist in my opinion.

"Then Mr. Elborne's illustration of ext. cinch. liq. is unfortunate. Is there any practical reason why exactly a pint should be written in the formula? I should certainly expect some such equivalent as this to be used:—

Ext. Cinch. Liq.

Take of—

Red cinchona bark in No. 60 powder...	20 ozs. = 160 grms.
Hydrochloric acid	5 fl. dr. = 5 C.c.
Glycerin.....	2½ fl. oz. = 20 C.c.

Rectified spirit, distilled water; of each a sufficiency.

The strict proportions are maintained.

"I feel almost ashamed to point out these ancient errors, which have been corrected over and over again—we have only to compare the two columns to see where the simplicity lies. As regards the quantity, in either case the quantity in the formula would be very inappropriate for the majority of practical chemists, and would have to be either multiplied or divided; and again I leave it to the practical man as to whether the metric system which only requires an additional figure (0) at the end to make any convenient quantity—or the old-fashioned method with its compound arithmetic. Mr. Umney evidently strikes the right key. I cannot understand Mr. Elborne in the same breath telling us the metric system is very nice indeed and he should never think of using anything else. Why on earth should he enjoy all the advantages of using the most perfect system and deny it to the pharmacists. Are we incapable of understanding it?"

A Local Secretary writes as follows:—"I too would like to offer my congratulations as to the success of the Journal on 'larger lines.' Many of the new features are distinctly of interest and of service to me, but I take an interest other than the personal in it, and that is as local secretary of a large city. When in pursuance of my duties I call upon my brother pharmacists and try to induce them to join the Pharmaceutical Society, I shall have a strong argument in the usefulness of our own Journal. Perhaps they ought not to have needed such an argument, but they have needed it. It will tell not only by the fact that it gives much valuable information, many a useful wrinkle, and will often help a lame dog over a stile; but coming at some of its new points into touch with the everyday life of the working pharmacist, promote brotherliness, and enable us all to feel that our rallying ground after all is Bloomsbury Square."

ANSWERS.

A. E. Howling.—Your instructions regarding delivery of the Journal should have been addressed to the Secretary. The First examination will be held on the second Tuesday in October.

John Mitchell.—Your comments should be addressed to the editor of the journal referred to.

R. Amos.—See this week's Educational Supplement for the information you require.

"Blackeye."—Presumably the ordinary tincture is meant, but no strength is specified for either preparation. The fruit should be bruised.

A. Duncan.—It is impossible to say what the chrysalis is, that you say you found in a melon from Alcira, without allowing it to develop.

"X."—The new edition of the British Pharmacopœia will probably be published much sooner than is generally anticipated. The work in connection with it is far advanced and we should not be greatly surprised to see the book early next year. The element of uncertainty is sufficiently great, however, to justify you in purchasing the present edition if you require it for immediate use. An acquaintance with the new edition will be expected in the examination room as soon after publication as seems reasonable, but during the transition period you should be familiar with both old and new.

P. W. Taylor.—A mixture of salol, 3 parts, and camphor 2 parts, forms a viscid liquid, but the additlon of 10 per cent. only of camphor results in the formation of salol camphor, which is crystalline and can be powdered.

OBITUARY.

Gill.—On September 3, Samuel Gill, Pharmaceutical Chemist, Pendleton. (Aged 78.) Mr. Gill had been a member of the Pharmaceutical Society since 1842.

Donington.—On September 5, Robert Donington, Chemist and Druggist, Spalding. (Aged 63.) Mr. Donington had been a member of the Pharmaceutical Society since 1892.

Dixon.—On September 6, Thomas Dixon, Chemist and Druggist, Rickmansworth. (Aged 53.) He had been a member of the Spalding School Board since its formation, and at the time of his death was chairman of that body. For a long period he was a guardian of the poor, but retired previously to the last election. He was also a governor of the Spalding Grammar School; but the Liberal party received his support.

Communications, Letters, etc., have been received from Messrs. Adams, Amos, Austen, Carter, Carver, Clague, Coates, Cowley, Davies, Dawson, Duncan, Fraser, Fielding, Griffiths, Harvie, Hill, Howe, Jenkin and Phillips, Kirkby, MacLeod, Morison, Mitchell, Ough, Palmer, Pennington, Simnett, Squire, Stevenson, Taylor, Thompson, Townsend, Turver, Vogl, Williams, Willis, Wood, Woolcock.

ALCHEMY AND PHARMACY.

THEIR MYSTERY AND ROMANCE.

BY C. J. S. THOMPSON.

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(*Continued from page* 118.)

Chapter III.

The Early Age of Greek and Roman Pharmacy.

Rome at an early period gave birth to several philosophers and practitioners in the art of healing. Cornelius Celsus, who is thought to have been a Roman, was a much esteemed writer of the time, and his works on medicine show the advanced state of surgery and medicine during the Roman Empire.

His work on medicine gives a considerable insight into the pharmacy of the Romans in his time. With reference to their weights, he says, "I would have it understood that in an ounce is contained the weight of seven denarii; next, that I divide each denarius into six parts, that is, sextantes, so that I have the same quantity in the sextans of a denarius that the Greeks have in their obolus."

Of the methods of administration employed in early Roman pharmacy the malagma was commonly used. It was a kind of soft mass composed of herbs and gums beaten up to the consistency of a thick paste, and applied to the skin. Numerous formulæ for malagmas are given, in which pellitory, myrrh, resin, cardamoms, ammoniacum, galbanum, etc., are included. The malagmas corresponded with our ointments. Then they used plasters, of which the basilicon of galbanum, pitch, resin, and oil in an improved form has survived two thousand years. Troches, for healing wounds, were composed of dry medicines held in suspension by some liquid such as wine or oil. Pessaries (vaginal) were first originated by the Greeks, who called them pessi. The ingredients were placed in a piece of wool, and thus used. Powders and snuffs were also common methods of administration.

Antidotes for bruises, bites, and poisons were regarded as extremely important. One was called Ambrosia, which Zopyrus is said to have compounded for the King Ptolemy; another was the celebrated antidote of King Mithridates.

The Greeks called their embrocations or ointments euchrista. The catapotia was the method used for internal administration in liquid form, for which many recipes are given by Celsus. The following will serve as an example :—

Athenio's Catapotia for a Cough.

Myrrh, pepper, each	p. ℋ i.
Castor, poppy tears, each	p. ℋ i.

which are bruised separately and afterwards mixed.

For venomous bites the treatment of the ancients, if the wound was severe, was first cupping, or if slight, the plaster of Diogenes was applied, or a salt fish bound over the wound. A curious remedy practised by the Greeks for hydrophobia was to throw the patient suddenly into a pond, and "if he could not swim let him sink several times, and thus drink; if he can swim, keep him down at times until he may be satiated with water, for thus at once," writes Celsus, "is both the thirst and dread of water removed."

Their antidote for nearly all poisons was warm oil, given in order to induce vomiting.

The word collyrium, now applied to a lotion for the eyes, was also used by the ancients, but they gave it a greater latitude, and also employed it to describe a composition of powders wrought to a pasty consistence with some liquid, and formed into something like a tent for insertion into cavities.

Of the chemical bodies and drugs known both to the Greeks and the Romans the number is not a few.

Cinnabar, which seems to have been known from a very remote period, was the name applied to the red sulphide of mercury, and also to dragon's blood. It is doubtless of the latter Pliny says "he believed to be the gore of a dragon crushed by the weight of a dying elephant, with a mixture of the blood of these animals." Copperas, lead, alum, copper and iron were used as styptics.

Myrrh, frankincense, cardamoms, linseed, isinglass, and cobwebs as astringents.

Galbanum, storax, bitumen, are recommended for promoting suppuration, while pennyroyal, sulphur, pellitory, stavesacre, ox-gall, scammony, rue, and opium were all included in their medical recipes.

Dioscorides was the first to attempt to record in anything like a methodical manner the many drugs and chemical substances used by the early Greeks.

Pedacion Dioscorides, born in Anazarba in Cilicia, was a Greek physician who lived in or about the second century. He gathered a great portion of his information on materia medica during his travels with the Roman army, which he accompanied on several expeditions in his capacity of physician. Afterwards he wrote his great work 'Peri Hules Iatrikes' (about materia medica), which for fifteen centuries or more remained one of the chief authorities on that science. It treats of all the medicines then in use, with their preparation and action as then known. The works of this early physician first appeared in a Latin translation in 1478; the first Greek edition being published in 1499. The work was afterwards translated into Spanish, Italian, French, German, and Arabic.

In describing the *Papaver sativum* and its virtues in this work, he says, "It is not improper to subjoin the method in which the opus, or juice, of it is collected. Some then cutting the poppyheads with the leaves, squeeze them through a press, and rubbing them in a mortar, form them into troches. This is called meconium, and is weaker than the opus. But whoever desires to gather the juice must proceed thus. After the heads are moistened with dew let him cut round the * asterisk with a knife, but not penetrate through them, and from the sides cut straight lines in the surface, and draw off the tear that flows with his finger into a shell. And come again not long after, for it will be found standing upon it, and the day following it will be found in the same manner." Hence the old name poppy tears. Dioscorides was also learned in the preparation of wool fat, which he calls œsypum, known to modern pharmacists as lanoline. He says, "œsypum was the oily part collected from sordid wool, thus. The wool is washed in warm water and all its sordes expressed; the fat floated with a froth, and upon throwing in some sea-water it subsided; and when all the œsypum was obtained from it in this manner it was purified by repeated affusions of water. When pure it had no sharp taste, and was in some degree astringent and appeared white, and was emollient and filled up ulcers."

Recent excavations made at Pompeii and Herculaneum have thrown some further light on various articles in the

materia medica as it existed in the days just preceding the destruction of those cities. Aloes seems to have been held in high esteem by the practitioners of the time, and was employed, we learn from the historian, in twenty-nine diseases. It was prescribed in doses from 1 to 111 drachmas (about 68 grs.), and mixed with wine was employed to stimulate the growth of the hair. Aconite, we find, was used in four diseases, and was supposed to be an antidote to any poison which might exist in the system. Other remedies mentioned include gum acacia, colocynth, elaterium, gold, silver, copper, and elecampane. It is further recorded of the latter drug that Julia Augusta, daughter of Augustus Cæsar, used to eat the root daily.

Of the vegetable remedies about 150 are enumerated, and of these the cabbage seems to have held a prominent place. Other favourite medicines were rye, garlic, anise, mallow, rose, and lily.

In the animal kingdom the remedies contributed were numerous, being mainly the various parts of man and beast. Among some of the least disgusting, hair, blood, saliva may be mentioned.

Scrapings from the bodies of athletes mixed with the oil with which they anointed themselves were used as a tonic. The hair of a man torn from the cross was used as a remedy for quartan fever. The hyæna was employed as a medicinal agent in seventy-nine diseases, and the crocodile, chameleon, lion, elephant, camel, and the hippopotamus all contributed certain curative agents. Wool fat was held in great esteem.

Of minerals, iron, lead, nitrum, salt, gold, tin, silver, realgar, copper, and misy, a combination of the sulphates of copper and iron are enumerated. Most of these articles are mentioned by the second Pliny, who was killed during the eruption of Mount Vesuvius which buried Pompeii.

(To be continued.)

ALKALOIDS OF THE VERATRUMS.*

BY ALFRED H. ALLEN.

The several species of *Veratrum* contain a number of very similar alkaloids, the chemistry and exact relations of some of which are still very obscure. Some of these alkaloids are readily saponifiable, like the aconite alkaloids, which fact adds to the difficulty of their isolation. To increase the confusion, the name "veratrine" has been applied by different observers to several distinct bases, besides indefinite mixtures, and the pharmacopœias of this and other countries describe as "veratrine" the amorphous mixed alkaloids obtained from cevadilla seeds. Since cevadine, the principal crystalline alkaloid of cevadilla, is quite different in constitution and properties from jervine, the characteristic alkaloid of white and green hellebore, and the associated alkaloids are also for the most part distinct, it is desirable to consider the alkaloids of sabadilla and the hellebores separately.

ALKALOIDS OF SABADILLA (Cevadilla).—In 1819 the seeds of *Veratrum sabadilla*, called also *Schœnocaulon officinale* and *Asagræa officinalis*, were found independently by Meissner and Pelletier and by Caventou to contain an alkaloid which was obtained by Meissner and Pelletier in an amorphous form by boiling the seeds with water acidulated with sulphuric acid, and treating the extract with ammonia in excess.

In 1834, Couerbe isolated from a similar product three distinct substances, of which one was amorphous, but yielded a crystallisable sulphate and hydrochloride. It was readily soluble in alcohol and ether, but insoluble in water. To this alkaloid, Couerbe gave the name of veratrine. The second alkaloid, called by him sabadilline, was insoluble in ether, but soluble in alcohol and water, and was crystallisable therefrom. The third was also soluble in alcohol and water and insoluble in ether, but was amorphous, and formed non-crystalline salts. It was regarded by Couerbe as the monohydrate of sabadilline.

In 1855, Merck obtained from commercial veratrine, by evaporation of a solution in diluted alcohol, a very pure substance, which he succeeded in crystallising. This body, which he called veratrine, gave upon analysis numbers leading to the formula $C_{32}H_{52}N_2O_8$. Its salts, with the exception of the aurichloride, failed to crystallise.

In 1871, Weigelin separated three alkaloids from sabadilla seeds. The one identical with Merck's base he considered as capable of existing in two separate forms, one soluble and the other insoluble in water. The other two alkaloids were obtained by precipitating the first base by ammonia and shaking the filtered liquid with fusel oil.

In 1879, Alder Wright and Luff (*Journ. Chem. Soc.*, xxxiii., 338) announced the presence in sabadilla of three distinct alkaloids, all of them saponifiable. First, an amorphous base, containing $C_{27}H_{53}NO_{11}$, forming a crystallisable sulphate and hydrochloride, and yielding veratric acid, $C_9H_{10}O_4$, on saponification, from which fact they named it veratrine. Secondly, the crystallisable alkaloid previously described by Merck, Weigelin, and Schmidt and Köppen, to which they assigned the formula $C_{32}H_{49}NO_9$, and called cevadine, because it yielded cevadic acid, $C_5H_8O_2$, on saponification. And thirdly, an amorphous base, cevadilline, containing $C_{34}H_{53}NO_8$, present in very small quantity, and resembling cevadine in yielding cevadic acid on saponification. This base was insoluble in ether, but differed in other respects from the base previously described by Weigelin under the same name. In 1883, Bosetti concluded that the commercial alkaloid from sabadilla contained two alkaloids which he regarded as isomeric. For the crystalline base (Wright's cevadine) he retained the name veratrine, while he called the amorphous base veratridine. Ahrens and some other recent investigators also use the name veratrine to represent cevadine, $C_{32}H_{49}NO_9$.* In 1891, E. Merck announced the isolation from sabadilla seeds of two new alkaloids, sabadine, $C_{29}H_{51}NO_8$, and sabadinine, $C_{27}H_{45}NO_8$.

Bearing in mind the foregoing facts and the circumstance that the different pharmacopœias apply the name "veratrine" to a mixture of the alkaloids of sabadilla, it is desirable to discard the term altogether in its application to a definite chemical individual, and to distinguish the various alkaloids of sabadilla as follows:—

Cevadine (Merck's "veratrine"), $C_{32}H_{49}NO_9$, crystallisable; on saponification yields cevadic acid, $C_5H_8O_2$, and cevine, $C_{27}H_{43}NO_8$.

Cevadilline, $C_{34}H_{53}NO_8$, amorphous; on saponification apparently yields cevadic acid, $C_5H_8O_2$, and probably cevine, $C_{27}H_{43}NO_8$.

Veratridine (Wright's "veratrine"), $C_{37}H_{53}NO_{11}$, not crystallisable; on saponification yields veratric acid, $C_9H_{10}O_4$, and verine (possibly identical with cevine).

Sabadine, $C_{29}H_{51}NO_8$, crystallisable.

Sabadinine, $C_{27}H_{45}NO_8$, crystallisable.

The sabadilla alkaloids give the following colour-reactions with strong sulphuric acid:—

Cevadine.—Yellow, changing to brownish-yellow and blood-red, with greenish fluorescence. On slight addition of water or prolonged exposure to air the colour changes to purple.

* This article is taken, with a few alterations, from advance-sheets of *Commercial Organic Analysis*, vol. iii., part 3.

* Wright and Luff's nomenclature is adopted in Beilstein's 'Organische Chemie,' in the 'United States Dispensatory,' the 'National Dispensatory,' etc.; while Richter's 'Organic Chemistry' still applies the name "veratrine" to Merck's crystalline base, and mentions cevadine as identical with it.

Veratridine.—Reacts exactly like cevadine, except that the red solution is not fluorescent.

Sabadine.—Yellowish, with green fluorescence, changing to blood-red and violet.

Sabadilline.—Permanent blood-red colour.

Commercial "Veratrine."—Veratrine, B.P. is "an alkaloid or mixture of alkaloids obtained from cevadilla; not quite pure." It is described as answering to the following characters and tests:—"Pale grey, amorphous, without smell, but, even in the most minute quantity, powerfully irritating the nostrils; strongly and persistently bitter, and highly acrid; insoluble in water, soluble in spirit' in ether, and in diluted acids, leaving traces of an insoluble brown resinoid matter. It dissolves in nitric acid, yielding a yellow solution, and in sulphuric acid forming a deep red solution which exhibits a green fluorescence by reflected light. Warmed with hydrochloric acid it dissolves with production of a blood-red colour. Heated with access of air it melts into a yellow liquid, and at length burns away, leaving no residue. It is an active poison."

The "veratrine" of the United States Pharmacopœia is described as "a mixture of alkaloids" forming a white or greyish-white amorphous or semi-crystalline powder. In addition to the solubilities given in the B.P., it is said to be soluble in 2 parts of chloroform, in 6 parts of ether, and in 3 parts of cold alcohol. With nitric acid it is stated to form a yellow solution; with sulphuric acid it first yields a yellow or orange-red solution with a greenish fluorescence, which becomes more intense on addition of more acid, while the liquid is deep red by transmitted light. Heated with hydrochloric acid it dissolves with deep red colour. The German Pharmacopœia describes "veratrine" as a white powder, and states that if its solution be spread in a thin layer and powdered sugar sprinkled on it, the colour is first yellow, then green, afterwards blue, and at the end of an hour begins to disappear. An examination of several samples of commercial "veratrine," which were entirely soluble in ether and otherwise answered the requirements of the German Pharmacopœia, were proved by E. Bosetti (*Archiv*, xxi., 81) to consist of a very intimate, apparently amorphous, mixture of two alkaloids, one of which was crystallisable and insoluble in water ("crystalline veratrine," Wright's "cevadine"), whilst the other was not crystallisable, but was soluble in water ("veratridine," the "soluble veratrine" of Weigelin, Schmidt and Köppen; Wright's "veratrine"). Relatively small quantities of the former alkaloid sufficed to render the latter insoluble in water, while the presence of a small proportion of the latter prevented the crystallisation of the former.

It is evident that commercial "veratrine" is liable to be of very variable quality and physiological activity. If the bases cevadilline, sabadine, and sabadinine be ignored, as occurring in proportion too small to affect materially the character of the article, commercial "veratrine" may be regarded as consisting essentially of cevadine and veratridine, of which the former is the more abundant and physiologically active constituent. No quantitative separation of the two bases is practicable, but a method of analysing a mixture of the two could be based on the principle employed by Alder Wright and Luff. Thus the mixture should be boiled with alcoholic soda for a moderate time, half-an-hour being probably ample. The liquid is then acidulated with dilute sulphuric acid, distilled, and the distillate titrated with dilute caustic soda or baryta, and phenolphthalein. The alkali neutralised by the volatile cevadic or tiglic acid is a measure of the cevadine (and cevadilline) in the sample; while if the veratric or dimethyl-protocatechuic acid be extracted by agitating the contents of the distilling flask with ether, an estimation of the veratridine may be obtained. One C.c. of decinormal alkali neutralised by the volatile acid represents 0·0591 gramme of cevadine (and cevadilline) present; and 1 C.c. of similar alkali required by the acid subsequently extracted by ether corresponds to 0·0667 gramme of veratridine.

(*To be continued.*)

AN EXAMINATION OF COMMERCIAL FLUID EXTRACTS.*

BY FREDERICK W. HAUSSMANN.

Every pharmacist who has handled fluid extracts obtained from different manufacturers must have noticed the variation in their physical properties, as pertaining to colour, odour and taste, and also as shown in their miscibility with water or other liquids.

These variations, which were in a number of instances of a striking nature, induced the writer to make a series of examinations, not primarily regarding their chemical composition, such as the alkaloidal percentage, but more particularly the menstruum, as compared with that required by the Pharmacopœia, and also to determine the causes which led to the differences mentioned in their physical properties.

The first feature to which our attention is called lies in the various shades of colour which are frequently observed in fluid extracts prepared from the same drug.

Due to the high degree of heat at which some fluid extracts are evaporated, variations in odour and taste are also noticeable at times. Extracts whose properties are due to volatile principles, such as buchu, cubeb, eucalyptus, etc., are liable to be affected in this manner.

The physical condition of fluid extracts, as regards their fluidity varies considerably, and in this respect, as probably in no other, the preparations of some manufacturers are characterised.

Fluid extract.	Sp. gr.	Pharmacopœial menstruum in alcohol percentage by volume of official.	Alcohol percentage found.	
			Weight.	Volume.
Buchu	·885	Alcohol	76	82
Buchu	·956	„	56	64
Cimicifuga	·873	„	76	82
Cubeb	·882	„	73	80
Rhubarb	1·0095	80	55	63
Serpentaria	·9255	80	61	69
Calumba	1·042	75	34	41
Senega	1·0085	75	43	51
Chirata	·989	66	38	45
Digitalis	1·008	„	43	50
Phytolacca root	·9855	„	51	59
Hydrastis	1·080	60	26	31
Gentian	1·0985	50	27	32
Rhamnus Pursh.	1·052	„	12	15
Senna	1·080	„	25	31
Stillingia	·9855	„	36	43
Taraxacum	1·103	„	12	15
Glycyrrhiza	1·0395	30	23	28
Sarsaparilla Comp.	1·0465	„	6	7
Triticum	1·1296	25	17	21
Prunus Virginiana	1·1025	—	20	36

Some we find of a decidedly syrupy consistence, especially those with a low alcohol percentage, while others are more approximate to the pharmacopœial products. These variations may be partly due to differences in the physical properties of crude drugs, but in many cases also to the tendency of some manufacturers to economise that most important menstruum constituent, alcohol. Unfortunately,

* From *The American Journal of Pharmacy.*

specific gravity is no criterion of the alcohol percentage of fluid extracts.

It is true that an extract of a high specific gravity, for which the Pharmacopœia directs a largely alcoholic menstruum, must be regarded with suspicion, but it does not furnish the means to determine the alcohol percentage of the employed menstruum with any degree of accuracy.

While handling a number of commercial fluid extracts, the high specific gravity of some, contrary to his experience with the same official fluid extracts, induced the writer to determine their alcohol percentage.

Taking the menstrua of the Pharmacopœia as the standard authority with which the manufacturer, as well as the pharmacist, should comply, comparisons were made between the alcohol percentage found and that required. The extracts examined were taken at random from the preparations of different firms, and regarded as representing the respective average percentage of their preparations. The foregoing table gives the results obtained.

In the last-mentioned extract the exact alcoholic percentage of the menstruum cannot be stated, as the Pharmacopœia directs the drug to be macerated with a mixture of water and glycerin, to be followed by percolation with a mixture of 85 parts alcohol and 15 parts water.

The largest percentage of alcohol in fluid extracts, whose menstruum consists entirely of that liquid, was found in F. E. Cimicifuga, the smallest in F. E. Buchu.

The two samples examined of the latter were from different manufacturers, and a glance upon the table will reveal a decided difference in their respective alcohol percentages. Fluid extracts for which the Pharmacopœia directs a menstruum of 2 parts of alcohol to 1 of water, contained a comparatively larger alcohol percentage than those for which the same authority requests an alcoholic menstruum of 3 parts of alcohol to 1 part of water. F. E. of Calumba, which belongs to the latter class, was found to contain only 34 per cent. of absolute alcohol, while F. E. Phytolacca, representing the former, contained 51 per cent.

A small alcoholic percentage was also found in a syrupy F. E. Hydrastis.

Remarkable variations were found in fluid extracts with a supposed-to-be diluted alcohol menstruum. The largest percentage found was in F. E. Stillingia, 36 per cent., which is closely approximate to the pharmacopœial requirement.

F. E. Cascara Sagrada and Taraxacum contained only 12 per cent. of alcohol, by weight.

Compound F. E. Sarsaparilla, with a menstruum of 30 per cent. of alcohol, was found to contain 6 per cent., by weight, while F. E. Glycyrrhiza, with the same alcoholic menstruum percentage, contained 23 per cent.

Glucose in Fluid Extracts.

The syrupy condition of some commercial fluid extracts, and the sweet taste, occasionally observed in preparations from bitter or acrid drugs, induced the writer to determine the percentage of glucose, or, what is perhaps a more correct statement, an allied substance, which likewise has the property of giving the various glucose reactions.

In addition to this, the negative result experienced in some instances, where the preparations were made from drugs, which are not stated to have an appreciable saccharine percentage, or whose sugar, if present, is stated not to possess the power of reducing Fehling's solution, was also the basis for these examinations.

Such was, for instance, found to be the case with several samples of F. E. Gentian, which showed by repeated examination the presence of 5 per cent. of a substance corresponding to glucose in every respect.

According to published authorities, gentianose, the sugar present in gentian root, does not reduce Fehling's solution. This has not been the writer's experience, either in the commercial fluid extract or in a sample which was prepared strictly according to the pharmacopœial directions. The remarkably high sugar percentage of some fluid extracts prepared from ranunculaceous plant drugs, which, on comparison with similar official fluid extracts, showed a vast difference, was likewise another reason for this investigation.

Glucose is a normal constituent of many plants, also lævulose, or fruit sugar, which possesses likewise the property of reducing Fehling's solution.

In the process of preparation of galenical preparations, it may also be produced by the decomposition of other compounds, such as inulin, triticin, particularly in the presence of heat. These may be regarded as being some of the natural sources of the sugar which is liable to be present in fluid extracts. Again, excessive heat in their evaporation will have the effect of caramelising some of the constituents, which, however, by careful observation of pharmacopœial directions, is obviated. Besides this the claim is made that caramel is frequently added by manufacturers of fluid extracts on a large scale for the purpose of colouring their preparations.

The fallacious popular idea that darkness in colour is an indication of a strength and a criterion of quality is unfortunately also accepted by a number of pharmacists.

Caramel also has the property of reducing Fehling's solution and forms, in some fluid extracts, when examined for glucose, an important factor.

Glucose cannot be detected with certainty directly in fluid extracts or liquids containing other vegetable matter. These compounds, as, for instance, tannin, have also the property of reducing Fehling's solution, and must, therefore, first be removed.

The process recommended in Dragendorff's Plant Analysis, precipitation with basic lead acetate, and subsequent treatment with sulphuric acid, was employed.

Ten C.c. of the fluid extract under examination was diluted with water to 20 C.c.

In most cases the mixture became cloudy, and filtration, until a clear liquid was obtained, was necessary.

The mixture was then precipitated with basic lead acetate solution, filtered from the precipitate and the excess of lead in the filtrate carefully precipitated by diluted sulphuric acid.

The liquid, by means of washing the precipitate with water, was made up to the original volume of 20 C.c.

As a rule, the effect of picric acid test solution upon the liquid, representing 50 per cent. of the fluid extract, was first noted, and also a superficial examination for glucose made by means of the picric acid and potash method of Braun with the intention of determining the necessary degree of dilution before making the volumetric examination with Fehling's solution.

A few statements must be made regarding fluid extracts in general before quoting the results obtained. In samples containing caramel, if the same is present in considerable amount, the filtrate, after the lead and acid treatment, is of a brown colour.

Caramel is not precipitated by basic lead acetate, and through this fact evidence of its presence was shown in a number of fluid extracts.

For instance, in a sample of F. E. Taraxacum, prepared by the writer according to the Pharmacopœia, the final filtrate, after this treatment, was almost colourless, while in several commercial specimens, similarly treated, the same was decidedly brown. A like observation was also made with F. E. Gentian and several others.

The preparations examined by the writer comprised the products of eight different manufacturing firms, the samples all being selected at random, preferring, however, those official, wherever obtainable.

The amount of glucose, or, perhaps, more appropriately, the substance which reduces Fehling's solution and gives reactions with other glucose reagents, varied considerably, some extracts showing a high percentage, while others only contained scarcely appreciable traces. Due to lack of time, the percentage was not ascertained in some, while in a number several determinations were made.

The following were the figures obtained:

(1) Twenty samples were examined of this firm, and they are arranged according to the amount of glucose found.

Five per cent. and over. F. E. Taraxacum, Triticum, Gentian, and Cimicifuga.

Four per cent. F. E. Cascara Sagrada. 3·5 per cent. F. E. Rheum.

2·5 per cent. Buchu, Prunus Virginiana, Senna, Hydrastis, Asclepias.

One per cent. Grindelia Robusta, ·833 per cent. Humulus and Digitalis, ·5 per cent. Ipecacuanha.

F. E. Belladonna leaves, Calumba and Nux Vomica, also contained sugar in small amount, but no quantitative estimation was made.

F. E. Coca contained less than 0·5 per cent.

F. E. Cubeb, which was also examined, was found perfectly free from all saccharine matter.

(2) From this source eight samples were examined, quantitative determinations being made in each case.

The largest percentage found was 5 per cent. in F. E. Pulsatilla; 3·5 per cent. was found in Cypripedium; 3 per cent. in Buchu; 2·5 per cent. each in Frangula, Ipecacuanha, and Pilocarpus; ·5 per cent. in Rhus Glabra, while the smallest amount found was in F. E. Damiana, namely, ·35 per cent.

(3) Five extracts were examined from this source.

The average glucose percentage of these preparations was small, the largest amount being found in F. E. Stillingia, which contained 1·66 per cent., the smallest in F. E. Aconite Root, which only gave indication to the extent of ·1 per cent.

F. E. Dulcamara contained about 1·5 per cent.; Belladonna root, 1·25 per cent.; and Eucalyptus, ·625 per cent.

(4) This source furnished five samples.

The largest amount was found in F. E. of Phytollacca, the fruit, which was over 7 per cent.

This is, however, no criterion, as the drug contains considerable fruit sugar.

F. E. Granati Rad. Cortex gave indication of ·67 per cent.; Euphorbia pilulifera, ·5 per cent.

F. E. Pichi and Quebracho were also examined, and revealed but small amounts, so that a quantitative estimation was not made.

(5) Four samples were examined from this source. The largest percentage was found in F. E. Bryonia, 1·668 per cent., in Hydrangea, ·712, while in F. E. Xanthoxylum and Lippa Mexicana the exact amount was not ascertained.

(6) Three samples were procured from this source. The largest percentage was found in F. E. Convallaria, which was 2·5 per cent., F. E. Stigmata Maydis contained 1 per cent., while F. E. Belladonna Leaves showed 5 per cent.

(7) Two samples were obtained from this firm. The largest amount of glucose was found in F. E. Burdock Root, which was 5 per cent. F. E. Pimpinella contained 1·67 per cent.

(8) The two samples from this source were F. E. Coca and Humulus.

The hop fluid extract contained the largest amount, 2 per cent.; the other contained 1 per cent.

A few remarks may perhaps be not inappropriate regarding these determinations.

The remarkably high glucose percentage in some of the representatives of the Ranunculaceæ, 5 per cent. each in F. E. Cimicifuga and Pulsatilla, obtained, by the way, from different manufacturers, induced the writer to determine the amount of glucose in F. E. Cimicifuga, prepared by himself.

While traces of glucose were present, determinations by Fehling's solution showed the presence of less than 1 per cent.

The small amount present was also indicated by the fact that Braun's or Boettger's bismuth test, when applied, responded but feebly.

This is remarkable, as the commercial extract examined bore but little evidence of the presence of caramel. (In the pulsatilla sample the presence of the latter was, however, very evident.)

To determine whether the process of evaporation of the final percolate produced any material change in the glucose percentage found, examination was made respectively before and after the evaporated extract was incorporated with the reserved portion, but no material difference was revealed.

Similar determinations were made with fluid extracts of gentian and rhubarb, with a like result.

Evaporation at the temperature directed by the Pharmacopœia does not appear to produce any material change—in particular, no appreciable increase of the glucose percentage.

Comparison was also made between fluid extracts, prepared from the same drug and obtained from different manufacturers.

As already stated, considerable variation in colour is frequently observable, and this is in many instances due to the presence of caramel.

Regarding their glucose percentage some variation also exists.

In a sample of F. E. Buchu the percentage of one sample was 2·5; of another 3 per cent. The filtrate of the former, after the lead and acid treatment, was almost colourless; of the latter, a decided brown.

In F. E. Belladonna leaves the glucose percentage of one sample was ·5 per cent.; of another, less than ·2 per cent. Incidentally may be noticed, that the narcotic fluid extracts in general appear to contain but little sugar.

This was observed in F. E. Belladonna leaves, hyoscyamus, and also in digitalis.

F. E. Coca leaves, of a deep black colour, obtained from one firm, showed a glucose percentage of 1, while the dark green preparation of another firm showed less than ·5 per cent.

F. E. Humulus, from one firm, strongly alcoholic, precipitating resin on dilution with water, gave indication of about ·830 per cent. of glucose, while the dark brown miscible extract from another source indicated 2 per cent.

F. E. Ipecacuanha showed in one instance a percentage of ·5; in another, 2·5 per cent.

Other comparisons were also made, but the above may illustrate the claim that commercial fluid extracts, as a rule, are not alike in physical properties and composition as obtained from different manufacturers.

Interesting revelations are made in some fluid extracts after subjecting them to the lead and acid treatment mentioned.

If to the final filtrate picric acid test solution is added, alkaloids, if present in the drug, will be indicated.

Among those affected in this manner may be mentioned F. E. Coca, Ipecac., Hydrastis, Quebracho, Cimicifuga, Xanthoxylum, Calumba, and a number of others.

Fluorescent compounds were revealed in the filtrates from F. E. Pichi and Hydrangea, the fluorescence in each being increased by the addition of an alkali.

Comparison was also made between commercial fluid extracts and some prepared from the same drug according to pharmacopœial directions.

F. E. Cimicifuga has already received mention.

F. E. Gentian readily reduces Fehling's solution, both in the official and commercial preparations.

The samples of the commercial extracts examined, however, showed a glucose percentage of over 5 per cent., while the official preparation was found to contain 2·5 per cent. A like result was also found in F. E. Taraxacum.

This preparation, when made according to the Pharmacopœia, contained between 2 and 3 per cent. of glucose, while two samples of the commercial fluid extract showed between 5 and 6 per cent. to be present. The presence of caramel was, however, noticeable in both.

A sample of commercial F. E. Calumba gave ready indication of the presence of glucose, while the preparation made from the drug by the writer was found to be perfectly free from the same. All the available tests for glucose gave a negative indication of its presence.

F. E. Rhubarb, prepared by the writer, was found to contain about 1 per cent. of glucose.

Two commercial samples were found to contain respectively 3 and 4 per cent.

A number of similar comparisons were also made, furnishing, in the main, like results.

Incidentally it may also be mentioned that, while making the above examinations, the presence of possible metallic contamination was also inquired into. In a number of commercial samples the presence of copper was easily detected, showing that but little discrimination was used in the selection of the working utensils.

The importance of self-manufacture in this class of preparations cannot be too strongly urged upon the pharmacist, if it is his desire to comply strictly with the Pharmacopœia.

While it is impossible for him to do so in every instance, there is no reason why he should not manufacture those frequently used, and in whose reliability he can have absolute confidence.

In commercial fluid extracts his only authority is the manufacturer's statement upon the label.

THE PASSING OF THE APOTHECARY SHOP.*

BY C. J. ROSENHAM.

The practice of giving medicine is in all probability too old for us to tell exactly when it began or precisely how it was done, say, two or three thousand years ago. But we are told that in the writing of Moses there are allusions to the practice of medicine, and that the priests were the physicians, and their practice aimed mainly to cleanliness. Now, although this was several years ago, the teachings of those ancient doctors in some cases to-day would not be out of place. My friends, I hope you will not think that I have gone back so far that I can never return, for the truth is we must pass over centuries in a very hurried manner without finding much to encourage us in the practice of the healing art. Skimming over the history of medicine, which is sufficient for our purpose, we find through all the centuries up to, say, the fifteenth, little or nothing which to us appears at all reasonable in the art of the proper application of remedial agents. Then what do we find in the first pharmacopœias published? They are full of the most absurd and horrible remedies. Up to the seventeenth century the drugs and medicines in common use were sold by the grocers as well as by the apothecaries. About 1617 the apothecary obtained a charter for his business as a separate one. Still, in the pharmacopœia of the seventeenth century we find such remedies as earth worms, puppy dogs, and moss from the human skull, plainly telling us that up to this late date the moss was yet darkly overshadowing the human intelligence. The early part of the eighteenth century was also blighted with these ridiculous compounds. But later editions of the Pharmacopœia eliminated them to a great extent. It remained for the nineteenth century to come to the true light of reason and wonderful advancement, both in medicine as well as all the other and kindred sciences. It is not the purpose of this article to go step by step from one great discovery to another or one great stride in advance to the next. You must all be too familiar with these events, both from learning and reading, to occupy your time in this way. I only purpose giving the impressions made upon one reading backward and forward, actively engaged in the business of the pharmacist in the latter part of the nineteenth century in the United States of America. Neither am I writing nor thinking in a fault-finding manner toward either the physician, pharmaceutical manufacturer, or any profession or trade. The thoughts forced upon me are not stubborn conclusions to be fought for, nor do I voice them as events certain to come about, but only as the philosophical sequences as they appear to me from the tendencies of the times and the steady march of progress toward the highest ends. Let us see what Webster says of the apothecary. In the first place the word is of Greek origin, meaning a chest, or a place where goods are stored. In the middle ages the word was applied to a general storehouse or magazine. The definition to us is significant and grows in meaning, as we can truly say to-day of our pharmacies, where hundreds of articles are carried into them, called for once, and stored away, and worst of all forgotten for ever. Webster goes on to say that the apothecary of a hundred years ago in England was in the majority of cases the general practitioner. Who knows but that history may repeat itself, and the same condition obtain again, only in a higher and more enlightened way. You are all familiar in one way or another with the apothecary of the last century. A gloomy little man, in a gloomy little shop, with a gloomy little helper. What mystery there was surrounding every step! His weird work with flame and flask, mortar, pestle and still!

EARLY PROGRESS.

These were the pioneers in our profession, and all honour is due them. They sacrificed their lives in the search for and the production of remedies to conquer sickness and death. In the early part of the nineteenth century colleges of pharmacy were founded, and then the apothecary began to fade away. You are all familiar with the stupendous progress made in these years. Men were sent from these colleges as graduates in pharmacy, and they were competent to fill their mission in life, as well as their shelves with all the compounds necessary for their chosen profession. Some thirty years or more ago the first pharmaceutical manufactories made their appearance. At first only a few clixirs and fluid extracts as their stock in trade, and possibly a few proprietary articles.

WORK OF THE LAST THIRTY YEARS.

Now, what has the last thirty years done for us? From a small beginning these pharmaceutical laboratories have assumed immense proportions, with millions of dollars invested in their plants, covering the entire field of pharmacy, and more—producing new remedies almost daily and coating and disguising the old ones in a manner to make medication easy and pleasant. Now, let us ask

* Prize paper read before the Kentucky Pharmaceutical Association at the Mammoth Cave meeting, May 25.—Reprinted from the *American Druggist*.

ourselves, Has it improved our condition? Undoubtedly, yes. When discussing these questions it is narrow and small to grumble or cry out against the improvements and advancement of the age. It is ludicrous and silly to find fault with the progress of the times when what we suppose may be doing us some harm, an exceedingly small minority, is benefiting the great majority of the human race. Nor do I concede that the pharmacist is harmed. The evolution of medicine and its practice is still going on. The past and present we know; the future will work its way out to the benefit of all, no matter how many volumes may be written decrying the abuses we suppose ourselves to be suffering, no matter how many articles are launched forth complaining of the supposed encroachments on our prerogatives. Those who heed the lessons of to-day are those who will succeed. Those who give up their time to complaining and advance not are lost. Our journals are teeming with the writings of the objector to all manner of imaginary abuses—against the pharmaceutical manufacturer, the physician, and the trades cutting into our business—all to no purpose and without any hope of bettering the situation. It was my fortune to attend the meetings between physicians and pharmacists looking to the harmonising of the two professions. At these meetings the supposed abuses were discussed from both sides of the case. The physician pointed out to the druggist where they were doing him an imaginary injury in selling patent medicines, in counter prescribing, and that was defined in this way: A person enters a pharmacy, states the ailment and asks for a dose to relieve. For example: "I have the headache, give me some medicine to stop it; or, I have a case of indigestion; give me a dose to ease it." It was stated that a man had no right to know that he needed a cathartic; that it might proceed from some hidden cause. Possibly so, but I doubt much if the average citizen or pharmacist will see it that way. These and other irregularities contrary to the code of ethics the pharmacists were recommended to discontinue. The druggists pointed out to the physician the supposed abuse of his carrying his medicines with him and giving them to his patients; also to prescribing proprietary compounds, when the National Formulary could be used with great benefit to both professions. By its use the physician must obtain an article standard and satisfactory, or he has the party at hand who must be responsible. On the other hand, there is no one accountable for the worthless preparations of foreign makers. I do not underestimate the value of frequent meeting together of the two professions to harmonise our differences and better understand each other. It must then be easier to appreciate the changes likely to occur. But with all the liberality that can be practised on both sides of the question, will it help us? Can it or should it prevent the advancement shaping itself for the future? I go into these details, not because it is a vexed question in Louisville or Kentucky or Massachusetts, but because this same condition prevails in every State of the Union, and probably all over the civilised world. I point out these things as the natural causes that will produce the inevitable end.

The colleges of pharmacy are constantly requiring a higher standard for graduation. The preliminary education necessary to enter college is being constantly raised. All of which is eminently raised. The result, men are graduated with a thorough education, well up in botany, materia medica, pharmacy, chemistry, and microscopy. And they go forth to find—what? That they have spent seven or eight years of their life for a higher education; they have laboured to attain a profession to yield them support and independence, when in reality the requirements are to pour ready-made mixtures from one bottle to another or count out ready-made pills for the doctor's prescription. The practice of scientific pharmacy, as the physician would have it and the pharmacist would like to see it is to-day a delusion and a snare, yielding no profit and no satisfaction. The realisation of this fact is both disappointing and humiliating. Let us see if this is not the case. We are asked to throw out patent medicines—well and good. The dry goods store or grocer's shop can sell them just as well. Wines and liquors must go.

The liquor specialist and grocer will be delighted. Druggists' sundries and fancy goods of all kinds are sold in the dry goods stores. Heavy drugs are sold just as well by the grocer as the pharmacist. Now what have we left for the pharmacy? Some few drugs and chemicals are still used and a lot of proprietary articles for the filling of physicians' prescriptions. Now let me ask you how much of a support will such a pharmacy yield? Surely not enough for the average man of to-day. When a profession ceases to give support to its votaries some change must come. It is true the pharmacies of to-day live by being variety stores, a combination of trade and profession. But the student and graduate will ask himself—Was it necessary to spend six to ten years of my life to graduate in pharmacy and its kindred branches for the purpose of selling patent medicines and fancy goods and pouring ready-made prescriptions from one bottle to another? It occurs to me the answer is also ready made. In conclusion, let us try to reach the remedy that will for all time lay at rest the great evil that exists in the profession of pharmacy as carried on to-day and the so-called incompatibilities between physician and pharmacist. My recommendation to a man who intends to perfect himself to take the degree of doctor of pharmacy would be: Go a step further and win the degree of doctor of medicine as well. It is only a short step, and why not combine them? Become the general practitioner, the profession that is being vacated for your acceptance. Physicians to-day are graduating in special branches as fast as possible, seemingly to accommodate us. We also have our specialists, chemists and botanists, men who by nature and education make a life study of their favourite branches. These are mostly employed in the large chemical and pharmaceutical laboratories where experimentation and research are constantly carried on. Now is the field opening for the doctor of pharmacy and medicine—a man who will undertake to relieve suffering, and when he finds the patient stubborn about getting well will considerately recommend him to a specialist or a trip to Europe, where he can quietly pass away without bothering the general practitioner. This will settle the vexed questions of to-day. Let the pharmacy evolve into the physician's laboratory. The apothecary and his shop have disappeared, the trade has given way to the profession. The pharmacy and pharmaceutical graduate is with us. The doctor of pharmacy and medicine will soon be knocking at our door. We should bid him welcome and God speed.

THE *MANCHESTER GUARDIAN* ON POISONS.

The other day two persons were accidentally poisoned in Birmingham by a terrible blunder on the part of a wholesale druggist's assistant. They had each asked at a chemist's shop for a dose of phenacetine, a new specific for headache, and had each received instead a dose of strychnine. The explanation offered for this mistake—which, of course, resulted in the death of the two unfortunate persons who were its victims—was that the wholesale dealer's assistant in supplying the two articles had placed them in the wrong bottles. It is suggested that possibly the young man—who had served his apprenticeship, though he was not qualified—thought the drugs were to be mixed; but this is absurd. Of course he was censured for negligence, but a considerate jury added that this negligence was not of a criminal kind. We draw attention to this case because, the Pharmacy Acts being absurdly inadequate, it

shows how simple a matter it is with a little carelessness to kill off, it may be, half a parish, with the best intentions in the world. Scores of instances might be given of cases of poisoning which could never have occurred with the exercise of even ordinary care in the handling of dangerous drugs on the part, it may be, of a chemist's assistant, or of an hospital dispenser, or of a nurse, or of the patients. The Registrar General's returns show the exact number of disasters of this kind which occur in the course of every year. In 1893 the deaths brought about by the accidental swallowing of poisons and the accidental inhalation of poisonous fumes were 587, of which over 500 belonged to the first category. This total is greatly in excess of the number of suicides. In 1892, out of 820 cases of fatal poisoning, as many as 514 were accidental, and of these again, as many as 104, or 20·2 per cent. were caused by opium or opium preparations. In 1893 the deaths attributable to this one source numbered 93—49 among males and 44 among females. The deaths from chloroform, on the basis of the total for the last three years, average 51 per annum, those from carbolic acid about 24, and those from arsenic about 15. It is one of the inconsistencies of the Pharmacy Acts that carbolic acid is not a scheduled poison, although carbolic acid takes the third place among dangerous poisons. But, looking at the scheduled articles alone, we find that they are responsible for fully 33 per cent. of the annual number of deaths by misadventure. It is obvious that there must be something wanting in a law under which such a state of things is possible.

Let us take a few recent instances of accidental poisoning. Two different chemists put strychnine into packets of Epsom salts. A doctor passed on to a patient a bottle of acetate of morphine instead of medicine. A nurse in a workhouse hospital gave an old woman a dose of atropine in place of whisky. Another nurse gave some carbolic acid in place of olive oil. A third gave some oxide of arsenic instead of magnesia. An hospital dispenser—unqualified—gave a sick hospital servant a draught of carbolic acid in mistake for an aperient. A chemist's assistant dropped some strychnine—accidentally as usual—into a child's teething powders, and another assistant mistook oil of vitriol for an infant's cordial, and caused the infant's death. A man drank diluted sulphuric acid in mistake for castor oil. Another mistook corrosive sublimate for cider. A thirsty policeman drank carbolic acid instead of beer, and about twenty other people—some drunk, some undoubtedly sober—came in this way to an untimely end within the space of eighteen months. Similarly a score or two of people drank their carbolic lotion instead of their medicine. It was usually done in the dark, and neither they nor their attendants seem to have thought it necessary to have a light. One boy drank weed-killer thinking it was liquorice juice, and another took it from the tap at the tail of a cart, thinking it was water. A Crosthwaite man mistook foot-rot liquid (largely compounded of nitric acid) for Seigel's syrup. A Manchester man swallowed vitriol for cough balsam. A Newport woman took oxalic acid and thought it baking powder. Another woman took chloral hydrate in mistake for Epsom salts. Six different persons in six different places swallowed liniment containing aconite and belladonna in mistake for medicine for internal application. We might continue this lugubrious chronicle, but we have perhaps said enough. A perusal of the evidence shows that in every single case quoted death occurred through the most egregious and criminal carelessness. When the man makes the experiment on his own body, that ends the matter, for he does not live to be censured, and his negligence is visited upon himself. But when someone left alive is responsible for another man's death, it seems to us perfectly idle—because it is not in the least calculated to lead to greater care for the future on the part of that someone or on the part of anyone else in the same line of business—for the law, as embodied in a jury, to shrug its shoulders and say it was all an accident, very regrettable of course, but still an accident. It seems to us there is only a very thin line of distinction between this kind of thing and manslaughter. Criminal intent is absent in both cases, and for the rest there is only the difference in method—the difference, at the most, between the butcher's knife and the surgical instrument. A British jury does not like to send a careless dispenser for trial, "because it was such a pure accident, you know"; but if it had got over its sentimentality many years ago and made an example of a few of the more gross offenders, we should not have occasion to deplore the tremendous number of these pure accidents nowadays.

Many devices have been suggested for the easy distinguishing of poisons from medicines and other liquids in bottles. The most familiar is the fluted bottle. The objection to this is that people would not confine the bottles to poisons solely. Another proposal is for a striking red label with a death's head and cross-bones. But these warnings are not distinguishable in the dark any more than the present red label. A third is that a tiny bell should be loosely attached to the cork of the bottle to be distinguished. But how many people would go to the trouble of attaching the bell or would not forget to do so? The bottle with a slanting neck and in the form of an infant's feeding-bottle, so that it would not stand upright, is not a bad idea; but how are you going to persuade people to put nothing but poisons in the bottle? That other suggestion for a bottle of blue glass and in the form of a skull with cross-bones underneath and the words "Poison" in raised letters on the forehead is not likely to appeal to many folks because of the ugly associations, though we agree with the retort that no association can be uglier than the accident to be provided against. The suggestion for a cork cut horizontally and threaded vertically with a piece of string is not easy to manipulate, and the ideal contrivance must be one that will not give trouble. But what is wanted more than all is what the Pharmaceutical Society and all sensible people not connected with the trade have asked for many years—that is, an amendment of the law regarding the sale of poisons, so that greater difficulties shall be experienced in their acquisition. Restrictions should be placed on the sale of carbolic acid, for this is one of the poisons that people toy with most. Arsenic cannot be readily obtained, but there are dozens of vermicides and other preparations of which arsenic forms the base. The men who use weed-killers and the like are the men who know that they contain large proportions of a deadly poison, even though they should not happen to know that poison's name. These are the men, too, who leave cans of the liquid in every odd corner for fools to swallow when they would have beer or water or liquorice juice, or anything else that is drinkable. As for laudanum, it would not be difficult to purchase a quart in small quantities with no greater trouble than that of calling at sundry chemists' shops. You cannot by any means with which we happen to be acquainted make a drunken man discriminate either by the aid of fluted bottles or death's heads and cross-bones; but if you were to prevent him in his sober moments from acquiring his poisons so readily you would be doing not only the country, but the man himself some service. Sober people would quickly fall into the habit of using fluted bottles if they were made compulsory for the holding of poisons, and so we really see no need to wait for the ideal device to come along before we prevent our nurses from poisoning their patients by mistake. It is essential, moreover, to limit the vending and dispensing of poisons to qualified men. Above all, let whatever is to be done for the amendment of the Pharmacy Acts be done quickly, so that the annual holocaust to the poison god may be at least diminished.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

The annual meeting at Ipswich, which has just terminated, has been in every respect successful, the various sections having been well attended, whilst the weather has been favourable for the many social gatherings arranged for the members and their friends.

In the Chemical Section, Professor Raphael Meldola, F.R.S., inaugurated the proceedings by a comprehensive sketch of the progress of chemical science from the year 1851, when the Association last met at Ipswich, down to the present day. He commenced by emphasising the fact that in that year the so-called "New Chemistry" was in course of evolution, in fact it was but a few years after (1858) that the researches of Cannizaro in regard to the relation between specific heat and atomic weight confirmed the importance which the previous discoveries of Dulong, Petit, and Regnault had assigned to this branch of chemical theory. Thermochemistry, of which the foundations had been laid by Favre, Silbermann, Hess, and others, was elaborated by Thomsen's work, which commenced in 1853, and was subsequently carried on concurrently by Berthelot. In addition, it was in 1851 that Williamson put forward his now well-known theory of atomic interchange between molecules, which was afterwards developed independently and applied to electrolytes by Clausius, and eventually led up to the modern theory of electrolysis as expounded by Arrhenius, Van t'Hoff, Hittorf, and Ostwald. Another theory closely connected with electrolysis is the constitution of solutions, and it should be noted that in 1851 chemists had no idea of the important bearing it was to have on chemistry, for although Blagden had, more than half a century before, indicated some of its possibilities, it was left for Rüdorff, de Coppet and Raoult to elaborate. It is interesting to note that at the last Ipswich meeting Graham read a communication on liquid diffusion. Spectrum analysis, which was then but in its infancy, was first brought into prominence in 1859 by Bunsen and Kirchhoff, whilst one of the most important developments of modern chemistry was brought into activity by Perkin's discovery of mauve in 1856. If it be further mentioned that in 1851 Dumas considerably developed his triad system of grouping of the elements, whilst six years later Pasteur inaugurated the study of bacteriology, it will be seen how many and important are the developments of chemical science in the last half century. Professor Meldola went on to describe the development of chemistry along two lines subsequent to 1851. In the one the science is treated from the physicist's point of view, in the other the valency doctrine and its extension to the structure of chemical molecules has led to new discoveries, while the tendency to specialisation is becoming more marked every year, owing to the large number of workers and multiplication of results. A familiar instance of this is, of course, the discovery of argon. In 1852 Frankland initiated the idea of structural chemistry based on the doctrine of the valency of the atoms, but it was left for Kekulé and Couper six years later to recognise the quadrivalent character of the carbon atom, and hence to lay the foundation of present-day constitutional chemistry.

Proceeding, the Professor ably summarised the present position of structural chemistry, and in the course of his remarks pointed out that although its present advanced state may be regarded as the outcome of Frankland's and Kekulé's work, yet it should be borne in mind that structural ideas are not necessarily bound up with the hypothesis of valency, in fact they are to a great extent independent of one another. That this is the case is shown by the fact that Kolbé, previous to Frankland's and Kekulé's researches, had made some advances in the representation of "constitution." In fact their valency theory fails in what is the fundamental requirement, seeing that, although it hints at possibilities of atomic grouping, it does not tell us which of these groupings are likely to be stable. The Professor inclines to the belief that the next advance in the required direction will be by the aid of the stereo-chemical extension of the hypothesis seeing that v. Baeyer had already applied it with success in experiments on the explosiveness of some polyacetylene compounds. The present state of structural chemistry can be summed up by saying that although we have now gained an enormous insight into the anatomy of molecules, yet our knowledge of their physiology is but fragmentary. Passing on from the theory of abstract types to speak of the progress of synthetic chemistry, interesting reference was made to the synthesis of alcohol, by Henry Hennell of Apothecaries' Hall, in 1826. That was accomplished before Wöhler synthesised urea, although the latter has always been regarded as the first instance of the synthesis of an organic compound. Granting that Hennell's synthesis was not complete seeing that he did not start with inorganic materials, it was nevertheless a synthesis to the same extent that Wöhler's achievement was, and from the year 1826 may be dated the rise of synthetic chemistry, which has now got to such a stage that the discovery of a new compound is of almost everyday occurrence. Professor Meldola stated that he had compiled a list of 180 synthetical compounds, the latest additions to which comprise gentisin (the colouring matter of *Gentiana lutea*), prepared by Kostanecki and Tambor, and caffeine, which Fisher and Ach, starting from dimethylurea and malonic acid, have succeeded in producing; he then devoted some attention to a discussion as to how far the term "synthesis" was applicable to chemical compounds. His contention is that since a large number of the natural products which have been prepared artificially are not naturally built up in plants or animals by the process by which we usually understand the term synthesis, it will be quite correct to extend the meaning of the word to such operations as the formation of oxalic acid by fusing citric or tartaric acid with potash. It is indeed essential that this view should be taken of the position of chemical synthesis if the chemist and physiologist are to unearth the secrets of vital chemistry with any marked degree of success. It must be confessed that our notions on this subject are as yet but elementary, and little is known, which will account for the fact that nature can produce complicated molecules without the use of strong reagents and at ordinary temperatures, and which will show us what bearing laboratory experiments have on the mechanism of vitality. Professor Meldola laid considerable stress on the importance of this extension of the term synthesis. "What evidence," said he, "have we that any one of the 180 compounds that have been prepared artificially are produced in the organism by building up? Is not the opposite view quite as possible?" And proceeding, he emphasised the view that all chemical transformations in the organism are made possible only by the antecedent combination of the substances concerned with living protoplasmic materials, and hence that looking at the matter from this point of view there is no such thing as the direct combination of dead molecules to build up a complex substance. A point in favour of this theory of vitalisation of dead matter is that its assumption renders the appearance of starch as the first visible product of assimilation, or the formation of a 12-carbon-atom sugar as the first carbohydrate, no longer a matter for wonder. The supposition that chemical synthesis in the organism is the result of the combination of complex molecules with simpler molecules, and that the unstable products thus formed then undergo decomposition with the formation of new products, may be termed the protoplasmic theory of vital synthesis. The recent work of Pasteur, Fischer, Stohmann, and Van t'Hoff

renders it highly probable that it is in this direction we must look, aided probably by the stereo-chemical hypothesis previously mentioned, for the solution of the mystery at present surrounding the chemistry of the living organism. It was only to be expected that Professor Meldola would refer to the recent discoveries of gaseous elements. Argon naturally "claimed his attention first, and its discovery was summed up as one which will go down to posterity amongst the greatest achievements of an age renowned for its scientific activity." Incidentally it was mentioned that Peratoner and Oddo have recently shown that the anhydride $N_3 N_3$ is incapable of existence, and that the discoverers' contention that the molecule of argon is monatomic must be accepted. Helium then claimed attention, its discovery by means of the spectroscope by Lockyer and Frankland in 1868 being first noticed, whilst afterwards Ramsay's confirmation of this whilst examining uranium and other minerals for combined argon was mentioned.

The President concluded his address by a brief summary of the work which has so far been carried out on helium and argon which must be regarded as representatives of a new group of monatomic and chemically inert elements, and suggested that a method of diffusion should be employed in order to determine whether these two gases are mixtures or not.

One of the most noteworthy features of this meeting of the British Association is the establishment of the Botanical Section. Hitherto botany has been affiliated with the Zoological Section, and this fact constituted the key-note of the address delivered by Mr. W. T. Thiselton-Dyer, in his capacity as President of the new Section. He commenced by briefly reviewing the gradual development of botany as an exact science from the year 1833, when the first description of "the nucleus of the cell," by Robert Brown, was published by the Linnæan Society, and proceeded to give an interesting account of the life-work of Henslow, whom Darwin has described as his "dear old master in natural science." Henslow was secretary of the Biological Section in 1832, and four years later filled the office of president, and it was through him that Darwin was led to take up the work which culminated in the grand achievement of his life. Henslow's work proves him to have been far before his time in his botanical knowledge, in fact he was one of the first to see that two forms of fruit might exist in the fungus, and this in itself constituted a remarkable advance in the branch of morphology. Nor was his pre-eminence limited to botany, for previous to occupying this chair he had held for some years that of mineralogy. At the early age of 26 he published a paper on the latter subject dealing with the Isle of Anglesey and to a certain extent anticipating Sedgwick's work in the same region. His methods of study and teaching deserve notice, since he was the first to introduce into the degree examinations in London the system of practical work with which he had previously familiarised his students. It should also be noted that he did not look upon instruction in botany necessary simply because a student wished to become a botanist, but on account of the mental discipline which it occasioned, and it was greatly owing to the success that attended his system that the Government were led to take up the teaching of botany in schools. It is to be regretted that the spirit which actuated Henslow no longer exists, since a teacher has to keep steadily before his eyes the necessity of earning his grant, and the educational problem retreats into the background. Still Mr. Dyer was able to state that there is now some revival of Henslow's methods, judging from the fact that he receives hundreds of applications from board schools for surplus specimens from the Kew museums.

Proceeding, he compared the methods of the old school with the new school of botany. Of the first, Darwin and Brown must be looked upon as the foremost members, and it is interesting to note that the latter did all his work with a simple microscope, and even advised Darwin to do the same when he went on his voyage in the "Beagle." To a certain extent Brown may be regarded as the founder of the new school of botany, but the real founder of modern teaching in this country of both branches of biology was undoubtedly Carpenter: following him Rolleston, and Huxley elaborated courses of instruction in zoology and biology which have since been adopted throughout the country. Mr. Dyer devoted some attention to pointing out the serious effects of the new school of botany superseding the old natural history studies. Thus, the men who in the last generation won most distinction in this field of practical research were medical men, but now, owing to the exigencies of examinations, students are no longer able to devote time to it, and this is the more to be regretted seeing that many men in the army medical service have exceptional opportunities for gaining fresh information concerning the flora of remote parts of the world. It is to be feared that Darwin would have been considerably disappointed if he could have seen how little the "young and rising" naturalist, from whom he expected so much, has fulfilled his hopes, seeing that the laboratory trained writers on the Darwinian theory do not appear to be suited for the class of observations necessary for the purpose. Following this the present position of nomenclature was ably summed up, and in the course of his remarks Mr. Dyer laid stress upon the tendency which is nowadays apparent for reforming generic names which have been familiar since the time of Linnæus. This he thinks is unfortunate in every way, as it perplexes the student and lumbers text-books with a useless mass of synonyms, while no advantage is gained except that of affording opportunity to faddists and would-be reformers to air their pet hobbies. An instance was given of what nomenclature is likely to come to, which is remarkable. A single species of *Frimbris tylis* has 135 published names under six genera! After briefly alluding to botanical publications and palæo-botany, vegetable physiology received notice, and here Mr. Dyer alluded to the fact that the importance which he had assigned to the action of enzymes in plant metabolism has been realised by the admirable work of Professor Green and Mr. Horace Brown during the past year. In addition, Blackman's demonstration of the fact that the surface of plants is ordinarily impermeable to gases, and Dixon's theories as to water movements in plants, were mentioned. In speaking of assimilation, it was noted that starch, even if its first visible production is not its first result, may now generally be regarded as a "proto-carbohydrate," and some allusion was made to the manner in which syntheses are effected, which was also spoken of by Professor Meldola. Chlorophyll is at present engaging the attention of Dr. Schunck at Kew, but the steps in plant metabolism which follow the formation of starch are yet obscure, although Brown and Morris have definitely shown that the result of the diastatic transformation of starch is certainly maltose, and it seems that glucose is a somewhat inert nutritive body. In conclusion, speaking of proto-plasmic chemistry, the importance of the synthesis of proteids was referred to, and the theories of Loew, Victor Meyer, and Meldola were briefly mentioned.

RAPID ASSAY OF CaO IN QUICKLIME.—Stone and Schenck treat one gramme of the finely powdered sample with 150 C.c. of a 10 per cent. solution of saccharose. In this the calcium oxide dissolves while the carbonate of calcium and magnesium and iron salts are insoluble. The solution is then titrated with standard hydrochloric acid (*Pub. Health*, vii., 340).

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THE MISUSE OF MEDICINES.

IT cannot be denied that the injudicious use of medicinal agents by persons unacquainted with their properties and possible effects is sometimes productive of mischievous results, and that the practice of amateur self-medication is in general to be condemned, since the administration of drugs for the treatment of disease presupposes possession of special medical knowledge and experience. There are, however, many circumstances which contribute to bring about practical disregard of this general principle, and to promote amateur use of medicines, not only for the relief of trifling ailments, but also for counteracting more important forms of disease. The diffusion of knowledge respecting diseased conditions of the body and the action of particular drugs in relieving them, the notoriety of new remedies, the public recommendation of specific cures, and the statements circulated as to beneficial results produced without the aid of skilled medical advice, cannot fail to induce a mistaken and undesirable belief that such skilled advice can be dispensed with. It is true the consequences of acting upon that belief are not invariably detrimental: indeed the fact that they may sometimes appear to be satisfactory is a strong encouragement to continuance of the practice. But on the other hand serious mischief is not unfrequently caused by the misuse of medicinal agents. Since the introduction of synthetic remedies, such as antipyrin, phenacetin and antifebrin, much harm has been done by their indiscriminate administration for the relief of headache and other nervous conditions. A very striking instance of the danger attending such a proceeding has been brought under the notice of Professor EULENBERG, and he has directed attention to the circumstances of the case in a recent number of the German *medicinischer Wochenschrift*

Among the effects produced by the administration of preparations of thyroid gland which have lately come into use in the treatment of myxœdema, one of the most striking is the rapid removal of fat, which has been observed by LEICHTENSTERN, and it appears that in Germany these preparations have been extensively used as a means of getting rid of undue corpulence. It is the use of a thyroid gland preparation for that purpose by a well-known actress which has caused the mischief referred to by Professor EULENBERG. After taking considerable doses daily for a month, a reduction of weight amounting to seventeen pounds resulted, and at the same time very serious symptoms of heart affection and nervous derangement were developed. The fact that the extract of thyroid gland acts as a heart poison had already been pointed out by BEUCLÈRE and others as a circumstance which must be considered in its application, which has already been attended with fatal results in the Paris hospitals. Professor EULENBERG therefore suggests that thyroid gland preparations should be classed among poisons, and their sale subjected to corresponding restriction. He even goes so far as to extend this view to all medicinal preparations, and especially new remedies. He proposes that they should in all instances be treated as poisons, unless there be special permission for their supply without the order of a medical man. In support of this proposition, he refers to the growing production of medicines on a large manufacturing scale, and contends that it is the business of the makers to prove that their preparations are harmless, as a preliminary to their retail sale being allowed. The *Apotheker Zeitung* simply reports this expression of opinion, but the *Pharmaceutische Zeitung* opposes it as involving too great restriction of the pharmacist's business.

THE BOTANICAL SECTION OF THE BRITISH ASSOCIATION.

THE establishment of a separate section for botany at the meetings of the British Association will be welcomed by all botanists. Mr. W. T. THISELTON DYER, in his address as president of the new section, lamented the dying out of the natural history spirit, which under the late Professor HENSLOW produced such a man as DARWIN. He remarked "that while the modern university student of botany put his elders to the blush by his minute knowledge of some small points in vegetable histology, he could tell them little of the contents of a country hedgerow, and if they put an unfamiliar plant into his hands he was pretty much at a loss how to set about recognising its affinities." This is a candid and generous admission on the part of one who has so largely contributed to introduce the laboratory spirit into botanical science. Although the tendency to develop laboratory work has led to a valuable increase of knowledge, its promoters probably did not foresee the consequences that would result from the prominence given to histological and biological questions in examination papers, and from the official appointment of botanists distinguished rather for their laboratory researches than for their natural history knowledge. The result has been that the class of botanists who study the affinities of plants, their habits and modes of life, have so far died out that, until a new generation of "systematic" botanists has grown up, it may be difficult to adequately fill the posts where such a knowledge is requisite. If it be possible to augur anything from the address of a botanist holding the highest position in the kingdom, it implies that in the future more prominence will be given to a knowledge of the classification of plants and of their natural history, as applied to agriculture, horticulture, and forestry, including the diseases and enemies of plants. Laboratory practice will form a useful auxiliary to a knowledge of these branches, but, as Mr. DYER candidly admits, it cannot replace them.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

PRESIDENTIAL ADDRESS.*

(*Continued from p.* 234.)

Animal Physiology.

In 1831 Cuvier, who during the previous generation had, by the collation of facts followed by careful inductive reasoning, established the plan on which each animal is constructed, was approaching the termination of his long and useful life. He died in 1832; but in 1831 Richard Owen was just commencing his anatomical investigations and his brilliant contributions to palæontology.

The impulse which their labours gave to biological science was reflected in numerous reports and communications, by Owen and others, throughout the early decades of the British Association, until Darwin propounded a theory of evolution which commanded the general assent of the scientific world. For this theory was not absolutely new. But just as Cuvier had shown that each bone in the fabric of an animal affords a clue to the shape and structure of the animal, so Darwin brought harmony into scattered facts, and led us to perceive that the moulding hand of the Creator may have evolved the complicated structures of the organic world from one or more primeval cells.

Richard Owen did not accept Darwin's theory of evolution, and a large section of the public contested it. I well remember the storm it produced—a storm of praise by my geological colleagues, who accepted the result of investigated facts; a storm of indignation such as that which would have burned Galileo at the stake from those who were not yet prepared to question the old authorities; but they diminish daily.

We are, however, as yet only on the threshold of the doctrine of evolution. Does not each fresh investigation, even into the embryonic stage of the simpler forms of life, suggest fresh problems?

Anthropology.

The impulse given by Darwin has been fruitful in leading others to consider whether the same principle of evolution may not have governed the moral as well as the material progress of the human race. Mr. Kidd tells us that nature as interpreted by the struggle for life contains no sanction for the moral progress of the individual, and points out that if each of us were allowed by the conditions of life to follow his own inclination the average of each generation would distinctly deteriorate from that of the preceding one; but because the law of life is ceaseless and inevitable struggle and competition, ceaseless and inevitable selection and rejection, the result is necessarily ceaseless and inevitable progress. Evolution, as Sir William Flower said, is the message which biology has sent to help us on with some of the problems of human life, and Francis Galton urges that man, the foremost outcome of the awful mystery of evolution, should realise that he has the power of shaping the course of future humanity by using his intelligence to discover and expedite the changes which are necessary to adapt circumstances to man, and man to circumstances.

In considering the evolution of the human race, the science of preventive medicine may afford us some indication of the direction in which to seek for social improvement. One of the early steps towards establishing that science upon a secure basis was taken in 1835 by the British Association, who urged upon the Government the necessity of establishing registers of mortality showing the causes of death "on one uniform plan in all parts of the King's dominions, as the only means by which general laws touching the influence of causes of disease and death could be satisfactorily deduced." The general registration of births and deaths was commenced in 1838. But a mere record of death and its proximate cause is insufficient. Preventive medicine requires a knowledge of the details of the previous conditions of life and of occupation. Moreover, death is not our only or most dangerous enemy, and the main object of preventive medicine is to ward off disease. Disease of body lowers our useful energy. Disease of body or of mind may stamp its curse on succeeding generations.

The anthropometric laboratory affords to the student of anthropology a means of analysing the causes of weakness, not only in bodily, but also in mental life.

Mental actions are indicated by movements and their results. Such signs are capable of record, and modern physiology has shown that bodily movements correspond to action in nerve-centres, as surely as the motions of the telegraph-indicator express the movements of the operator's hands in the distant office.

Thus there is a relation between a defective status in brain power and defects in the proportioning of the body. Defects in physiognomical details, too finely graded to be measured with instruments, may be appreciated with accuracy by the senses of the observer; and the records show that these defects are, in a large degree, associated with a brain status lower than the average in mental power.

A report presented by one of your committees gives the results of observations made on 100,000 school children examined individually in order to determine their mental and physical condition for the purpose of classification. This shows that about 16 per 1000 of the elementary school population appear to be so far defective in their bodily or brain condition as to need special training to enable them to undertake the duties of life, and to keep them from pauperism or crime.

Many of our feeble-minded children, and much disease and vice, are the outcome of inherited proclivities. Francis Galton has shown us that types of criminals which have been bred true to their kind are one of the saddest disfigurements of modern civilisation; and he says that few deserve better of their country than those who determine to lead celibate lives through a reasonable conviction that their issue would probably be less fitted than the generality to play their part as citizens.

These considerations point to the importance of preventing those suffering from transmissible disease, or the criminal, or the lunatic, from adding fresh sufferers to the teeming misery of our large towns. And in any case, knowing as we do the influence of environment on the development of individuals, they point to the necessity of removing those who are born with feeble minds, or under conditions of moral danger, from surrounding deteriorating influences.

These are problems which materially affect the progress of the human race, and we feel sure that, as we gradually approach their solution, we shall more certainly realise that the theory of evolution, which the genius of Darwin impressed on this century, is but the first step on a biological ladder which may possibly eventually lead us to understand how in the drama of creation man has been evolved as the highest work of the Creator.

Bacteriology.

The sciences of medicine and surgery were largely represented in the earlier meetings of the Association, before the creation of the British Medical Association afforded a field for their more intimate discussion. The close connection between the different branches of science is causing a revival in our proceedings of discussions on some of the highest medical problems, especially those relating to the spread of infectious and epidemic disease.

It is interesting to contrast the opinion prevalent at the foundation of the Association with the present position of the question.

A report to the Association in 1834, by Professor Henry, on contagion, says:—

> "The notion that contagious emanations are at all connected with the diffusion of animalculæ through the atmosphere is at variance with all that is known of the diffusion of volatile contagion."

Whilst it had long been known that filthy conditions of air, earth, and water fostered fever, cholera, and many other forms of disease, and that the disease ceased to spread on the removal of these conditions, yet the reason for their propagation or diminution remained under a veil.

Leeuwenhoek in 1680 described the yeast-cells, but Schwann in 1837 first showed clearly that fermentation was due to the activity of the yeast-cells; and, although vague ideas of fermentation had been current during the past century, he laid the foundation of our exact knowledge of the nature of the action of ferments, both organised and unorganised. It was not until 1860, after the prize of the Academy of Sciences had been awarded to Pasteur for his essay against the theory of spontaneous generation, that his investigations into the action of ferments* enabled him to show that the effects of the yeast-cell are indissolubly bound up with the activities of the cell as a living organism, and that certain diseases, at least,

* Delivered at the Ipswich meeting.

* In speaking of ferments one must bear in mind that there are two classes of ferments: one, living beings, such as yeast—"organised" ferments, as they are sometimes called—the other the products of living beings themselves, such as pepsin, etc.—"unorganised" ferments. Pasteur worked with the former, very little with the latter.

are due to the action of ferments in the living being. In 1865 he showed that the disease of silkworms, which was then undermining the silk industry in France, could be successfully combated. His further researches into anthrax, fowl cholera, swine fever, rabies, and other diseases proved the theory that those diseases are connected in some way with the introduction of a microbe into the body of an animal; that the virulence of the poison can be diminished by cultivating the microbes in an appropriate manner; and that when the virulence has been thus diminished their inoculation will afford a protection against the disease.

Meanwhile it had often been observed in hospital practice that a patient with a simple-fractured limb was easily cured, whilst a patient with a compound fracture often died from the wound. Lister was thence led, in 1865, to adopt his antiseptic treatment, by which the wound is protected from hostile microbes.

These investigations, followed by the discovery of the existence of a multitude of micro-organisms and the recognition of some of them—such as the bacillus of tubercle and the comma bacillus of cholera—as essential factors of disease; and by the elaboration by Koch and others of methods by which the several organisms might be isolated, cultivated, and their histories studied, have gradually built up the science of bacteriology. Amongst later developments are the discovery of various so-called antitoxins, such as those of diphtheria and tetanus, and the utilisation of these for the cure of disease. Lister's treatment formed a landmark in the science of surgery, and enabled our surgeons to perform operations never before dreamed of; whilst later discoveries are tending to place the practice of medicine on a firm scientific basis. And the science of bacteriology is leading us to recur to stringent rules for the isolation of infectious disease, and to the disinfection (by superheated steam) of materials which have been in contact with the sufferer.

These microbes, whether friendly or hostile, are all capable of multiplying at an enormous rate under favourable conditions. They are found in the air, in water, in the soil; but, fortunately, the presence of one species appears to be detrimental to other species, and sunshine, or even light from the sky, is prejudicial to most of them. Our bodies, when in health, appear to be furnished with special means of resisting attacks, and, so far as regards their influence in causing disease, the success of the attack of a pathogenic organism upon an individual depends, as a rule, in part at least, upon the power of resistance of the individual.

But notwithstanding our knowledge of the danger arising from a state of low health in individuals, and of the universal prevalence of these micro-organisms, how careless we are in guarding the health conditions of everyday life! We have ascertained that pathogenic organisms pervade the air. Why, therefore, do we allow our meat, our fish, our vegetables, our easily contaminated milk, to be exposed to their inroads, often in the foulest localities? We have ascertained that they pervade the water we drink, yet we allow foul water from our dwellings, our pigsties, our farmyards, to pass into ditches without previous clarification, whence it flows into our streams and pollutes our rivers. We know the conditions of occupation which foster ill-health. Why, whilst we remove outside sources of impure air, do we permit the occupation of foul and unhealthy dwellings?

The study of bacteriology has shown us that although some of these organisms may be the accompaniments of disease, yet we owe it to the operation of others that the refuse caused by the cessation of animal and vegetable life is reconverted into food for fresh generations of plants and animals.

These considerations have formed a point of meeting where the biologist, the chemist, the physicist, and the statistician unite with the sanitary engineer in the application of the science of preventive medicine.

Engineering.

The early reports to the Association show that the laws of hydrostatics, hydrodynamics, and hydraulics necessary to the supply and removal of water through pipes and conduits had long been investigated by the mathematician. But the modern sanitary engineer has been driven by the needs of an increasing population to call in the chemist and the biologist to help him to provide pure water and pure air.

The purification and the utilisation of sewage occupied the attention of the British Association as early as 1864, and between 1869 and 1876 a committee of the Association made a series of valuable reports on the subject. The direct application of sewage to land, though effective as a means of purification, entailed difficulties in thickly settled districts, owing to the extent of land required.

The chemical treatment of sewage produced an effluent harmless only after having been passed over land, or if turned into a large and rapid stream, or into a tidal estuary; and it left behind a large amount of sludge to be dealt with.

Hence it was long contended that the simplest plan in favourable localities was to turn the sewage into the sea, and that the consequent loss to the land of the manurial value in the sewage would be recouped by the increase in fish-life.

It was not till the chemist called to his aid the biologist, and came to the help of the engineer, that a scientific system of sewage purification was evolved.

Dr. Frankland many years ago suggested the intermittent filtration of sewage; and Mr. Baldwin Latham was one of the first engineers to adopt it. But the valuable experiments made in recent years by the State Board of Health in Massachusetts have more clearly explained to us how by this system we may utilise micro-organisms to convert organic impurity in sewage into food fitted for higher forms of life.

To effect this we require, in the first place, a filter about five feet thick of sand and gravel, or, indeed, of any material which affords numerous surfaces or open pores. Secondly, that after a volume of sewage has passed through the filter, an interval of time be allowed, in which the air necessary to support the life of the micro-organisms is enabled to enter the pores of the filter. Thus this system is dependent upon oxygen and time. Under such conditions the organisms necessary for purification are sure to establish themselves in the filter before it has been long in use. Temperature is a secondary consideration.

Imperfect purification can invariably be traced either to a lack of oxygen in the pores of the filter, or to the sewage passing through so quickly that there is not sufficient time for the necessary processes to take place. And the power of any material to purify either sewage or water depends almost entirely upon its ability to hold a sufficient proportion of either sewage or water in contact with a proper amount of air.

Smoke Abatement.

Whilst the sanitary engineer has done much to improve the surface conditions of our towns, to furnish clean water, and to remove our sewage, he has as yet done little to purify town air. Fog is caused by the floating particles of matter in the air becoming weighted with aqueous vapour; some particles, such as salts of ammonia, or chloride of sodium, have a greater affinity for moisture than others. You will suffer from fog so long as you keep refuse stored in your towns to furnish ammonia, or so long as you allow your street surfaces to supply dust, of which much consists of powdered horse manure, or so long as you send the products of combustion into the atmosphere. Therefore, when you have adopted mechanical traction for your vehicles in towns you may largely reduce one cause of fog. And if you diminish your black smoke, you will diminish black fogs.

In manufactories you may prevent smoke either by care in firing, by using smokeless coal, or by washing the soot out of the products of consumption in its passage along the flue leading to the main chimney-shaft.

The black smoke from your kitchen may be avoided by the use of coke or of gas. But so long as we retain the hygienic arrangement of the open fire in our living-rooms I despair of finding a fireplace, however well constructed, which will not be used in such a manner as to cause smoke, unless, indeed, the chimneys were reversed and the fumes drawn into some central shaft, where they might be washed before being passed into the atmosphere.

Electricity as a warming and cooking agent would be convenient, cleanly, and economical when generated by water power, or possibly wind power, but it is at present too dear when it has to be generated by means of coal. I can conceive, however, that our descendants may learn so to utilise electricity that they in some future century may be enabled by its means to avoid the smoke in their towns.

Mechanical Engineering.

In other branches of civil and mechanical engineering the reports in 1831 and 1832 on the state of this science show that the theoretical and practical knowledge of the strength of timber had obtained considerable development. But in 1830, before the introduction of railways, cast iron had been sparingly used in arched bridges for spans of from 160 to 200 feet, and wrought iron had only been applied to large-span iron bridges on the suspension principle, the most notable instance of which was the Menai Suspension Bridge, by Telford. Indeed, whilst the strength of

timber had been patiently investigated by engineers, the best form for the use of iron girders and struts was only beginning to attract attention, and the earlier volumes of our Proceedings contained numerous records of the researches of Eaton Hodgkinson, Barlow, Rennie, and others. It was not until twenty years later that Robert Stephenson and William Fairbairn erected the tubular bridge at Menai, followed by the more scientific bridge erected by Brunel at Saltash. These have now been entirely eclipsed by the skill with which the estuary of the Forth has been bridged with a span of 1700 feet by Sir John Fowler and Sir Benjamin Baker.

The development of the iron industry is due to the association of the chemist with the engineer. The introduction of the hot blast by Neilson, in 1829, in the manufacture of cast iron had effected a large saving of fuel. But the chemical conditions which affect the strength and other qualities of iron, and its combinations with carbon, silicon, phosphorus, and other substances, had at that time scarcely been investigated.

In 1856 Bessemer brought before the British Association at Cheltenham his brilliant discovery for making steel direct from the blast furnace, by which he dispensed with the laborious process of first removing the carbon from pig-iron by puddling, and then adding by cementation the required proportion of carbon to make steel. This discovery, followed by Siemens's regenerative furnace, by Whitworth's compressed steel, and by the use of alloys and by other improvements too numerous to mention here, have revolutionised the conditions under which metals are applied to engineering purposes.

Indeed, few questions are of greater interest, or possess more industrial importance, than those connected with metallic alloys. This is especially true of those alloys which contain the rarer metals; and the extraordinary effects of small quantities of chromium, nickel, tungsten, and titanium on certain varieties of steel have exerted profound influence on the manufacture of projectiles and on the construction of our armoured ships.

Of late years investigations on the properties and structure of alloys have been numerous, and among the more noteworthy researches may be mentioned those of Dewar and Fleming on the distinctive behaviour, as regards the thermo-electric powers and electrical resistance, of metals and alloys at the very low temperatures which may be obtained by the use of liquid air.

Professor Roberts-Austen, on the other hand, has carefully studied the behaviour of alloys at very high temperatures, and by employing his delicate pyrometer has obtained photographic curves which afford additional evidence as to the existence of allotropic modifications of metals, and which have materially strengthened the view that alloys are closely analogous to saline solutions. In this connection it may be stated that the very accurate work of Heycock and Neville on the lowering of the solidifying points of molten metals, which is caused by the presence of other metals, affords a valuable contribution to our knowledge.

Professor Roberts-Austen has, moreover, shown that the effect of any one constituent of an alloy upon the properties of the principal metal has a direct relation to the atomic volumes, and that it is consequently possible to foretell, in a great measure, the effects of any given combination.

A new branch of investigation, which deals with the microstructure of metals and alloys, is rapidly assuming much importance. It was instituted by Sorby in a communication which he made to the British Association in 1864, and its development is due to the many patient workers, among whom M. Osmond occupies a prominent place.

Metallurgical science has brought aluminium into use by cheapening the process of its extraction; and if by means of the wasted forces in our rivers, or possibly of the wind, the extraction be still further cheapened by the aid of electricity, we may not only utilise the metal or its alloys in increasing the spans of our bridges, and in affording strength and lightness in the construction of our ships, but we may hope to obtain a material which may render practicable the dreams of Icarus and of Maxim, and for purposes of rapid transit enable us to navigate the air.

Long before 1831 the steam-engine had been largely used on rivers and lakes, and for short sea passages, although the first Atlantic steam-service was not established till 1838.

As early as 1820 the steam-engine had been applied by Gurney, Hancock, and others to road traction. The absurd impediments placed in their way by road trustees, which, indeed, are still enforced, checked any progress. But the question of mechanical traction on ordinary roads was practically shelved in 1830, at the time of the formation of the British Association, when the locomotive engine was combined with a tubular boiler and an iron road on the Liverpool and Manchester Railway.

Great, however, as was the advance made by the locomotive engine of Robert Stephenson, these earlier engines were only toys compared with the compound engines of to-day which are used for railways, for ships, or for the manufacture of electricity. Indeed, it may be said that the study of the laws of heat, which have led to the introduction of various forms of motive power, are gradually revolutionising all our habits of life.

The improvements in the production of iron, combined with the developed steam-engine, have completely altered the conditions of our commercial intercourse on land; whilst the changes caused by the effects of these improvements in shipbuilding, and on the ocean carrying trade, have been, if anything, still more marked.

At the foundation of the Association all ocean ships were built by hand, of wood, propelled by sails and manœuvred by manual labour; the material limited their length, which did not often exceed 100 feet, and the number of English ships of over 500 tons burden was comparatively small.

In the modern ships steam power takes the place of manual labour. It rolls the plates of which the ship is constructed, bends them to the required shape, cuts, drills, and rivets them in their place. It weighs the anchor; it propels the ship in spite of winds or currents; it steers, ventilates, and lights the ship when on the ocean. It takes the cargo on board and discharges it on arrival.

The use of iron favours the construction of ships of a large size, of forms which afford small resistance to the water, and with compartments which make the ships practically unsinkable in heavy seas, or by collision. Their size, the economy by which they are propelled, and the certainty of their arrival, cheapens the cost of transport.

The steam-engine, by compressing air, gives us control over the temperature of cool chambers. In these not only fresh meat, but the delicate produce of the Antipodes, is brought across the ocean to our doors without deterioration.

Whilst railways have done much to alter the social conditions of each individual nation, the application of iron and steam to our ships is revolutionising the international commercial conditions of the world; and it is gradually changing the course of our agriculture as well as of our domestic life.

But great as have been the developments of science in promoting the commerce of the world, science is asserting its supremacy even to a greater extent in every department of war. And perhaps this application of science affords at a glance, better than almost any other, a convenient illustration of the assistance which the chemical, physical, and electrical sciences are affording to the engineer.

The reception of warlike stores is not now left to the uncertain judgment of "practical men," but is confided to officers who have received a special training in chemical analysis, and in the application of physical and electrical science to the tests by which the qualities of explosives, of guns, and of projectiles can be ascertained.

For instance, take explosives. Till quite recently black and brown powders alone were used, the former as old as civilisation, the latter but a small modern improvement adapted to the increased size of guns. But now the whole family of nitro-explosives are rapidly superseding the old powder. These are the direct outcome of chemical knowledge; they are not mere chance inventions, for every improvement is based on chemical theories, and not on random experiment.

The construction of guns is no longer a haphazard operation. In spite of the enormous forces to be controlled and the sudden violence of their action, the researches of the mathematician have enabled the just proportions to be determined with accuracy; the labours of the physicist have revealed the internal conditions of the materials employed, and the best means of their favourable employment. Take, for example, Longridge's coiled-wire system, in which each successive layer of which the gun is formed receives the exact proportion of tension which enables all the layers to act in unison. The chemist has rendered it clear that even the smallest quantities of certain ingredients are of supreme importance in affecting the tenacity and trustworthiness of the materials.

The treatment of steel to adapt it to the vast range of duties it has to perform is thus the outcome of patient research. And the use of the metals—manganese, chromium, nickel, molybdenum—as alloys with iron has resulted in the production of steels possessing varied and extraordinary properties. The steel required to resist the conjugate stresses developed, lightning fashion, in a gun necessitates qualities that would not be suitable in the projectile which that

gun hurls with a velocity of some 2500 feet per second against the armoured side of a ship. The armour, again, has to combine extreme superficial hardness with great toughness, and during the last few years these qualities are sought to be obtained by the application of the cementation process for adding carbon to one face of the plate, and hardening that face alone by rapid refrigeration.

The introduction of quick-firing guns from ·303 (*i.e.* about one-third) of an inch to 6-inch calibre has rendered necessary the production of metal cartridge-cases of complex forms drawn cold out of solid blocks or plate of the material; this again has taxed the ingenuity of the mechanic in the device of machinery, and of the metallurgist in producing a metal possessed of the necessary ductility and toughness. The cases have to stand a pressure at the moment of firing of as much as twenty-five tons to the square inch—a pressure which exceeds the ordinary elastic limits of the steel of which the gun itself is composed.

There is nothing more wonderful in practical mechanics than the closing of the breech openings of guns, for not only must they be gas-tight at these tremendous pressures, but the mechanism must be such that one man by a single continuous movement shall be able to open or close the breech of the largest gun in some ten or fifteen seconds.

The perfect knowledge of the recoil of guns has enabled the reaction of the discharge to be utilised in compressing air or springs by which guns can be raised from concealed positions in order to deliver their fire, and then made to disappear again for loading; or the same force has been used to run up the guns automatically immediately after firing, or, as in the case of the Maxim gun, to deliver in the same way a continuous stream of bullets at the rate of ten in one second.

In the manufacture of shot and shell cast iron has been almost superseded by cast and wrought steel, though the hardened Palliser projectiles still hold their place. The forged-steel projectiles are produced by methods very similar to those used in the manufacture of metal cartridge-cases, though the process is carried on at a red heat and by machines much more powerful.

In every department concerned in the production of warlike stores electricity is playing a more and more impotant part. It has enabled the passage of a shot to be followed from its seat in the gun to its destination.

In the gun, by means of electrical contacts arranged in the bore, a time-curve of the passage of the shot can be determined.

From this the mathematician constructs the velocity-curve, and from this, again, the pressures producing the velocity are estimated, and used to check the same indications obtained by other means. The velocity of the shot after it has left the gun is easily ascertained by the Boulangé apparatus.

Electricity and photography have been laid under contribution for obtaining records of the flight of projectiles and the effects of explosions at the moment of their occurrence. Many of you will recollect Mr. Vernon Boys' marvellous photographs showing the progress of the shot driving before it waves of air in its course.

Electricity and photography also record the properties of metals and their alloys as determined by curves of cooling.

The readiness with which electrical energy can be converted into heat or light has been taken advantage of for the firing of guns, which in their turn can, by the same agency, be laid on the object by means of range-finders placed at a distance and in advantageous and safe positions; while the electric light is utilised to illumine the sights at night, as well as to search out the objects of attack.

The compact nature of the glow-lamp, the brightness of the light, the circumstance that the light is not due to combustion, and is therefore independent of air, facilitates the examination of the bore of guns, the insides of shells, and other similar uses—just as it is usod by a doctor to examine the throat of a patient.

(*To be continued.*)

Glove Cleaner.—(1) Scrape 1 lb. of fine curd soap into a powder, put into a jar and pour upon it sufficient strong alcohol to make a thick jelly, add one teaspoonful of ether or one half-teaspoonful of liquor potassæ; mix and put into bottles well corked. To use, put the gloves on the hand, rub on the preparation with a piece of flannel, when the dirt will disappear. (2) Strong solution ammonia, ½ oz.; solution chlorinated soda, 8 ozs.; distilled water, 9 ozs.; yellow soap in fine shreds, 12 ozs. Make into a paste and apply with a clean piece of flannel (*Pharm. Era*, xiv., 174).

NOTES AND NEWS.

Opening of the School of Pharmacy.—The inauguration of the fifty-fourth Session of the School of Pharmacy will take place on Wednesday, October 2, when the prizes will be distributed to the successful students of last session by the President of the Pharmaceutical Society, Mr. Michael Carteighe, and an address will be delivered to the new students by Professor Frederick T. Roberts, F.R.C.P., of University College, London. The school buildings will be open for the inspection of visitors, and the Dean, Professor J. Reynolds Green, Sc.D., will attend to receive students, etc. Applications for admission to the school, or for any information in connection therewith, should be addressed to Mr. E. J. Eastes, Secretary to the School of Pharmacy, 17, Bloomsbury Square, London, W.C.

The Cost of a Medical Education.—The letter of "Medico" on this topic (see *ante*, p. 235) is referred to by another correspondent of the *Daily Telegraph*, who observes that the difficulties of the young practitioner only begin after he has obtained his diploma. "It is a most difficult and expensive matter to obtain a medical practice, and unless the young doctor is in possession of at least £1000, and is really well qualified, clever, attractive in manners and appearance, and of unimpeachable private character, he can never hope to attain even moderate success as a medical man. Let parents beware! The profession of medicine is greatly overcrowded."

Proposed New Subdivisions of the Hour.—In the *Revue Scientifique*, H. de Sawanton proposed to divide the hour into one hundred minutes, and the minute into one hundred seconds. Each second would then represent the time occupied by one semi-vibration of a simple pendulum, 12·9 Cm. long. The advantage of the proposed change would be that time could be consistently expressed in hours and decimals, 8·3348 H. representing 8 hours, 33 minutes, 48 seconds, in the new system.

Alkaloidal Value of Ipecacuanha Stems.—In a paper read before the American Pharmaceutical Association, A. R. L. Dohme concludes by stating that the wiry ipecacuanha root is richer in alkaloid than the fancy root, and that the stems contain less than either. Two lots of commercial ipecacuanha were divided into three portions each. These were then separately assayed, and yielded the following results:—

	Sample A.		Sample B.	
Fancy root.....	2·00 p c.	Alkaloid.....	2·33	p.c.
Wiry ,, ...	2·13 ,,	,, ...	2·43	,,
Stems.....	1·77 ,,	,, ...	2·15	,,

Aconitines of the Market.—The same author finds that none of the aconitines of the (American) market examined are pure aconitine of melting point 197°–198° C. (Freund). He found no two the same; one consisted principally of pseudaconitine, one was chiefly apoaconitine, another contained both apoaconitine and aconitine, and a fourth either contained a different substance to any of the above or was a mixture of substances that would much depress the melting point of any aconitine present. Sample five was fairly pure apoaconitine, and six, though better than the others, was yet impure, being cream coloured instead of white. Dohme concludes, therefore, that in no case could a physician expect to get the therapeutic effects of pure aconitine, and, further, that, until we know more about the remaining alkaloids and constituents of aconite root, no reliable method of assay of the root or its active constituent can be devised.

ROYAL PHOTOGRAPHIC SOCIETY.—The fortieth annual exhibition of the Royal Photographic Society will be held at the Gallery of the Royal Society of Painters in Water Colours, 5A, Pall Mall East, S.W., opening on Monday, September 30, and continuing until November 14. It will be open daily from 10 a.m. till 5 p.m., and on the Monday, Wednesday, and Saturday evenings from 7 till 10 p.m. On Saturday, September 28, at 8 p.m. a soirée will be held at the above address.

PRIZES FOR RESEARCH.—The following are among the subjects for the investigation of which the Royal Society of New South Wales offers its medal and the sum of twenty-five pounds, provided the communications are found to be of sufficient merit: The physiological action of the poison of any Australian snake, spider, or tick; the chemistry of the Australian gums and resins; the chemical composition of the products from the so-called kerosene shale of New South Wales. The competition is not subject to any restrictions, and the successful papers will be published in the Society's annual volume, fifty reprints being furnished to the authors free of expense. Further particulars can be obtained from the honorary secretaries, T. W. G. David and J. H. Maiden, 5, Elizabeth Street, Sydney.

VACCINATION IN ENGLAND AND WALES.—The law enforcing compulsory vaccination in England and Wales continues to be the one most persistently resisted. Dr. R. Thorne-Thorne, medical officer to the Local Government Board, reports that of more than 900,000 infants whose births were registered during 1891, 13·4 per cent. remained unvaccinated. In London the percentage of unvaccinated children rose from 5·7 in 1881 to 16·4 in 1891, and in Wellingborough only 61 children out of 1550 were vaccinated, whilst at Leicester and Northampton the proportion of unvaccinated reached or exceeded 80 per cent. Since the appointment of the Royal Commission in 1889 to inquire into the subject of vaccination, an increasing number of Boards of Guardians have more or less completely abstained from enforcing compliance with the law, pending the issue of the Committee's report.

PUBLIC HEALTH IN ENGLAND.—In the same report Dr. Thorne-Thorne describes the question of the spread of disease by reason of the contamination of public water supplies, as one of pre-eminent importance to England, because even when the contaminating agent is insignificant in amount, and the point of contamination strictly localised, yet the resulting mischief is often as wide in its distribution as is the area of the particular water supply. In the appendix to the report it is observed that though the typhoid bacillus is generally regarded as in all probability the essential cause of enteric fever, it has never yet been experimentally proved to be capable of inducing the disease. Dr. Klein records some facts concerning the anthrax and diphtheria bacilli, which are pathogenic alike to the human subject and the guinea-pig, and it is also shown that cancer has been increasingly prevalent of late years, as indicated by the mortality attributed to it. A preliminary investigation has been undertaken respecting the claim of cancer to be considered a parasitic disease.

ACCIDENT TO MR. FRANCIS RANSOM.—We regret to learn that Mr. F. Ransom met with a serious accident on Saturday last. He was driving through Hitchin, when the horse took fright and bolted, eventually throwing him out on to the pavement. It is satisfactory to learn that the medical men in attendance are of opinion that no permanent injury has been caused, although it was at first feared that the concussion of the brain was very serious, and he will be debarred from all mental exertion for some time to come. Mr. Ransom's many friends will join us in wishing him a speedy recovery.

ENGLISH NEWS.

MEDICAL OFFICER OF HEALTH FOR LEICESTER.—At a meeting of the Sanitary Committee of the Leicester Corporation, Dr. Monk, medical officer of Scarborough, was selected by ten votes to two for appointment to the post of medical officer of health for the borough in succession to Dr. Priestley, who has obtained an appointment in London.

THE BAYLASS DRUG CO.—On Thursday, September 13, at the Exeter County Court, before His Honour Judge Edge, the bankrupty case (mentioned in *Ph. J.* of May 4 last, p. 987, and of May 11, p. 1019) of William Dale Baylass, of 50, Union Street, Torquay, chemist and druggist, who traded under the style, firm, or company of "The Baylass Drug Co., Limited," was mentioned. This was a case in which an action was pending as to an execution levied by the Sheriff against the company, the question raised being as to whether certain proceeds of a sale belonged to the Baylass Drug Co., which, it is alleged, was a bogus affair, or to the debtor, Baylass, personally.—Mr. J. I. Carter, of Torquay, representing the petitioning creditors, now informed His Honour that the interpleader came before Mr. Justice Williams, who suggested that counsel might put their heads together. That was done, with the result that the money in Court was divided between the Official Receiver and Messrs. Sanger and Co. His Lordship made no order as to costs, but suggested that the Official Receiver should receive his out of the estate. With respect to the winding-up petition he (Mr. Carter) thought it must fail, having been ill-founded. But there was one question, whether His Honour would allow the debtor's solicitor (Mr. Clode) any costs in respect of the restraining orders, which were extended. If His Honour saw his way to direct that those costs should be paid out of the bankruptcy estate he (Mr. Carter) should also ask that his costs of opposing the petition be equally allowed.—His Honour said he had made up his mind that the petition must fail on more than one ground. The only question could be as to the costs of the petition.—Mr. Clode said that inasmuch as the proceedings had been kept alive for the purpose of protecting the estate for the benefit of the creditors, who would now get some dividend, whereas they might otherwise have received nothing, it was only fair and equitable that the costs of the winding-up petition should be paid out of the estate.—His Honour said there would be a substantial sum owing to the creditors, and as they derived benefit from the proceedings they ought to pay for it. Mr. Carter's costs would be paid out of the estate, and Mr. Clode's costs under the restraining order would also be allowed.

PRESENTATION.—On Saturday afternoon (September 14), Dr. Aldous, of Charlton House, Mannamead, Plymouth, was presented by the members of the Plymouth Provident Dispensary, Catherine Street, with a barometer and thermometer combined, as an acknowledgment of his kindness, on the expiration of his services. Dr. Aldous briefly acknowledged the gift.

THE death of Mr. W. H. Kirby, Messrs. Burroughs, Wellcome and Co.'s assistant general manager, took place under painfully sudden circumstances on the 18th inst. It was occasioned by a gas explosion at his residence on Saturday evening last.

PLYMOUTH AND SCIENTIFIC TRAINING.—The Committee of the Plymouth Technical Schools are instituting day classes, covering the work necessary for the intermediate science or preliminary scientific examinations of London University, or for the First examination of the Conjoint Board of the Royal Colleges of Physicians and Surgeons, and the *Western Daily Mercury* in commenting on this fact says they are thus giving opportunity for higher scientific training, not only to those who intend to take degrees in science or medicine, but to all to whom a knowledge of mathematics, mechanics, or physical science is necessary or desirable. We sincerely trust that the Committee may be strongly supported in this new departure, and encouraged to go further in the same direction. A university college and a school of medicine for the two western counties may seem a dim vision of the far-off future, but if the need for them is expressed, if it is once shown that they will be widely useful, then we are sure that the enterprise and liberality of the people of the west will hasten forward their accomplishment.

"QUACK" DOCTOR FINED AT WELLINGTON.—At the Wellington (Somerset) Police Court on Thursday, September 12, before Messrs. S. Fox (Chairman) and J. H. Fox, a travelling "quack" doctor, who refused to give his proper name, but who gave the name of 'Wanger," was brought up in custody, charged by P.S. Luke with

unlawfully and wilfully obstructing a certain highway, namely, Fore Street, Wellington, on Saturday the 7th inst., with a four-wheeled carriage for four hours.—Defendant denied the charge, but P.C. Gibbs stated that he warned him before he had commenced selling medicines, as did also another constable named Low.—P.S. Luke observed that the defendant drew a large crowd around his carriage before the Town Hall, and he found it necessary to place two extra constables on duty to keep the traffic clear. He cautioned the defendant that he was causing an obstruction, and requested him to go away, but he declined to move, and refused to give his name.—The Bench imposed a fine of 20*s.* and costs.

Strange Poisoning Case.—An unknown lady visitor at Seaton, aged about 40 years, but whose clothing bore the name Althea Rose Ronyas, was found in front of an unoccupied residence called "Wissiters," on Friday, September 6. On the woman's bodice a sheet of writing paper was pinned, on which were written some lines of poetry and the words "I have drank 2 ounces of laudanum." Lying close by was a medicine bottle containing a few drops of laudanum. It was labelled "Poison—laudanum," but the lower part of the label, which doubtless contained the name and address of the chemist who supplied it had been scratched away. The woman died soon after she was found, and at the inquest Dr. Evans stated that a post-mortem examination showed that death was due to laudanum.—The jury returned a verdict that deceased committed suicide whilst temporarily insane.

SCOTTISH NEWS.

Prosecutions under the Pharmacy Acts at Edinburgh.—In the Sheriff Court House, George IV. Bridge, Edinburgh, on Tuesday, September 17, a number of cases of prosecution instituted by the Pharmaceutical Society were heard. In the first case John Whitelaw, an assistant in the shop of Archibald Young and Son, surgical instrument makers, 61, Forrest Road, Edinburgh, was charged with having sold a quantity of "corrosive sublimate" as an ingredient in a bottle of Seabury's "bichloride of mercury tablets" on Monday, May 27, 1895.

A second case was against J. M. Turnbull, dealer in photographic materials, who was charged with keeping open shop for the sale of poisons at 6, Rose Street, Edinburgh, where an agent of the Registrar purchased 1 ounce of corrosive sublimate on Monday, May 27, and also with using or exhibiting the title "chemist" on his premises at the above address. These two defendants were represented by Messrs. Cuthbert and Marchbank, S.S.C.

A third case was against William Hume, scientific instrument maker, who was charged with having kept open shop for the sale of poisons, at 1, Lothian Street, Edinburgh, where an agent of the Registrar purchased four ounces of cyanide of potassium, on Friday, August 23, 1895. He was further charged with using the title "chemist" in a price-list issued on June 13, 1895.

A fourth case was against Ernest Elias Tidboald Badcock Greville trading under the title of "The Medical Supply Association," who was charged with having kept open shop for the sale of poisons at 12, Teviot Place, Edinburgh, where an agent of the Registrar purchased a quantity of corrosive sublimate as an ingredient in a four ounce bottle of concentrated solution of perchloride of mercury on Monday, May 27, 1895, and a quantity of corrosive sublimate as an ingredient in a bottle of Parke, Davis, and Company's "antiseptic tablets." Defendant, who was represented by Mr. Norman Macpherson, S.S.C., alleged that he is a qualified medical man.

A fifth case was against Thomas Thompson, principal shareholder in the firm of Thompson and Co., Ltd., who was charged with selling in the shop occupied by the company at 1, Frederick Street, Edinburgh, a quantity of corrosive sublimate as an ingredient in a quantity of perchloride of mercury tablets, on Tuesday, May 28, 1895, and also in the same shop, and on the same date, a quantity of tincture of nux vomica. Defendant, who was represented by Mr. Norman Macpherson, S.S.C., pleaded guilty, and was fined two pounds for each offence, and two guineas costs.

A sixth case was against Robert Whitelaw, an assistant in the shop of J. Gardner and Son, surgical instrument makers, 32, Forrest Road, Edinburgh, who was similarly charged with having sold a quantity of corrosive sublimate as an ingredient in a bottle of Seabury's "bichloride of mercury tablets" on Monday, May 27, 1895. Defendant pleaded guilty.

A seventh case was against James Mullo Weir, S.S.C., and secretary to the Edinburgh and Leith Drug Company, Ltd., who was charged with having in the shop occupied by the aforesaid company, at 4 and 5, Crighton Place, Leith Walk, Edinburgh, sold a quantity of opium as an ingredient in a bottle of "Powell's balsam of aniseed," on Saturday, May 11, 1895, and also with having committed a similar offence on Wednesday, May 22, 1895, and also on Wednesday, June 5, 1895. Defendant was represented by Mr. Thomas Trotter, advocate. Eventually he was allowed to plead guilty, and was fined two pounds for each of the first two offences and one guinea costs.

Prosecutions under the Pharmacy Acts at Paisley.—At the Sheriff Court House, Paisley, on Tuesday, September 17, Hector Munro was charged, at the instance of the Pharmaceutical Society, with having, in the shop occupied by Dr. Holms, at 21, Wellmeadow, Paisley, sold a quantity of laudanum on Saturday, March 9, 1895. Defendant, who was represented by Mr. John Hogg, writer, pleaded not guilty, but was convicted on the evidence produced and fined one guinea with thirty shillings costs.

A second case was against James Nicol, who was charged with having, in the shop occupied by Mr. R. T. McCowan, 23, Gauze Street, Paisley, sold a quantity of opium and a quantity of chloroform as ingredients in a presciption, dispensed by him on Saturday, March 9, 1895. Defendant, who was represented by Mr. J. Gow Smith, writer, pleaded guilty, and was fined fifty shillings and twenty-four shillings and sixpence costs.

The Heddle-Dudgeon Collection of Minerals.—An exceedingly interesting addition has now been made to the Scottish Mineral Collection in the Museum of Science and Art. For the greater part of the last nine months this department has been closed, and Professor Heddle, of St. Andrews, has been engaged in laying out and labelling the collection of Scottish minerals which it has been a great part of his lifework to gather together. The collection at one time seemed likely to find another destination, but at a fortunate moment it was brought under the notice of Sir Robert Murdoch Smith, who secured it for Edinburgh. Dr. Heddle agreed to accept £1000 for 1000 selected specimens, and to present the remainder of his collection, consisting of between six and seven thousand specimens, and valued at £2600, to the Edinburgh Museum. Funds for the purchase were obtained chiefly by subscription, one personal friend and former student of Dr. Heddle's generously giving £500; so that the largest collection ever acquired by the Museum at one time has come to it almost entirely as a gift. The Museum was already in possession of a small but fine collection of Scottish minerals, given for the most part by the late Patrick Dudgeon, of Cargen, and at Mr. Dudgeon's request it has been incorporated with that of Dr. Heddle. These joint collections, as now laid out and labelled, bring together in scientific arrangement specimens of all the Scottish minerals known to exist. The extent of the collection may be gathered from the fact that it contains specimens from the Shetland Islands and from the Cheviot Hills, and ranges over the breadth of Scotland from St. Kilda and the Flannan Islands to its easternmost point at Peterhead. Within these four corners of Scotland and its islands certain districts have been especially fertile in their yield of minerals, and the localities from which the greatest number of specimens have been obtained may be set down as Shetland, Sutherland, the Western Islands, the Central Highlands, Kilpatrick, and Dumbarton Hills, the Lead Hills, Wanlockhead, and the Sidlaw and Ochil Hills. The collection cannot fail to interest even the most casual visitor, who will be astonished to find that things of such great beauty have lain hid, and still lie hid, among the rocks or on the hillsides upon which he may have often trod.

Glasgow and West of Scotland Pharmaceutical Association.—A circular has been issued announcing that on Friday, October 19, at 8 p.m. a lecture, illustrated by lantern slides, will be delivered in the Philosophical Society's Hall, 207, Bath Street, Glasgow, entitled "The Scottish Alps," by W. Lamond Howie, Esq., F.C.S., of the Scottish Mountaineering Club. Mr. W. L. Currie, President, will take the chair. Admission (by ticket only) one shilling. Tickets may be obtained of Mr. J. A. Russell, 212, New City Road, and of all leading chemists in Glasgow.

Edinburgh Pharmacy Athletic Club.—The fourth annual picnic took place on Monday, an eighteen miles drive to Gullan Links in delightful weather. On arrival dinner was served on the green. A golf competition then followed, the handicap being won by J. Stott, with George Robertson second, W. M. Manson winning the scratch prize. After a pleasant day's outing the party reached Edinburgh about ten o'clock.

IRISH NEWS.

[Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.]

Prosecution by the Pharmaceutical Society of Ireland.—On Thursday, the 12th inst., the case referred to in last week's Journal (p. 237) came on for hearing at Lisburn Petty Sessions, and excited much interest. Lisburn is a prosperous manufacturing town in County Antrim, some eight miles from Belfast. Mr. T. D. Gibson, R.M., occupied the chair, and there was a full bench of magistrates. The Pharmaceutical Society of Ireland summoned Alexander Boyd and Company, Limited, of Lisburn, "For that you, on the 16th day of April, 1895, at Lisburn did keep open shop for compounding medical prescriptions, and did compound a medical prescription for one Andrew Downey, of Sandy Row, Belfast, at Castle Buildings, Lisburn, in the County of Antrim, contrary to the Pharmacy Act (Ireland), 1875, 38 and 39 Vic., cap. 57, sec. 30, you not being a person properly qualified in that behalf according to law."

Mr. Harrison, barrister-at-law (instructed by Mr. W. B. Galway, Belfast), appeared for the complainants, and Mr. Charley (Messrs. Charley and Allen, of Lisburn), for the defendants.

Mr. Harrison said the defendant Company, not being a "person" registered as a pharmaceutical chemist, did keep open shop for compounding medical prescriptions, and did compound a medical prescription contrary to the statute. For the protection of the public there were certain things that unqualified persons were not allowed to do. The Incorporated Law Society would not allow an amateur lawyer, however learned in the law, to practise as solicitor. So far back as 1791 the Irish Parliament passed an Act regulating and restricting the profession of apothecary. It was not until 1875, however, that the law relating to pharmacy was placed on a satisfactory footing. By that Act the Pharmaceutical Society was instituted. That Act gave to pharmaceutical chemists and to chemists and druggists a monopoly—a useful and necessary monopoly. This monopoly, among other things, included the exclusive right of keeping open shop to retail poison or compound medical prescriptions. The words of Section 30 were perfectly general—"It shall be unlawful for any person to sell or keep open shop for retailing, dispensing, or compounding poisons or medical prescriptions, unless such person be registered under the Act, etc." So very anxious had the Legislature been to extend rather than control that measure of protection, that in 1890 it withdrew from chemists and druggists the right altogether to dispense medical prescriptions. That was done by Sections 4 and 5 of the 1890 Act. The fact that the power to compound medical prescriptions had been taken away altogether since 1890 was of the highest importance, and showed how strict was the monopoly given by statute to pharmaceutical chemists. It was admitted that if an unregistered person opens a shop for the compounding of medical prescriptions he is contravening the statute. Similarly, if he and several others entered into partnership, and if none of them were registered pharmaceutical chemists, each and all of them would be liable to be fined for keeping open shop for the compounding of medical prescriptions. But he understood that the defendant Company was going to raise a curious defence. It was going to allege that what a number of individuals could not do individually without breaking the law they could do in a corporate capacity and as a limited company. In a word, they asserted this proposition, that though seven shareholders could not individually sell poisons or compound medical prescriptions, yet they could do so merely by forming themselves into a limited company; that seven quacks for instance might by joining together defy the British Medical Association. So far as he understood the defendants' contention, it was that the use of the word "person" in the 1875 Act and in the 1890 Act did not apply to a limited company, but only to an individual person. That resolves itself into the simple question, did the word "person" include a corporate body such as a limited company? It was the corporation that sold, that received the profits, and it was therefore the corporation that committed the offence of keeping open shop to compound medical prescriptions. Before 1889 the question whether or not the word "person" included a body corporate was the subject of much doubt and difficulty. To remove that doubt an interpretation Act was passed, and Section 2 enacted that in the construction of every enactment relating to an offence punishable on indictment or summary conviction, whether contained in an Act passed before or after the commencement of that (1889) Act, the word person should, unless the contrary intention appeared, include a body corporate. The intention must appear that Parliament intended to exclude a body corporate or limited company from the operation of the Pharmacy Act, before they could be excluded. Did Parliament intend to allow a number of unqualified people to do collectively what it would not allow any of them to do individually? If it meant that, why did it not specifically exclude limited companies in the 1890 Act, especially as in the year 1889 it enacted that "person" should always include them. He submitted that there could be no defence to that prosecution, and that the complainant was entitled to succeed.

Andrew Downey, 103, Sandy Row, Belfast, was then sworn, and deposed that he was in the employment of the Pharmaceutical Society of Ireland as one of its inspectors. On the 16th of April last he went into the shop of the defendant Company in Lisburn—Alexander Boyd and Co., Limited. He went into the medical hall part. There was another part for grocery goods. The words "medical hall" were on the blind of the part he went into. He had a medical prescription from Dr. O'Connell of Belfast. He gave the prescription (produced) to a person in charge of the medical department, from whom he afterwards received the bottle and its contents (produced).

On cross-examination by Mr. Charley, witness said that, as inspector of the Pharmaceutical Society, he went where he received instructions to go, and ascertained information about the dispensing of prescriptions.

Are you aware that in the whole of Ireland there are seven or eight companies who do this?—It is my duty to go where I get instructions to go.

Is it to protect the public?—The Pharmaceutical Society will answer that question. My duty is only to act in accordance with the instructions I receive.

Have you ever been in Grattan and Co.'s, Limited, Belfast?—I have.

In further reply to Mr. Charley, witness said he had not been in the establishments of Hamilton and Long, Limited, Dublin, nor the Army and Navy Stores there, nor of Kiloh and Co.'s, of Cork, nor of Harrington Bros., nor of Quirke and Co., of Tullamore.

Johnston Montgomery stated he was a registered pharmaceutical chemist in Belfast, and that the prescriptions contained medicines of the British Pharmacopœia.

Mr. Harrison: That closes our case.

Mr. Charley, who appeared to defend in the case, said the defendant Company had done nothing whatever but that which other companies were doing—Grattan and Co., Belfast; Harrington Bros., and Kiloh and Co, Limited, Cork; Hamilton and Long, Dublin, and others, and actually one of the directors of the last-mentioned company was hon. treasurer of the Society which his friend, Mr. Harrison, represented. So much for the *bonâ fides* of the case. That was by no means a novel case, because the Act was passed in 1875, and, strange to say, from 1875 to 1895, there was not a single case which that very vigilant Society, that wanted to obtain a monopoly, had brought forward, except the case of a company that was advised by the Society to plead guilty. Was it expected that large companies, like Grattan's, and the Army and Navy Stores, and Hamilton and Long's, and others, were, because of that case in Dublin, going to shut their establishments? Strange to say, his friend did not refer to the English Act of Parliament, but he (Mr. Charley) would refer them to it. The wording was exactly the same in the English and Irish Acts, He would refer to the case of the Pharmaceutical Society of London against the London and Provincial Supply Association, Limited, which was taken to the House of Lords in 1880. Lord Selborne then said—"I think the principle laid down by the junior counsel for the respondents was substantially right—that if a statute provides that no person shall do a particular act except on a particular condition it is *primâ facie* natural and reasonable (unless there be something in the context, or in the manifest object of the statute, or in the nature of the subject matter to exclude that construction) to understand the Legislature as intending such persons as, by the use of proper means, may be able to fulfil the condition, and not those who, though called 'persons' in law, have no capacity to do so at any time, by any means, or under any circumstances whatsoever." The Act was passed for the benefit of the public. There were many pharmaceutical chemists whose business was extremely small, and who attached to it the selling of cameras and photographic apparatus, the selling also of newspapers and tobacco, and it was to save the public from such small and tinkering men that the Act was passed, as he had said, for the

public benefit. The measure was never intended to apply to large companies, against none of which had the charge been made that they had not done their work properly. The more companies the better for the public, said he. Lord Blackburn, in the same case, said: "I am quite clear about this, that whenever you can see that the object of the Act requires that the word 'person' shall have the more extended or less extended sense, then whichever sense it requires you should apply the word in that sense, and construe the Act accordingly." And further on his Lordship says: "My Lords, my conclusion looking at this Act is that it is clear to my mind that the word 'person' here is so used as to show that it does not include a corporation, and that there is no object or intention of the statute which shows that it is requisite to extend the word to a sense which probably those who used it in legislation were not thinking of at all. I do not think that the Legislature were thinking of bodies corporate at all." Those were the words in the section under which the prosecution was brought. The contention raised there that day was that that Act of 1875 was passed to create a monopoly for the Pharmaceutical Society. Here was what Lord Blackburn said:—"If there had been anything in the Act throughout, or anything in the nature of things, which made it reasonable that it should be provided that all the profits to be derived from selling poisons or poisonous drugs should be shared amongst those who were pharmaceutical chemists, and that nobody else should meddle with that trade, if there had been anything of that sort, then in order to carry out that object of the Act it would be necessary to say that the word 'person' did include a corporation, and not a natural person only." Lord Blackburn was of opinion that it was never intended to create a monopoly for pharmaceutical chemists. Lord Watson said:—"It is not enough for me to speculate as to what was in the mind of the framer of this statute, whether he had forgotten the fact that there were corporations which either were dealing or might deal in poisonous drugs, or whether, having this in view, he framed this Act for the purpose of subjecting them to certain disabilities. . . . Even if I was satisfied that it had been the intention of the framer of these two sections to give to individuals registered under the Act the exclusive privilege of selling poisonous drugs by retail, and to impose penalties on corporations keeping open shops for that purpose, I must say I come to this conclusion, that it would have been a very simple thing for the Legislature to have said so in express terms, and I, for my own part, am quite satisfied, apart from those considerations which have led your Lordships to put another construction on the terms of the statute, that the framer of it, if that was his intention, has entirely failed to use language adequate for the purpose he intended to attain. Mr. Charley quoted a number of other authorities on the question under the English Act, and the decision in the Leith Depôt case and other analogous cases, and confidently asked for a dismiss.

The Chairman asked: Have you got a registered pharmaceutical chemist in the defendant Company's establishment?

Mr. Charley: Yes, and he is a man of very high qualification too.

The Chairman, after the magistrates had consulted said: We have attended carefully to the arguments on both side, and the magistrates request me to say that we unanimously dismiss the case.

Mr. Harrison: Your Worships will state us a case, I presume for appeal.

The Chairman: We will be very happy.

This concluded the proceedings. We understand that the Pharmaceutical Society intends carrying the case to a higher court, and s quite determined to put forth every effort to obtain a decision.

White's Medical Hall, Belfast.—Another addition has been made to the list of pharmaceutical establishments in this populous and rapidly-extending city. Mr. W. White within the past few days opened his concern at 13, York Street, adjacent to Royal Avenue. It is equipped with the latest appliances for carrying on an extensive pharmaceutical dispensing and retail drug business.

Mr. J. R. Corrigan, M.P.S.I., whose approaching departure for South Africa was noted in last week's *Pharmaceutical Journal*, was the recipient of a graceful compliment the other evening, having been entertained at a farewell supper by his employers (Messrs. Henry Conyngham and Co.) and his fellow-assistants. The opportunity was taken to present him with an illuminated address and a number of useful articles. A very happy reunion was spent, and many were the expressions of cordial regard for the guest of the evening, and of hope that the climate of South Africa will restore him to health.

Pharmaceutical Society of Ireland.—The October Quarterly Examinations will be held on the following dates:—The Preliminary, on Monday, the 7th prox.; the Registered Druggist, on Tuesday, the 8th prox.; the Pharmaceutical Licence, on Wednesday, the 9th prox. and following days; the Pharmaceutical Assistants, on Monday, the 14th prox. A fortnight's notice is required in each case.

A Loyal Pharmacist.—Mr. W. J. Baxter, member of the Pharmaceutical Council, was, as a Town Councillor of Coleraine, a member of a deputation to Dublin Castle last week, conveying an address of welcome from that flourishing northern town to His Excellency the Earl of Cadogan, Lord Lieutenant of Ireland.

FOREIGN NEWS.

[*From our Special Correspondents.*]

A Great Naphtha Spring. — According to information received from Grosni, in the Terek Territory, a fresh naphtha spring has been opened there. The jet is stated to be of immense height, and it is expected that it will discharge nearly 30,000,000 poods of naphtha daily.

That the Antitoxin Treatment for Hydrophobia has been attended with remarkable success is undeniable, this is evidenced by official statistics, yet there is no doubt that cases occasionally arise where the treatment, even when carried out under the most favourable circumstances, has failed to completely eradicate the virus from the system. An instance occurred last week, the victim being a native of Saint Ellier (Dept. of Mayenne). In December last year he was attacked and badly bitten by a rabid dog, and steps were at once taken to ensure his removal to the Pasteur Institute, where he was treated, and duly discharged as cured. Last April, however, he found it necessary to return there for advice, owing to manifestations of a nervous disorder. Since then he remained perfectly well till last week, when, probably owing to the excessive heat which had prevailed throughout France, he was attacked with indubitable symptoms of hydrophobia. Three doctors were immediately summoned, but the medical consultation was brought to a summary conclusion by the patient, who in a state of frenzy escaped from the attendant, and rushing upstairs, threw himself out of a third-storey window. Death was instantaneous.

An Unprofitable Customer.—For some time past the pharmaciens on the left bank of the Seine have been largely exploited by an individual who, representing himself as a professor in a religious institution in the neighbourhood, was in the habit of giving large orders for medicines and accessories, which he arranged to come and fetch at a later hour, but instead of calling he enlisted the services of any youth he happened to find, who taking a message that the Professor would call and settle the next day, always succeeded in obtaining the goods. The unsuspecting tradesmen were thus invariably duped by the pseudo-professor, whose venerable appearance and affable manner invited the confidence of his victims. However, this week he was caught in the act of receiving from his unsuspecting accomplice a large parcel, obtained from a neighbouring pharmacy. Being arrested and taken to the depôt he was recognised as an old offender, and his unremunerative patronage will be withheld from the chemists for some time to come.

Accidents Caused by Electricity.—The canalisation of the streets in large towns for the various applications of electricity, such as lighting, telegraphy, and telephone has become so extensive that it is a matter of surprise that accidents do not more frequently take place among the numerous workmen employed. Nevertheless, the casualties that have occurred from contact with the electric current have induced the Minister of Public Works to communicate with the Academy of Medicine, requesting that body to indicate the necessary measures to be taken for the resuscitation of persons who have been subjected to the influence of the electric shock, the fatal consequences of which might have been prevented if prompt medical aid could have been rendered. A memorandum has been drawn up by that learned body detailing the proper treatment, which consists in exposure of the patient to fresh air, artificial respiration, friction of the surface of the body, effusion of cold water to the face, and inhalation of ammonia or vinegar smelling salts. These instructions will be printed, and, besides being placed prominently where the works are being carried on, will be circulated among doctors and pharmacists, as the latter are generally applied to for giving the first aid to the injured.

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

COMMUNICATIONS FOR THE CURRENT WEEK'S JOURNAL SHOULD REACH THE OFFICE NOT LATER THAN WEDNESDAY MORNING. TELEGRAMS CAN BE RECEIVED ON THURSDAY MORNING. ALL COMMUNICATIONS RESPECTING EDITORIAL MATTERS MUST BE ADDRESSED "EDITOR, 17, BLOOMSBURY SQUARE, LONDON," AND NOT IN ANY CASE TO INDIVIDUALS SUPPOSED TO BE CONNECTED WITH THE EDITORIAL STAFF OF THE JOURNAL.

ALL INSTRUCTIONS from Members, Associates, and Students of the Pharmaceutical Society, respecting the transmission of the Journal, must be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London, W.C.

BUSINESS communications—including advertisements, orders for copies of the JOURNAL, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Cheques and money orders should be made payable to "Street Brothers."

CORRESPONDENTS who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names—of course not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS for illustrations should be done with pen and Chinese ink, and consist of clean, sharp lines, without shading by washes. They should also be prepared twice the desired size, so as to allow for reduction.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

QUERIES addressed to the "Editor" will be replied to as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries."

REPRINTS of articles cannot be supplied unless authors communicate with the Editor before publication.

LETTERS.

CHEMISTS' ASSISTANTS' AND APPRENTICES' ASSOCIATION.

"MEDICUS," of 94, Redcliffe Street, Bristol, writes:—"It has been suggested that an association of chemists' assistants and apprentices should be formed in Bristol. Such a society exists in most of the large towns. I shall be glad to hear, on or before September 24, from all who are in accord with the above proposal. Arrangements will then be made for a preliminary meeting.

ÆSOP writes as follows in reference to Mr. G. Vogt's paper in the Journal of the 14th instant, on the "Pharmaceutical Education in a Country Town":—"I was apprenticed in a 'farmacy' in a small town of 9000 inhabitants supporting three chemists, and here I will point out that there was not so much 'farm' about it as some of our West-end friends seem to think (sneers!) There were no science classes held in the town in connection with South Kensington, but a class in botany was held under the auspices of the County Council, which I was able to attend. A microscope was placed at my disposal, and at the end of the course I was successful in obtaining, as a prize, two guineas' worth of books. Subsequently several field excursions were indulged in, under the guidance of the lecturer. The next year I was allowed to go to a course of lectures on botany at a neighbouring town, also held in connection with the County Council. The year following I attended a course on chemistry, at the end of which I was allowed to continue work at the laboratory on my own account. A little later my master put me through the analysis of simple salts. The moral I would draw from this is an old one, that where there is a will there is a way; the small towns may be a good deal at fault, but does not some of it lay at the door of the apprentice?"

A BLACKBURN CHEMIST'S APPRENTICE having read the article by Mr. George Vogt on "Pharmaceutical Education in a Country Town" is quite astonished that there should be so much convenience in so small a town, and would like to know if the town is hypothetical or real, as Blackburn is a town of 120,000 inhabitants and is surrounded by several large towns, being only four miles from Darwen with a population of 21,000, and five and a half miles from Accrington with over 21,000 inhabitants. Blackburn has a splendid technical school opened in 1891 and is partially supported out of the rates. He goes on to say that "our opportunities for studying chemistry are nothing compared with the country town described. For practical chemistry last year there was accommodation for twenty-four students, but this year there are only sixteen benches. There is a large lecture gallery capable of holding about 200 students. There is an elementary and advanced inorganic class, both practical and theory. There is also an elementary practical and theory organic class. The results for advanced chemistry for this year were as follows:—

Practical Inorganic Adv.	15	sat.	3	firsts	3	seconds	9 failures
Theory	,, ,, ...18	,,	2	,,	4	,,	12 ,,
Practical Organic Elmt.	12	,,	3	,,	5	fairs	4 ,,
Theor.	,, ,, ...12	,,	2	,,	2	,,	8 ,,

The school is short of apparatus, and in consequence very important theories cannot be practically demonstrated. Although I have been attending the school for two successive years, one in the elementary and one in the advanced, I have never seen a polariscope, spectroscope, Hofmann's, Dumas', nor Victor Meyer's apparatus for vapour density. In fact, barring an Hoffmann's apparatus for decomposition of HCl, one for decomposition of water, a balance, about four explosion tubes and a few bell jars, they have nothing but what an ordinary student could afford to buy. Experiments in which the apparatus requires some time to manipulate are generally described orally. For instance, I have never seen H_2SO_4 prepared before the class. I could cite you several similar cases, but it would waste too much of your valuable paper. We have no botany class here. Last year there were at least ten apprentices who wished to form a botany class, and others would come forward if there were a class, but the school would not form one, as the results had been very bad two years before. There has been no physiology class here for two years, nor have we a collection of drugs in the museum. I would be much obliged if any apprentices would give me a description, through the medium of this valuable paper, of what convenience there is for teaching science in their town that may be useful to the drug trade. I would also be greatly obliged if Mr. George Vogt would mention the name of the town where they have such great advantages, so that some of the Committee of the Blackburn Technical School may get to see it, as it may be the means of stimulating them to try to bring up the standard of our school, to the advantage of the chemists' apprentices of this town."

ANSWERS.

H. F.—*Statice bahusiensis*, *Obione portulacoides*.

T. W. WHITE.—To carry on business in Ireland, the provisions of the Pharmacy Act (Ireland), must be complied with.

JOHN MITCHELL.—While the hydrogen passes off, the cotton-wool helps to prevent the absorption of oxygen and oxidation of the ferrous phosphate.

CORRECTIONS.—On page 239, column 2, line 36, for "20 minims" read "200 minims." On page xi. of the Educational Supplement, column 3, line 24, "Dawson" read "Dewson."

PUBLICATIONS RECEIVED.

HANDELS-BERICHT VON GEHE AND CO., of Dresden-Neustadt, for September. Pp. 62. From Gehe and Co., Dresden, Germany.

JUSTUS VON LIEBIG: HIS LIFE AND WORK (1803–1873). By W. A. SHENSTONE, F.I.C. Pp. 219. Price 3*s.* 6*d.* (Cassell and Co., London.) From the Publishers.

PROSPECTUS OF THE ST. LOUIS COLLEGE OF PHARMACY FOR 1895–96. Pp. 56. (St. Louis College of Pharmacy, 2108–2110, Lucas Place, St. Louis, Mo., U.S.A.) From the College.

PROCEEDINGS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION FOR 1894. Pp. 1394. (The American Pharmaceutical Association, Baltimore, Md., U.S.A.) From the Association.

OBITUARY.

MORRIS.—On September 8, Edward George Morris, Chemist and Druggist, late of Deptford. (Aged 73.)

COMMUNICATIONS, LETTERS, ETC., have been received from Messrs. Bennett, Bridges, Burroughs Wellcome, Chalmers, Clarke, Cripps, Currie, Davis, Dewson, Fear, Firth, Francis, Gardiner, Gilligan, Greenish, Hill, Howie, Jago, James, Johnson, Keen, Ker, Lean, Long, McKay, McKellar, Meisenbach, Mildmay, Minchin, Mitchell, Nicholson, Orton, Pickup, Pike, Powell, Prosser, Sharp, Shepperson, Stroud, Thompson, Vogt, White, Williams, Willsher, Wright.

[Owing to pressure on our space several communications are unavoidably held over.]

"THE MONTH."

Eudesmin and Aromadendrin. J. H. Maiden and H. G. Smith have invcstigated thc nature of the substances causing the turbidity when certain Australian Myrtaceous kinos are treatcd with hot water and thc solutions allowed to cool. In former papers it was suggested that the turbidity was due to the presence of catechin, and it has also been attributed to ellagic acid, but it is now definitely proved that it is causcd by one or the other of two new organic substances occurring singly or together in the kinos of the so-called turbid group. EUDESMIN, $C_{26}H_{30}O_8$, the first of these new compounds, has been found in the kino of *Eucalyptus hemiphloia*, F. v. M. It was extracted by treating the finely-powdered kino with ether, in the presence of a small quantity of water. The partly crystalline and partly resinous mass left on evaporation wis digested in hot absolute alcohol, and the eudesmin crystallised out on cooling. It is odourlcss, with a very slightly sweet taste, and occurs in rhombic prisms or acicular needles. It is soluble in hot water, alcohol, glacial acetic acid, amyl alcohol, ether, acetic ether, and chloroform, but not in benzol, petroleum spirit, or carbon disulphide. It melts at 99° C., and is neutral in solution in water or alcohol. Conccntrated sulphuric acid dissolves it with a dark colour, but after a few minutes thc edges of the drop become purple, and in about half-an-hour the whole of the acid becomes of a beautiful purple colour. Strong nitric acid also dissolves eudesmin with a fine yellow colour, and the fuming acid dissolves it with explosive violence. It is but slightly soluble in cold water, or in aqueous or alcoholic potash. AROMADENDRIN, the second body isolated from the same kino, was obtained by dissolving in boiling water the resinous-looking substance left after crystallising out the eudesmin. Precipitation occurred on cooling, but on then agitating the liquid with ether it became clear, and as the ether evaporated crystals of aromadcndrin formed at the junction of the ether and water. They are six-sidcd plates which polarise in bright colours and melt at 162° C. With potassium hydrate they give a permanent bright yellow colour. Sulphuric acid dissolves them with a yellow colour, turning to brown on standing. Aromadendrin crystallises from boiling water, and is also dissolved by ether or alcohol. The colour rcactions ascribed to both eudesmin and aromadendrin are said to be sufficiently distinctive, even in the absence of any determinations of crystalline form. The kino of *Angophora lanceolata* has also been found to yield well-developed crystals which, however, remain to be investigated (*Proc. Royal Society of N.S. Wales*).

Argon and Helium. C. Bouchard has examined the gases disengaged from certain sulphurous waters in thc Pyrences, whilst staying at Cautercts. After removing the nitrogen, etc., from the collectcd gases, the residue from one source (*eau de la Raillère*) showed the charactcristic bands of argon and helium, and another (*eau du Bois*) showed helium bands only, though in one specimen of the latter some othcr element, not argon, was indicated also. L. Troost and L. Ouvrard givc some particulars concerning the combination with magnesium of the argon and helium obtained by Bouchard. They do not combine with the metal at a red heat, but will combine with its vapour under the prolonged influcnce of powerful shocks from a Ruhmkorf coil. Platinum is said to present the same phenomena of vaporisation and combination with argon, under similar conditions to those described above (*Comp. rend.*, cxxi., 392-4).

Caffeine as a Base. M. Tanrct has again denied that caffeine forms definite compounds with organic acids, though he allows that the latter augment its solubility in water. As the acid is, according to him, in no degree neutralised, it follows that, in the case of hypodermic solutions, the weight of free acid injectcd may amount to several times that of the caffeine. He states that with mineral acids the compound does form salts, but they are found not to present any advantage over caffeine itself, whilst, in the presence of the benzoate, cinnamate, or salicylatc of sodium, caffeine dissolves in but little water to form double salts very rich in the alkaloid (45·8, 58·9, and 61 per cent. respectively). These salts are all very soluble in water, and by their means it is possible to administer caffeine hypodermically without the presence of free acid. They are readily prepared extemporaneously by simple solution in water, the proportions being: (1) sodium benzoate, 288; caffeine, 244; (2) sodium cinnamate, 170; caffeine, 244; (3) sodium salicylate, 160; caffeine, 244. Commercial sodium benzoate and salicylate have frequently an alkaline reaction, and in that case they should be neutralised with the corresponding acids before use. Tanret has also been able to prcpare similar double salts with acetic, lactic, sulphuric, and hydrochloric acids (*L'union pharm.*, xxxvi., 394). With regard to the statement that caffeine does not form definite salts with organic acids, E. Schmidt clearly showed some time ago that the facts prove the contrary (see *Ph. J.* [3], xxiii., 986).

Colutic Acid. G. Barbey gives this name (*acide colutéique*) to a compound extracted by him from the leaves of bladder senna, *Colutea arborescens* (Leguminosæ). The acid is insoluble in cold water, soluble in sixty times its weight of boiling water, and crystallises in spangles on the solution cooling. From an alcoholic solution, however, it crystallises in fine needles. It is also soluble in chloroform and in carbon disulphide, and melts at 136°·5 C. The compound reddens litmus, forms salts with soda or ammonia, resembles the phenols in certain of its reactions, and in others appears analogous to cinnamic acid (*L'union pharm.*, xxxvi., 389).

Preservation of Chloroform. L. Allain claims to be able to preserve chloroform indefinitcly by saturating it with sulphur. Chemically pure chloroform is taken, and the sulphur is prepared from ordinary sublimed sulphur by leaving it in contact with four times its weight of pure caustic ammonia during twenty-four hours. It is then washed with distillcd water until neutral to litmus, and placed in a stove regulated to a tcmpérature of 40° C., where it remains for four days, after which it is further dried over sulphuric acid for fiftecn days. Purified chloroform exposed to direct sunlight gave a precipitatc with argentic nitrate solution after about forty-eight hours, but underwent no change under similar conditions if previously saturated with sulphur, except that therc was a deposit of insoluble sulphur. Specimens thus treated have been exposed to sunlight for four months without any

alteration that could be detected by the usual reagents, and were found to cause perfectly normal anæsthesia in men and the lower animals, without accident. In diffused light the addition of one-thousandth part its weight of sulphur preserved chloroform indefinitely in the presence of a great excess of oxygen. No explanation of the phenomenon is offered, but it is intended to perform similar experiments with selenium and tellurium in place of sulphur (*Journ. de pharm.* [6], xv., 252).

Reduction of Potassium Platinochloride. E. Sonstadt reduces potassium platinochloride by rubbing it up with about twice its weight of mercury, and gently heating the mixture. Calomel and excess of mercury sublime, leaving a very porous mass of platinum and potassium chloride, the reduction being complete. If equal weights of the platinochloride and mercury be taken, the sublimate consists chiefly of mercuric chloride, but the reduction is equally complete. This method is applicable to any quantity of the salt, but when small quantities are to be dealt with, it is sufficient to place an excess of mercury in a small porcelain crucible, add the platinum salt, then heat gently for some time, and afterwards raise the temperature sufficiently to volatilise the sublimate adhering to the sides of the crucible and drive off the excess of mercury (*Journ. Chem. Soc.*, lxvii., 984.)

Alcoholic Fermentation. M. Rietsch and M. Herselin find that the proportion of alcohol obtainable from a given quantity of sugar varies considerably with the kind of yeast used in the fermentation. They have also studied the influence of aeration upon alcoholic fermentation at different temperatures, and find that in the case of worts containing only about 100 Gm. of sugar per litre, aeration exercises but little influence upon the proportion of alcohol from fermented liquid at a temperature approaching 36° C., the differences observed being in favour of the elevated temperature. With more concentrated worts a decidedly harmful effect is produced by elevating the temperature to the same point, but aeration neutralises this ill-effect in great measure. Better results are obtained, however, at about 30°, even without aeration. It would appear, therefore, that the value of aeration is greater as the concentration of the wort is increased and the temperature elevated. The cooling of worts below 30° has, however, a more pronounced effect than aeration, and a combination of these two processes will probably lead to the best results, more especially when the worts are concentrated (*Comp. rend.*, cxxi., 378).

Potassium Chromate as a Milk Preservative. M. G. Denigès says that he has had several cases brought to his notice of potassium chromate being used as a milk preservative. It seems that 0·1 gramme of bichromate will preserve milk for twenty-four hours, 0·25 gramme for twelve to fifteen days, whilst 4 grammes will produce the same result for about four months, but its use should on no account be allowed, as it produces serious intestinal troubles. In one of the cases referred to the preservative was entirely composed of the neutral chromate, whilst in another one part of the neutral salt was mixed with two of the bichromate. The adulteration—for it can only be regarded as such—is readily detected by adding 1 C.c. of 2 per cent. solution of silver nitrate to the same quantity of the sample and shaking, when a reddish yellow tint is produced, according to the amount of chromate present. By means of a blank test and diluting the milks with an equal volume of water, 0·02 gramme per litre can readily be detected (*Bull. de la Société de Pharm. de Bordeaux*, xxxv., 235).

Acetic Acid in Vinegar. A. R. Leeds obtains more accurate readings in the determination of acetic acid in vinegar, by the use of turmeric as an indicator, than by the use of phenolphthalein, even in the case of highly-coloured vinegars. He states that with great care in the observation of the first brown ring which forms in the presence of the slightest excess of baryta, when a drop of the titrated solution is brought upon turmeric paper, the end reaction can be detected with certainty, and the reading is lower than that with phenolphthalein. In order to get rid of the disturbing influence of the colouring matters he mixes 50 C.c. of the vinegar with an equal quantity of water, then titrates with decinormal baryta, adding the latter to 3 C.c. in excess, and following by 5 C.c. of decinormal sulphuric acid. Whether the precipitates are allowed to settle in the cold or on warming appears to make no difference (*Journ. Am. Chem. Soc.*, xvii., 741).

Poisoning by Antimony and Arsenic. Dr. C. A. Doremus relates the chemical history of a case of combined antimonial and arsenical poisoning. The victim had been dead three months when the *post-mortem* examination was made, his medical attendant having given a certificate ascribing death to chronic dysentery. It proved, however, to have been a case of chronic antimonial poisoning, followed by the use of arsenic as a toxic agent. The difficulties in the way of the chemical analysis were exceedingly great, but both antimony and arsenic were found in the stomach, intestine, liver, spleen and fluid, heart and blood, brain, and muscle. The results showed that Meyer's method of separating antimony from arsenic is probably the best available, but at the same time they indicate the desirability of not placing too implicit reliance upon it (*Journ. Am. Chem. Soc.*, xvii., 667).

Examination of Lard. D. Wesson points out that an analyst who knows nothing of the history of a given sample of lard, and who possesses no experience such as will enable him to judge by the senses what sort of lard he is dealing with, is extremely liable to misinterpret analytical results and fall into grievous errors. Thus, hogs being omnivorous animals, their fat will almost certainly vary in accordance with the nature of their food. The lard from animals fattened on nuts preserves in a marked degree certain properties of the nut oils, and is softer because it contains more oil than that from corn-fed hogs. The fat also varies greatly in different parts of the same animal, and the method of rendering affects its character. Again, lard some months old will give analytical data which, if compared with those of a fresh sample, would indicate adulteration. The writer deals with the chief processes in use for examining lard, and gives the specific gravity of freshly rendered lard as 0·8600 to 0·8610, old samples of known purity running as high as 0·8620, and one specimen on record, which gave no indication of cotton oil (s. g. 0·8683), as high as 0·8640. The refraction index depends to a great extent on the relative amounts of olein, stearin, and palmitin present, and, as a test *per se*, it is described as little better than the specific gravity. As regards the melting point, "no suitable method has yet been proposed which will give analytical indications of any value except

in cases of large admixtures of beef fat." The crystallising point of the neutral fat is useful as indicating the presence of beef fat, and the crystallisation point of the fatty acids is described as a very useful factor in estimating the purity of lard. Accurate conclusions cannot be drawn from the amount of iodine absorbed by lard, for this depends upon the chemical nature and quantity of the fluid acids present; the softer the lard the more iodine is absorbed and *vice versâ*. But, as the fluid acids alone absorb the iodine, the truly scientific method of analysing lard is first to determine the percentage of those acids present and then from their iodine number to calculate the proportion of lard and cotton oil present. This method was introduced by Muter, and his modified method is invariably applied by Wesson in doubtful cases, as he considers no method of analysis approaches it for accuracy (*Journ. Am. Chem. Soc.*, xvii., 723).

Action of Sulphuretted Hydrogen on Plants.

M. H. Barnouvin has carried out some experiments which confirm those previously recorded by M. Morren. Strawberry plants in full leaf were exposed in the one case to the action of sulphuretted hydrogen gas accompanied with free exposure to the atmosphere, whilst in the other the plant was covered with a bell jar during the experiment. As a result, it was noticed in the first instance that after the gas had been allowed to diffuse through the atmosphere for several days the leaves became covered with yellowish spots, and then withered and rotted, but the plant recovered its normal appearance slowly if removed to a pure atmosphere. If, on the other hand, the gas acted on the plants in a confined space the effect was much more marked, as in twenty-four hours' time all the leaves assumed a brown colour, and shortly afterwards blackened, withered, and died off, and no subsequent removal to fresh air was able to restore the plant. M. Barnouvin concludes, therefore, that the action of sulphuretted hydrogen on plants is directly analogous to its action on animals (*Rép. de Pharmacie*, vii., 386).

Peptone and Coagulation.

E. Gley and V. Pachon deal with the action of the liver in the anti-coagulating action of peptone. It is known that the injection of a solution of peptone into the veins of a dog renders the blood incoagulable for a longer or shorter period, and it has been stated by Fano that this action is not direct but is caused by a substance formed by the peptone in the organism. Experiments conducted by the authors show that the liver plays a preponderating part in the formation of the anti-coagulating substance which is formed in the organism under the influence of the peptone (*Comp. rend.*, cxxi., 383).

Diastase in Foliage Leaves.

Professor J. Reynolds Green, in a paper read before the British Association, gave an account of a series of experiments he has been conducting on the diurnal variation in the amount of diastase in foliage leaves. From this it appears that there is more diastase present in a plant in the morning than in the evening, and to account for this fact it has been stated that the diastase is utilised for the conversion of starch, but this theory is opposed to the view that enzymes do not diminish in quantity. The author's experiments were carried out on diastase in solution and on actual leaves. In the first instance it was noticed that on exposure to the electric arc light or sunlight 75 per cent. of the diastase was destroyed. Leaves of one of the Leguminosæ were employed for the latter experiment. They were gathered in the morning and kept in the dark until used, when half of the blade was shaded, whilst an arc light was brought to bear on them for nine hours. It was then found that 10 per cent. of the diastase was destroyed, which proportion was increased to 20 per cent. if exposed to sunlight. It will therefore be seen that the amount destroyed is greater in the solutions than in the living leaf, and this is accounted for by the fact that the proteids in the cells have a protective action.

Vanillas of Commerce.

R. A. Rolfe states that the principal species of vanilla is *V. planifolia*, Andr., a native of South-eastern Mexico. *V. pompona*, Schiede, yields the Guadeloupe variety, and *V. gardneri*, Rolfe, is said to yield Brazilian and Bahia vanilla. *V. appendiculata*, Rolfe, and *V. odorata*, Presl., produce aromatic fruits, but are not known to be cultivated, whilst *V. phœantha*, which possesses but little perfume, is under cultivation at Jamaica and Trinidad. The known species of the genus are fifty in number (*Kew Bulletin*, No. 104, 169).

English Amber.

Professor Conwentz had some interesting facts to state at the meeting of the British Association concerning the formation of amber in different parts of the world. It seems that Baltic amber—succinite—is the most esteemed variety, whilst English amber, which is also succinite, is found mostly on the coasts of Norfolk, Suffolk, and Essex, and contains insects, wood, flowers, etc., which indicate the oldest Tertiary formations. From the fact that some specimens of amber contain fragments of magnolia and cinnamon it seems probable that the flora of the amber period was entirely different to that of modern Europe.

Structure of Bacterial Cells.

H. Wager drew attention at the meeting of the British Association to the fact that although much is now known of the connections existing between bacteria and disease, there is little but conjecture as to their structure, owing to the fact that even with high powers it has been difficult to obtain exact information by the aid of the microscope. Bacteria have been obtained from putrefying animal matter which were oval in shape, with a central mass which stained red, and within this a mass even more deeply stained. On the other hand those obtained from vegetable matter were distinguished by two rod-shaped masses, which took a red stain readily. The author sums up by saying that there seem to be two substances in a bacterium cell, one corresponding to the protoplasm of an ordinary vegetable cell, whilst the other bears a resemblance to the nucleus.

Aluminium Utensils.

M. Ballaud states that cooking utensils made of aluminium offer satisfactory resistance to the wear and tear inseparable from the conditions of a soldier's life. The metal alters somewhat in appearance, but he has not found any appreciable variation in weight after four months' use, despite friction and the action of fire, liquids, etc. This he attributes to the fact that the different substances employed as food are kept in contact with the metal for a very short period, for the results of experiments showed considerable loss when the period of contact was extended. Ordinary water kept in an aluminium vessel for six months caused a loss of less than 0·1 Gm. per

cent., probably on account of the presence of other metals in the rivets, etc. Some aluminium plates kept in Seine water for four years lost 3 per cent., a layer of oxide forming, which only dissolved with difficulty in 1 per cent. sulphuric acid. Salt water caused a loss of 0·6 per cent. in four months. In conclusion, the author points out that much deception is practised with regard to aluminium, and that most articles offered in that metal are really prepared from alloys or from aluminium containing as much as 8 per cent. of impurities. At the same time the metal can be obtained practically pure (0·7 to 0·9 per cent. of foreign substances), but efforts should be made to render it more homogeneous and capable of taking a higher polish. It is specially recommended that the use of solder and rivets, etc., made of foreign metals should be avoided. Apparently, electrical action is the chief cause of the disintegration of aluminium vessels in use at the present time (*Comp. rend.*, cxxi., 381).

Iodised Cotton. M. Soulard has investigated this substance, and finds that the temperature most suitable for preparing it is from 90° to 100° C. He thinks the best method of preparation is that in which iodine vapour is brought in contact with the cotton. The cotton fixes the iodine better if well dried, but absorbent cotton does not give a satisfactory product. It is assumed in the Codex that the iodine is simply fixed in the manner of ordinary colouring matters, but Soulard is of opinion that part of it enters into combination with the cellulose to form several compounds (*Journ. de Pharm.* [6], xv., 255).

Valencia Saffron Trade. The trade in saffron, which is concentrated in Valencia, showed a considerable falling off in 1894, in which year 16,808 kilogs. were sold, as against 32,116 in the year 1893, but, according to the Italian *Bollettino di Notizie Commerciali*, this diminution is probably owing less to a decrease in the demand than to the fact that some of the saffron is exported abroad direct from the interior. The expenses of carriage to Valencia are thus saved, but there is not the same guarantee as to weight or quality, each district producing a different kind. The buyers are principally French and German who trade with the East. The production of saffron is very costly, and in Spain, the only country which produces saffron in large quantities, the good crops of latter years have kept the prices down (*Board of Trade Journal*, xix., 324).

Petroleum in Java. Petroleum boring in Java is described as continuing to do well. In the districts around Sourabaya, the oil wells yield abundantly, and a brisk local trade in the produce has sprung up. In Mid Java this line of business has also been started with success. At first difficulties arose from inadequate means of transport, which prevented the supply from meeting the demand, but pipe lines have now been laid from the wells to the neighbouring tramway, and from there tank cars are filled for conveyance to Samarang, where land has been secured on which to establish oil warehouses with all the necessary appliances and fittings. The Java oil trade is now making steady progress, and there appears to be every promise that the efforts made to develop that island's oil resources will be crowned with greater success (*London and China Telegraph*).

SIAM BENZOIN.

The gum benjamin tree is large and tall, and has a heart similar to that of the "teng rang" (a species of *Shorea*) and "phayom" (a kind of mahogany). In its general character and in the form of its leaves it resembles the "takieu" tree (a forest tree of hard wood used for making dug-out boats). The gum benjamin tree is propagated from the original fruit. This, when fallen and lying upon the ground, takes root and sprouts after the fashion of the "phayom" and "gang" trees. As regards the trunk of the gum benjamin tree, there is no one who uses it. Gum benjamin trees are generally found on elevated ground, and do not like the plains country. They grow in isolated patches like the forests of "teng-rang" and teak. A forest patch of gum benjamin usually contains from fifty to sixty trees and upwards, and the tree is found generally in large numbers along the high hills in the extensive forest region of Slua Phan, Tangslok, and the borders of Müang Theng, in the province of Luang Prabang. It is rarely met with in other countries except those outside the provinces immediately contiguous to Siam. The Siamese Thai, Annamites, and Tong-soos, who have settled in the above-mentioned provinces, have worked out and traded in the gum benjamin from an early period for successive generations, and these are scattered amongst the neighbouring people as well as being frequently found in Siam also. The season for working the gum benjamin is from the eighth or ninth months (July and August) to the tenth and twelfth months (September and November), when the season ends. Thenceforward is the period during which the gum benjamin is bought and sold.

The gum benjamin is worked after the following methods So many trees are notched so as to form a girdle round the stem. An interval of three months is allowed to elapse between the period of notching and that of picking the gum benjamin dammar, which wells out of the trunk and collects in the notches. By means of a sharpened stick or the point of a knife this is picked out, bark and all, and gathered at once in baskets. It is then sorted and divided into different classes, according to choice. Picking cannot commence before the interval of three months has elapsed, as the dammar that has trickled out into the notches would not have had time to harden. It would still be soft and sticky, and if picked at the time would become dirty, owing to the bark coming off with it; nor would it be of such value either, as, being sticky, it would cling to other things, and the full benefit would not be derived, such as would be the case if it were properly dry. For this reason the gum benjamin must be left for three months after the notching, in order that all the gum possible may well out, and it may become dry and hard. Among the people above mentioned the picking and sale of gum benjamin is generally considered as one way of obtaining a livelihood, for the gum has a value, and is reckoned as a marketable commodity.

And even if the people have no other occupation but selling gum benjamin, that by itself is sufficient as a means of livelihood. The period during which the gum benjamin is sold is not necessarily confined to the eighth or ninth months. The reason for selecting that season is because the people of those parts have many other things to do; for instance, they have to plough the fields and reap their rice harvest. In the eighth and ninth months their work on the paddy fields is finished, and they can therefore turn their attention to gum benjamin. For this reason there is a special season. Their paddy fields are their first care, and then the gum benjamin trade. Those who have no business with ploughing paddy fields and planting rice can, if they wish, work continuously at gum benjamin at all seasons, and during every month of the year. The gum benjamin trade requires no very great outlay of capital. All the implements required

are one large axe, a rice basket, and an open woven basket. If a person wishes to work alone without servants to assist him, he can do so; for in the first stages there is nothing much that requires to be lifted or carried. The only labour necessary would be when the gum benjamin is being picked and placed in baskets, and has to be carried to the temporary or permanent home of picker. The profits gained on any one particular occasion or another can hardly be gauged accurately. Those who work out much sell at a large profit; those who work out little sell at smaller profit. One catty (133⅓ lbs.) and upwards would be considered a large output. Picked gum benjamin is sorted into three classes. The best class, and that which fetches a high price, is called "slua," and is that which is sold in large lumps, and is not dirtied by the presence of bark. The second class is that left over from the first class, and is in somewhat smaller lumps than the latter, and has some, but not much, bark attached to it. This is inferior in quality to Class I., and is half the value. That is to say, if Class I. is sold at 75 ticals, Class II. would sell at 37½ ticals. The third class is that left over from Class II. This class has bark attached to it, is soiled with dust and dirt, and is in fine small pieces. It is called "mun," and is half the value of Class II. The price of gum benjamin, as sold in the jungle districts where the gum is worked, is as follows:—Class I. One Chinese catty (66⅔ lbs.), 100 or about 75 ticals. Class II. Half the price of Class I. Class III. Half the price of Class II. The price in Bangkok is:—Class I. One Chinese catty, 260 ticals, as it has always been.

The gum benjamin trees that grow in the jungle districts referred to are not the subject of disputed ownership by one person more than another. Any one who wishes to work gum benjamin has merely to go into the jungle, search for and notch as many trees as he pleases, like people, for example, who go into the jungle to cut posts for their houses. Nor is there any tax or other emolument accruing to the country from either the trunk or the gum of the gum benjamin tree; nor is the gum benjamin trade one in the prosecution of which much thieving or fighting arises; whether it is because there are many people together at a time, or because, being in the jungle where there are fierce tigers, one man cannot steal along alone by himself, but is obliged to travel with parties, and so robbery and theft are rendered impossible, is uncertain. This gum is sweet-scented, and is much used in mixing either with medicines or scents of various kinds. For whichever of these purposes it is sold, it always fetches a high price like other valuable commodities, and for that reason gum benjamin is an article of commerce which merchants have bought and sold from time immemorial to the present day.—*Kew Bulletin.*

THE RELATION OF CHEMISTRY TO CIVILISATION.*

BY CLAUDE F. WALKER, B.S.

Chemistry is the systematic knowledge of the elements of matter in their relations to each other and to force. The development of chemistry has been an evolution in which true scientific reasoning, the result of a long course of induction, has been the guiding principle. The art of chemistry has made practical and profitable application of the truths exhibited in the established forms of science. Thus between our progressive science and art and the corresponding development of mankind there has grown up a relation which has a most important bearing upon human welfare.

Mankind is more than a mere aggregation of individuals; it is an organic unity, a great family, composed of the most diverse races bound together for the common interest by social and political laws, manifesting its power through the home and the state. It is the influence of this science and art on the progressive changes involved in the growth of this structure of humanity that incites our special interest.

Chemistry affects the development of mankind by its effect upon the human body and its physical environment. In procuring the necessities of life it has wrought wonders, turning stones into bread, plants into clothing, clay into palaces. It has transformed the continent and the globe itself. Mineralogy treats of the natural inorganic forms of matter composing the earth. Chemical mineralogy, by revealing the composition and structure of gases, liquids, and solids has given to man the mastery of the metals, the wealth of precious stones, and the energy evolved from mineral fuels. The increased knowledge of the working in iron and steel alone has revolutionised architecture. The new method of constructing high city buildings is of value from an economic standpoint. The increase in the strength and durability of bridges and the facility of their construction, together with the improvement in steel rails, have promoted the rapid advancement of means of transportation with corresponding effect upon the community at large. The invention of armour-plate and a like improvement in armaments have been the means of hastening the coming of the day when war shall give way to arbitration. We are still in the iron age, but even thinking men proclaim, not without reason, that aluminium is the metal of the future, destined by its peculiar properties and wide-spread occurrence to hold a much more important place in material civilisation than any other metallic substance.

Although in the popular conception of mineralogy the chief emphasis is laid upon the metals and their ores, it should be realised that the non-metallic minerals are no less important; indeed, their annual product often exceeds that of the metals in value.

The science of agriculture came into being only after chemistry revealed the processes involved in the germination of the seed and the growth of the plant. Chemists are able, by an examination of the soil and of previous crops, to determine with gratifying exactness what is necessary in the mechanical and chemical conditions of the soil to enable it to produce the desired quantity and quality of a given product at the least cost. With this knowledge it is possible also to supply what is deficient. Thus has been brought about a change in the condition of the rural classes which has marked effects upon the economic and social progress of the whole state. But what has been accomplished serves only as an incentive to further investigation. Great numbers of agricultural chemists, in and out of the experiment stations of the world, are devoting time and money to the solution of problems of vital interest.

The science of medicine, as well as agriculture and mineralogy, is greatly indebted to chemistry for its power to conserve and advance civilisation. To both the physician and the pharmacist such knowledge is essential. The number of medicinal substances that have been added to the materia medica by means of chemistry is very large. The wonderful advance of surgery resulting from the discovery of chloroform, ether, and other anæsthetics and antiseptics, together with the consequent boon to suffering humanity, is well known. Of no less importance is the aid it has given in the work of checking contagious diseases that devastated the world in former days. The whole of sanitary science, of such immense value to human life and progress, is largely based upon the researches of chemists.

Having provided thus efficiently for the human body and its material wants, it has not neglected to advance the mental development of mankind. The study of chemistry as a means of liberal

* From the *Popular Science News.*

education furnishes a course of mental training no way inferior to that offered by the classics. Theoretical chemistry demands the active employment of the brain to its utmost capacity. While the processes of the art are governed by rule, investigations in chemical theory are original, and the student must be master of his own faculties. He deals with phenomena from which he can derive the governing law only by making exact observations, precisely defining what is observed, using fixed terms, arranging the results in classified order, and rationally explaining them.

The two fundamental processes of chemical investigation are hypothesis and experiment. A hypothesis is a carefully devised supposition of existing conditions and relations, taken as a working idea in investigation. Every hypothesis must be sustained by repeated experiment. Experiment is the type and model of the methods of arriving at truth and involves exact observation and correct inference. Chemical experiment is the placing of matter under certain known conditions and observing its behaviour with a view to securing a fund of particular facts from which to derive by generalisation a fundamental law. By such hypotheses have all great generalisations of modern chemistry been secured, and by these has the mind of the chemist been fully developed in power, acuteness, and breadth of comprehension.

But the benefit has not been confined to his mind alone. This true scientific spirit which he first evoked has seized upon the minds of men in every profession and occupation until at last the methods of intellectual culture of the chemist have become the common methods of the people.

Exerting, as it does, a marked influence upon the physical and mental development of mankind, it would be strange if chemistry had no corresponding power over the training of the moral nature. That it does possess such a power cannot be disputed. The generalisations that are constantly being carried on in the realms of science result in a gradual growth of the world's ideas, lift man to a higher plane of living, and increase his happiness.

Chemistry exacts of every student full and perfect obedience to its many laws, under penalty of complete disaster. Every chemical operation, however insignificant, requires compliance with certain specific conditions. A failure to meet this requirement will not only be fatal to the desired result, but may involve a loss of property and even life. In every phase of his professional career the chemist is ruled by the laws of his science, the least violation of which is punished with inevitable failure. Obedience, the essential of all moral training, thus becomes second nature to the successful chemist.

In former times the chemist was often compelled to face persecution and death in the pursuit of his profession: to-day hardship and self-sacrifice are common to the devotee of chemistry. The world's great chemists are not actuated by self-love or avarice; truth and the welfare of humanity are the great ends they seek.

The student upon his first introduction to chemical physics finds himself contemplating a new universe. Each atomic group is a definite system in itself, moving in every direction, acting and reacting on others through the strange incomprehensible medium called ether. When he first attempts to discern this new universe through the senses, scepticism naturally arises. When his trained intellect thinks out the details of the unseen mechanism, perceives the laws governing the arrangement and retention of the invisible atoms in the moving molecule, sees the relation of the molecular vibrations to the three states of matter, and to the phenomena of heat, electricity, and chemical affinity, he believes that all this cannot be an illusion, a wild flight of fancy, but must be a veritable fact, since it is warranted by the principles of mathematics, and is requisite to the truthful interpretation of nature.

THE INFLUENCE OF VOLITION ON RESPIRATION.*

BY W. MARCET. M.D., F.R.S.

The lecturer first referred to the relation between muscular movements and volition, mentioning an experiment made by Mosso, of Turin, who fixed all the fingers of one hand except the middle one, with which he moved a weight up and down until the digital muscles were completely exhausted; at this stage the muscular exercise was carried on by means of electrical stimulation; after a short period it was found that the electrical stimulation could be left off and the exercise could be removed by the volition. Thus it appears that usually it is not from muscular but mental exhaustion that fatigue of muscles is felt.

When sitting in repose, the mind and body are at rest, and the breathing quiet and regular; if in these circumstances a strong effort of volition be made, though unattended by any muscular movement the volume of air breathed increases in amount. On ceasing the effort of volition, the events are the same as in forced respiration, namely, a short period of forced apnœa, followed by normal automatic breathing of repose. Dr. Marcet was led by the reflection that the term of apnœa after forced respiration is due to excess of oxygen in the blood, to try whether this excess of oxygen could be used to gain an increment of muscular power. This was shown to be the case by recording the number of times a weight could be raised to a certain height by the hand keeping time with a metronome. A striking result was obtained, it being found that after forced respiration for two minutes the weight could be lifted about twice as often to same height as without the forced respiration. The additional amount of CO_2 was far greater than was accounted for by the increase in the amount of oxygen due to the forced breathing. Dr. Marcet suggests that the difference in the two amounts of work was due to an increased amount of oxygen being taken up by the brain cells during the forced respiration. This conclusion was confirmed by farther experiments, and forms a corollary to Mosso's experiment.

Breathing under Diminished Atmospheric Pressure.—By taking the mean of many samples of expired air at various altitudes, on Mount Teneriffe and elsewhere, Dr. Marcet was able to arrive at the different quantity of air (corrected to dryness, sea-level, and freezing point) expired at various altitudes. It is remarkable that the quantity of air breathed increases with the increase in the rarefaction of the air. The explanation of this phenomenon is given by an experiment of Dr. Frankland's, who found that candles burn more brightly in air partially exhausted by an air-pump than in the surrounding atmosphere. It appears that the molecules of oxygen possess a greater mobility when in a state of rarefaction. Thus, the success of the treatment of consumptives by residence at elevated stations such as Davos and St. Moritz is also in part explained. The extreme cold at such altitudes is also beneficial, since cold reduces the volume of air that has to be inspired for the production of a given amount of carbonic acid. A further experiment of Frankland's is cited in explanation of the fact that cold is much less severely felt at high altitudes than it is near the sea-level. A platinum wire carried through an air-pump receiver was heated to redness by the passage of an electric current; when the receiver was exhausted the wire rose from red to white heat, although the strength of the current remained unchanged. The explanation of the result is attributed to the diminution of the heat lost by atmospheric conduction. Easy respiration at great altitudes is largely a result of training. Thus beginners may experience "mountain sickness" at an altitude of 10,000 ft., whilst practised

* Abstract of the Croonian Lectures recently delivered before the Royal College of Physicians. See also abstract on page 184.

mountaineers can bear twice that altitude without much discomfort. The experience of Glaisher when carried in a balloon to a height of 29,000 ft. ($9\frac{3}{4}$ in. of barometric pressure) is quoted to show that though the conception of volition may not be absent the power to respond to it is lost: "I laid my arm on the table possessed of its full vigour, but on being desirous of moving it I found it powerless, it must have lost its power momentarily. On trying to move the other arm I found it powerless also."

Respiration under Increased Pressure.—It is found that under increased atmospheric pressure more oxygen is absorbed than under ordinary circumstances; this is in keeping with Dalton's law, that the solubility of gases increases proportionately with the pressures. There is also a slight increase in the carbonic acid expired This, according to Bert, reaches its maximum at a pressure of three atmospheres.

At pressures above five atmospheres oxidation falls below normal, the excess of oxygen arresting rather than exciting oxidation. Bert has found that the oxidation of tissues ceases even in plants from excess of oxygen. Experiments with increased pressures of oxygen show that the latter is absorbed in quantities far exceeding the absorbing powers of the blood-corpuscles, while the excretion of CO_2 is but little or not at all increased. The benefit noticed in asthmatics treated by compressed air is attributed by Dr. Marcet to the training of the respiratory movements under the influence of the compressed air bath. The patients have been noticed to take deeper breaths when leaving the bath.

Inhalation of Carbonic Acid.—"The broad results obtained from this inquiry were as follow:—

"1. On rebreathing air in a closed vessel, less carbonic acid is expired in a given time than in ordinary breathing, a certain proportion remaining absorbed in the blood.

"2. When fresh air is taken into the lungs immediately after rebreathing, the volumes of air breathed and carbonic acid expired are greater than in ordinary breathing.

"3. When, after the rebreathing stage, fresh air has been inspired for five or six minutes, the blood has recovered its normal state of aeration and given out the whole of the carbonic acid which had been absorbed in the rebreathing stage."

Such is the author's short summary of the results of his experiments on rebreathed air. They are in keeping with the teachings of Bert and others.

In one of Dr. Marcet's experiments, rebreathing was continued until 13·64 per cent. of CO_2, and only 5·40 of oxygen were present. "The person under experiment felt very giddy, and the vision was obscured by a dark mist."

Asthma.—Dr. Marcet related the experience of a physician who suffered from this disease. "On Feb. 13 last after taking a cup of tea at 2.30 p.m., loud wheezing and tightness of the chest came on, when a succession of forced respirations had the immediate effect of arresting both the weakness and tightness; a second attack the same night was averted in a similar manner. In this case the forced breathing returned to the blood the oxygen it was clearly in want of, while at the same time removing the carbonic acid." After discussing the chief features of asthma the author recommends cycling as "the best of all means of training the respiration." In the only case of asthma in which this expedient was tried it appeared to be completely successful.

It has not been possible to do justice in these abstracts to Dr. Marcet's admirable lectures—the results of many years of patient investigation. It is, however, hoped that many readers will be moved to consult the full text, which may be found in the *British Medical Journal* or the *Lancet* for June 22, 1895, and the three succeeding numbers.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

PRESIDENTIAL ADDRESS.*

(*Concluded from p.* 255.)

Influence of Intercommunication afforded by British Association on Science Progress.

The advances in engineering which have produced the steam-engine, the railway, the telegraph, as well as our engines of war, may be said to be the result of commercial enterprise rendered possible only by the advances which have taken place in the several branches of science since 1831. Having regard to the intimate relations which the several sciences bear to each other, it is abundantly clear that much of this progress could not have taken place in the past, nor could further progress take place in the future, without intercommunication between the students of different branches of science.

The founders of the British Association based its claims to utility upon the power it afforded for this intercommunication. Mr. Vernon Harcourt (the uncle of your present General Secretary), in the address he delivered in 1832, said: "How feeble is man for any purpose when he stands alone—how strong when united with other men!

"It may be true that the greatest philosophical works have been achieved in privacy, but it is no less true that these works would never have been accomplished had the authors not mingled with men of corresponding pursuits, and from the commerce of ideas often gathered germs of apparently insulated discoveries, and without such material aid would seldom have carried their investigations to a valuable conclusion."

I claim for the British Association that it has fulfilled the objects of its founders, that it has had a large share in promoting intercommunication and combination.

Our meetings have been successful because they have maintained the true principles of scientific investigation. We have been able to secure the continued presence and concurrence of the master-spirits of science. They have been willing to sacrifice their leisure, and to promote the welfare of the Association, because the meetings have afforded them the means of advancing the sciences to which they are attached.

The Association has, moreover, justified the views of its founders in promoting intercourse between the pursuers of science, both at home and abroad, in a manner which is afforded by no other agency.

The weekly and sessional reunions of the Royal Society, and the annual *soirées* of other scientific societies, promote this intercourse to some extent, but the British Association presents to the young student during its week of meetings easy and continuous social opportunities for making the acquaintance of leaders in science, and thereby obtaining their directing influence.

It thus encourages, in the first place, opportunities of combination; but, what is equally important, it gives at the same time material assistance to the investigators whom it thus brings together.

The reports on the state of science at the present time, as they appear in the last volume of our Proceedings, occupy the same important position, as records of science progress, as that occupied by those reports in our earlier years. We exhibit no symptom of decay.

Science in Germany fostered by the State and Municipalities.

Our neighbours and rivals rely largely upon the guidance of the State for the promotion of both science teaching and of research. In Germany the foundations of technical and industrial training are laid in the Realschulen, and supplemented by the Higher Technical Schools. In Berlin that splendid institution, the Royal Technical High School, casts into the shade the facilities for education in the various Polytechnics which we are establishing in London. Moreover, it assists the practical workman by a branch department, which is available to the public for testing building materials, metals, paper, oil, and other matters. The standards

* Delivered at the Ipswich meeting by Sir Douglas Galton, K.C.B., D.C.L., F.R.S.

of all weights and measures used in trade can be purchased from or tested by the Government Department for Weights and Measures.

For developing pure scientific research and for promoting new applications of science to industrial purposes the German Government, at the instance of von Helmholtz, and aided by the munificence of Werner von Siemens, created the Physikalische Technische Reichsanstalt at Charlottenburg.

This establishment consists of two divisions. The first is charged with pure research, and is at the present time engaged in various thermal, optical, and electrical and other physical investigations. The second branch is employed in operations of delicate standardising to assist the wants of research students—for instance, dilatation, electrical resistances, electric and other forms of light, pressure gauges, recording instruments, thermometers, pyrometers, tuning forks, glass, oil-testing apparatus, viscosity of glycerin, etc.

Dr. Kohlrausch succeeded Helmholtz as president, and takes charge of the first division. Professor Hagen, the director under him, has charge of the second division. A professor is in charge of each of the several sub-departments. Under these are various subordinate posts, held by younger men, selected for previous valuable work, and usually for a limited time.

The general supervision is under a Council consisting of a president, who is a Privy Councillor, and twenty-four members, including the president and director of the Reichsanstalt; of the other members, about ten are professors or heads of physical and astronomical observatories connected with the principal universities in Germany. Three are selected from leading firms in Germany representing mechanical, optical, and electric science, and the remainder are principal scientific officials connected with the Departments of War and Marine, the Royal Observatory at Potsdam, and the Royal Commission of Weights and Measures.

This Council meets in the winter, for such time as may be necessary, for examining the research work done in the first division during the previous year, and for laying down the scheme for research for the ensuing year; as well as for suggesting any requisite improvements in the second division. As a consequence of the position which the science occupies in connection with the State in Continental countries, the services of those who have distinguished themselves either in the advancement or in the application of science are recognised by the award of honours; and thus the feeling for science is encouraged throughout the nation.

Assistance to Scientific Research in Great Britain.

Great Britain maintained for a long time a leading position among the nations of the world by virtue of the excellence and accuracy of its workmanship, the result of individual energy; but the progress of mechanical science has made accuracy of workmanship the common property of all nations of the world. Our records show that hitherto, in its efforts to maintain its position by the application of science and the prosecution of research, England has made marvellous advances by means of voluntary effort, illustrated by the splendid munificence of such men as Gassiot, Joseph Whitworth, James Mason, and Ludwig Mond; and, whilst the increasing field of scientific research compels us occasionally to seek for Government assistance, it would be unfortunate if by any chance voluntary effort were fettered by State control.

The following are the principal voluntary agencies which help forward scientific research in this country:—The Donation Fund of the Royal Society, derived from its surplus income. The British Association has contributed £60,000 to aid research since its formation. The Royal Institution, founded in the last century by Count Rumford, for the promotion of research, has assisted the investigations of Davy, of Young, of Faraday, of Frankland, of Tyndall, of Dewar, and of Rayleigh. The City Companies assist scientific research and foster scientific educatior both by direct contributions and through the City and Guilds Institute. The Commissioners of the Exhibition of 1851 devote £6000 annually to science research scholarships, to enable students who have passed through a college curriculum and have given evidence of capacity for original research to continue the prosecution of science, with a view to its advance or to its application to the industries of the country. Several scientific societies, as, for instance, the Geographical Society and the Mechanical Engineers, have promoted direct research, each in their own branch of science, out of their surplus income; and every scientific society largely assists research by the publication, not only of its own proceedings, but often of the work going on abroad in the branch of science which it represents.

The growing abundance of matter year by year increases the burden thus thrown on their finances, and the Treasury has recently granted to the Royal Society £1000 a year, to be spent in aid of the publication of scientific papers not necessarily limited to those of that Society.

The Royal Society has long felt the importance to scientific research of a catalogue of all papers and publications relating to pure and applied science, arranged systematically both as to authors' names and as to subject treated, and the Society has been engaged for some time upon a catalogue of that nature. But the daily increasing magnitude of these publications, coupled with the necessity of issuing the catalogue with adequate promptitude, and at appropriate intervals, renders it a task which could only be performed under International co-operation. The officers of the Royal Society have therefore appealed to the Government to urge Foreign Governments to send delegates to a Conference to be held next July to discuss the desirability and the scope of such a catalogue, and the possibility of preparing it.

The universities and colleges distributed over the country, besides their function of teaching, are large promoters of research, and their voluntary exertions are aided in some cases by contributions from Parliament in alleviation of their expenses.

Certain executive departments of the Government carry on research for their own purposes, which in that respect may be classed as voluntary. The Admiralty maintains the Greenwich Observatory, the Hydrographical Department, and various experimental services; and the War Office maintains its numerous scientific departments. The Treasury maintains a valuable chemical laboratory for Inland Revenue, Customs, and agricultural purposes. The Science and Art Department maintains the Royal College of Science, for the education of teachers and students from elementary schools. It allows the scientific apparatus in the national museum to be used for research purposes by the professors. The Solar Physics Committee, which has carried on numerous researches in solar physics, was appointed by and is responsible to this Department. The Department also administers the Sir Joseph Whitworth engineering research scholarships. Other scientific departments of the Government are aids to research, as, for instance, the Ordnance and the Geological Surveys, the Royal Mint, the Natural History Museum, Kew Gardens, and other lesser establishments in Scotland and Ireland; to which may be added, to some extent, the Standards Department of the Board of Trade, as well as municipal museums, which are gradually spreading over the country.

For direct assistance to voluntary effort the Treasury contributes £4000 a year to the Royal Society for the promotion of research, which is administered under a board whose members represent all branches of Science. The Treasury, moreover, contributes to marine biological observatories, and in recent years has defrayed the cost of various expeditions for biological and astronomical research, which in the case of the "Challenger" expedition involved very large sums of money.

In addition to these direct aids to science, Parliament, under the Local Taxation Act, handed over the County Councils a sum, which amounted in the year 1893 to £615,000, to be expended on technical education. In many country districts, so far as the advancement of real scientific technical progress in the nation is concerned, much of this money has been wasted for want of knowledge. And whilst it cannot be said that the Government or Parliament have been indifferent to the promotion of scientific education and research, it is a source of regret that the Government did not devote some small portion of this magnificent gift to affording an object-lesson to County Councils in the application of science to technical instruction, which would have suggested the principles which would most usefully guide them in the expenditure of this public money.

Government assistance to science has been based mainly on the principle of helping voluntary effort. The Kew Observatory was initiated as a scientific observatory by the British Association. It is now supported by the Gassiot trust fund, and managed by the Kew Observatory Committee of the Royal Society. Observations on magnetism, on meteorology, and the record of sun-spots, as well as experiments upon new instruments for assisting meteorological, thermometrical, and photographic purposes, are being carried on there. The Committee has also arranged for the verification of scientific measuring instruments, the rating of chronometers, the testing of lenses and of other scientific apparatus. This institu-

tion carries on to a limited extent some small portion of the class of work done in Germany by that magnificent institution, the Reichsanstalt at Charlottenburg, but its development is fettered by want of funds. British students of science are compelled to resort to Berlin and Paris when they require to compare their more delicate instruments and apparatus with recognised standards. There could scarcely be a more advantageous addition to the assistance which Government now gives to science than for it to allot a substantial annual sum to the extension of the Kew Observatory, in order to develop it on the model of the Reichsanstalt. It might advantageously retain its connection with the Royal Society, under a Committee of Management representative of the various branches of science concerned, and of all parts of Great Britain.

Conclusion.

The various agencies for scientific education have produced numerous students admirably qualified to pursue research; and at the same time almost every field of industry presents openings for improvement through the development of scientific methods. For instance, agricultural operations alone offer openings for research to the biologist, the chemist, the physicist, the geologist, the engineer, which have hitherto been largely overlooked. If students do not easily find employment, it is chiefly attributable to a want of appreciation for science in the nation at large.

This want of appreciation appears to arise from the fact that those who nearly half a century ago directed the movement of national education were trained in early life in the universities, in which the value of scientific methods was not at that time fully recognised. Hence our elementary, and even our secondary and great public schools, neglected for a long time to encourage the spirit of investigation which develops originality. This defect is diminishing daily.

There is, however, a more intangible cause which may have had influence on the want of appreciation of science by the nation. The Government, which largely profits by science, aids it with money, but it has done very little to develop the national appreciation for science by recognising that its leaders are worthy of honours conferred by the State. Science is not fashionable, and science students—upon whose efforts our progress as a nation so largely depends—have not received the same measure of recognition which the State awards to services rendered by its own officials, by politicians, and by the Army and by the Navy, whose success in future wars will largely depend on the effective applications of science.

The Reports of the British Association afford a complete chronicle of the gradual growth of scientific knowledge since 1831. They show that the Association has fulfilled the objects of its founders in promoting and disseminating a knowledge of science throughout the nation.

The growing connection between the sciences places our annual meeting in the position of an arena where representatives of the different sciences have the opportunity of criticising new discoveries and testing the value of fresh proposals, and the Presidential and Sectional Addresses operate as an annual stock-taking of progress in the several branches of science represented in the Sections. Every year the field of usefulness of the Association is widening. For, whether with the geologist we seek to write the history of the crust of the earth, or with the biologist to trace out the evolution of its inhabitants, or whether with the astronomer, the chemist, and the physicist we endeavour to unravel the constitution of the sun and the planets or the genesis of the nebulæ and the stars which make up the universe, on every side we find ourselves surrounded by mysteries which await solution. We are only at the beginning of work.

I have, therefore, full confidence that the future records of the British Association will chronicle a still greater progress than that already achieved, and that the British nation will maintain its leading position amongst the nations of the world, if it will energetically continue its voluntary efforts to promote research, supplemented by that additional help from the Government which ought never to be withheld when a clear case of scientific utility has been established.

Mercury Precipitates Platinum when agitated with a solution of a platinum salt. E. Sonstadt (*Journ. Chem. Soc.*, lxvii., 985), states that a solution of 1 part of potassium platino-chloride in 3,000,000 parts of water may be distinguished from pure water by the test, provided the mercury be quite pure.

PROCEEDINGS UNDER THE PHARMACY ACTS.

Illegal Sales of Poisons in Edinburgh.

As briefly reported in last week's Supplement, the case of Richard Bremridge, Registrar under the Pharmacy Acts, *versus* William McCallum, adjourned from Friday, August 30 (see *ante*, p. 212) was again brought up at the Sheriff Court House, Edinburgh, on Thursday, September 19. The objections as to relevancy of the complaint, which charged the respondent with having unlawfully sold chloral hydrate and opium were repelled.

The respondent then pleaded not guilty, but was convicted of four offences and fined fifty shillings for each offence, with two guineas costs. A case for appeal was granted.

On the same day and at the same court the cases in which the respondents pleaded not guilty on Tuesday, September 17 (see *ante*, p. 257), came on for trial.

Ernest Elias Tidboald Badcock Greville, trading under the title of "The Medical Supply Association," was charged with having kept open shop for the sale of poisons at 12, Teviot Place, Edinburgh, where an agent of the Registrar of the Pharmaceutical Society purchased a quantity of corrosive sublimate as an ingredient in a four ounce bottle of concentrated solution of perchloride of mercury on Monday, May 27, 1895, and a quantity of corrosive sublimate as an ingredient in a bottle of Parke, Davis, and Company's "antiseptic tablets," on August 3, 1895. Defendant, who was represented by Mr. Norman Macpherson, S.S.C., alleged that he is a qualified medical man, M.B. and C.M., but admitted that he was not registered. He satisfied prosecutor that he has registered since the last diet, and undertook to cease selling poisons altogether or that poisons should only be sold by qualified persons. On these conditions, therefore, the case was withdrawn.

John Whitelaw, an assistant in the shop of Archibald Young and Son, surgical instrument makers, 61, Forrest Road, Edinburgh, was charged with having sold a quantity of "corrosive sublimate" as an ingredient in a bottle of Seabury's "bichloride of mercury tablets" on Monday, May 27, 1895. He pleaded guilty and was fined one pound and one guinea costs, the same penalty being imposed in the case of Robert Whitelaw, an assistant in the shop of J. Gardner and Son, 32, Forrest Road, Edinburgh, who had also pleaded guilty (see *ante* p. 257).

J. M. Turnbull, dealer in photographic materials, was charged with keeping open shop for the sale of poisons at 6, Rose Street, Edinburgh, where an agent of the Registrar purchased 1 ounce of corrosive sublimate on Monday, May 27, and also with using or exhibiting the title "chemist" on his premises at the above address. He pleaded not guilty, and, after evidence had been given, judgment was reserved until Thursday, September 26, the Sheriff having expressed a desire to be supplied with a report of the judgment in the Exeter Appeal case, "Pharmaceutical Society *v.* Hornsey," on the question of keeping open shop.

William Hume, scientific instrument maker, who was charged with having kept open shop for the sale of poisons, at 1, Lothian Street, Edinburgh, where an agent of the Registrar purchased four ounces of cyanide of potassium, on Friday, August 23, 1895, and was further charged with using the title "chemist" in a price-list issued on June 13, 1895, also pleaded not guilty, and in his case judgment was likewise reserved until September 26.

Illegal Sale of Laudanum in Glasgow.

In the Glasgow Sheriff Court on Friday, September 20, Hugh Lees, assistant to Matthew Dunning, chemist, 75, Nelson Street, Tradeston, Glasgow, was charged before Sheriff Guthrie, at the instance of the Pharmaceutical Society (1), with having illegally sold to Joseph Sime, a child of six years of age, residing at 61, Dale Street, South Side, a quantity of laudanum, being a preparation of opium, and (2) with having, on the same date, sold to Charles Sime, a boy of ten years of age, residing at 61, Dale Street, a quantity of laudanum being a preparation of opium, he not being a duly registered pharmaceutical chemist or chemist and druggist.

Mr. Gemmell, on behalf of Lees, objected in the first place to the heading of the complaint, on the ground that it did not refer to the Criminal Procedure Act, 1887, and to the Pharmacy Act. In the second place, he held that it was incompetent under the Pharmacy Act of 1868 to libel the two sales of poisons set forth in the complaint as separate offences, in respect that the Act contemplates the selling or keeping open of a shop for selling poisons as one continuous offence, and quoted Justice Hawkins' decision as to the interpretation of the Apothecaries Act in support of his contention

He objected, in the third place, that the prayer of the complaint asked for penalties for two separate offences; only one, he argued, being competent upon the facts as stated.

Mr. Morison, in reply, said that in the first place the objections were too late in being stated, because the accused had already pleaded. He would, however, waive that point, and allow him to put in his objections now. He also consented to amend the complaint so as to obviate his friend's first objection by inserting in the heading the references to the Criminal Procedure Act, 1887, and the Pharmacy Acts. As regarded the other objections, they did not apply to prosecutions under the Pharmacy Act. The words "having sold" in the 15th Section of the Pharmacy Act contrasted themselves in a very striking way with the words in the Apothecaries Act "That a person who shall act as an apothecary." It might take a number of sales to make a person to "act" as an apothecary. But the Superior Courts, both in Scotland and England, had settled conclusively that any person who made one sale was liable in a penalty. The accused here was libelled with having made two sales, and if he did make two sales he was liable in two penalties. His friend's objection that they could not make two separate charges really was a matter which should come up when the merits of the case were disposed of, and on the failure of the prosecution to prove two sales. In that case it might be a good ground for suspension.

The Sheriff allowed the complaint to be amended so as to obviate the first objection; but in regard to the other points raised by Mr. Gemmell, His Lordship took the view argued by Mr. Morison, and held that the case quoted in connection with the Apothecaries Act did not hold good under the Pharmacy Act. His Lordship accordingly repelled the second and third objections.

Mr. Gemmell asked the Sheriff to make a note of his objections, and this was allowed.

Lees then pleaded not guilty, and evidence was heard.

Mr. J. Rutherford Hill, assistant secretary of the Pharmaceutical Society, said he received the papers in this case from the Crown for prosecution. The name of the accused did not appear in the Society's Register, which he produced. Immediately a man qualified he was put upon the Register. The prosecution had not been delayed for five months to permit of additional evidence being got against the accused. Witness got a list of witnesses from the Crown, and he had to precognosce those witnesses. He had not been using means to get another case against the accused. He only learned of the case through the Crown. The evidence had to be considered, and there had been no unnecessary delay on the part of the Society.

Dr. John G. Wilson said that on April 23 he was called to the house of Mrs. Sime in Dale Street. He was told that she had taken laudanum, and he treated her accordingly. She was lying insensible on the bed, and notwithstanding his efforts she died. He had no doubt she died from taking an overdose of laudanum. On the table he found an ounce bottle smelling of laudanum and bearing one of Mr. Dunning's labels. He sent to Dunning's shop for restoratives, and Dunning accompanied the messenger to the house and assisted him in his efforts to bring the woman round. He did not see what became of the bottle. Dunning's label was on the bottle. So far as he knew the laudanum might have been got anywhere although Dunning's label was on it.

Detective James Davidson said that on April 24 he was requested to make inquiry into the cause of the death of Mrs. Sime by the Crown authorities. He went with Joseph and Charles Sime, two little boys, to Dunning's shop at 75, Nelson Street. Dunning was alone in the shop, and the boys said it was not he who sold them the laudanum. Dunning told witness he had been in the house the night before and took possession of the bottle. He went with the two boys to the shop again on May 3, and on that occasion Lees was in the place, and both boys pointed him out as the person who sold the poison to them. Lees, in reply, said he did not sell any poison to them on April 23, adding that he would not sell laudanum to such young boys. The boys were quite certain of Lees.

Elizabeth Sime, aged 18, said the woman who poisoned herself was her mother. On April 23 she saw her brother Joseph coming into the house with a bottle of laudanum in his hand. It was a small bottle with a red label, and Mr. Dunning's name was on it. Her mother was in the room at the time, and witness took the bottle and emptied the contents of it into the sink. When her mother entered the kitchen and was told what she had done, she got the bottle, and, saying she would get more, left the house. When she returned she went into the room, but in a short time she entered the kitchen again, and, producing the empty bottle, said she had swallowed the contents of it. It was the same bottle. When her father arrived home about half-past six, he sent witness down to Dunning's shop to inquire if the quantity her mother had taken would do her any harm. She saw in the shop a young man, who told her that if she had taken the whole of it it would kill her, and that she should give her mustard and water, and make her walk up and down the room. She thought the young man she saw was the accused, but she could not now identify him. She subsequently went down for ammonia, and Dunning returned with her. The bottle disappeared, but she could not say if Dunning took it.

Charles Sime, aged 10, said he was met by his mother at the Close Mouth when returning from school on the day in question, and asked to go for fourpence worth of laudanum. She gave him a bottle and a sixpence. She did not say where he was to go for it. He went to Dunning's shop and was supplied by Lees, whom he now saw in Court. Lees asked him what it was for, and he said it was for his mother's head. He got two pence back. When he went with the detective to the shop Dunning was in the first time and Lees the second. His mother met him on the stairs when he returned with the laudanum, and went into the room with it.

John Sime, aged 17, said that Dunning took the bottle and put it in his pocket, remarking that it might get him into trouble.

Joseph Sime, a little boy of six years, brother of the last witness, said that he was sent by his mother to Dunning's shop for laudanum. He got a bottle and gave it to his sister, who spilled it on the floor. That was on the day of his mother's death.

Matthew Dunning said he was a registered chemist at 75, Nelson St. He also had a doctor's qualification, having graduated in July of this year. He was in the shop himself pretty regularly during the month of April. He had only one assistant, the lad Lees. Witness was not in the shop between three and five on the afternoon of April 23. He remembered a girl coming into his shop that evening and asking for ether and some other things. He took up the medicines himself to the house of the Simes, and assisted Dr. Wilson. Mrs. Sime was not in a comatose state when he got up. He could not say that she died from laudanum poisoning. He saw an ounce bottle in the house. It had his label on it with "Laudanum" and "Poison" printed on it. He took the bottle but did not know why. Lees had been with him for about eighteen months. He came to him as an experienced assistant. Witness was very particular in regard to his instructions to his assistants about selling poisons.

Mr. Morison and Mr. Gemmell afterwards addressed the Court, the former maintaining that both charges had been clearly proved, and the latter that nothing had been proved.

Sheriff Guthrie in delivering judgment said: I can hardly understand why this case has been so tenaciously fought out by both sides. It is a very simple case, and I do not see why it should be at all aggravated by the circumstance that the poor woman died in consequence of the laudanum being sold; I have nothing whatever to do with the result of the laudanum being sold. Supposing five hundred people had died with the same laudanum, that would not affect the character of the offence that is charged here, which is simply the offence of selling laudanum across a counter. The case might have been tried in half-an-hour instead of taking two or three hours. As regards the case itself, it appears to me, in the first place, that it is quite clear that there is legal evidence to show that Lees is not on the Register, because there is a clause in this Act, which Mr. Gemmell has not referred to, which seems to me to have been put there for the express purpose of placing the onus of producing the certificate of registration upon the party accused, and if Mr. Lees had been admitted since January 1, 1895, it was for him to produce a copy of the certificate to show that he was duly qualified at the date on which the offence is charged. I must, therefore, take it that the Act requires me to hold that Mr. Lees is not registered according to the Pharmacy Act. With regard to the offence, people have been sent to prison for many years on evidence less conclusive than that brought against Mr. Lees in regard to both of these cases. I have no hesitation, therefore, in finding him guilty of both. In regard to the penalty, I do not think I should increase the penalty because this poor woman died. I impose a penalty of £2 10*s.* in each case, or £5 in all, and £2 2*s.* of expenses.

Illegal Sale of Laudanum in Salford.

On the 24th instant, at the Salford County Court, William Stott, assistant to Mr. J. Jones, chemist, of 143, Chapel St, Salford, was sued by the Council of the Pharmaceutical Society of Great Britain for a penalty of £5 for selling poison, viz., laudanum, contrary to the provisions of the Pharmacy Act, 1868.—Defendant having admitted the offence, judgment was given for the penalty claimed.

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THE SOCIETY OF APOTHECARIES.

THE Society of Apothecaries is described by a writer in the *Citizen* as at once a minor city guild and an important national institution. Apothecaries carried on business in London for centuries before James I. chartered the Society, but those earlier members of the craft were included in the Grocers' Company. The prime mover in the liberation of drugs from groceries was GIDEON DE LAUNE, apothecary to the Queen of James I., and the charter of incorporation, bearing date 1617, conferred upon the master, wardens, and assistants examining powers in the City and within a radius of seven miles. These powers were strengthened and enlarged in the present century. Primarily the duty of an apothecary was to sell medicines and understand their composition, and he was supposed to use only the prescriptions of physicians, but in practice he prescribed pretty extensively himself, being eagerly patronised by people who could not afford to pay heavy fees. This aroused the jealousy of the College of Physicians, which in 1687 endeavoured to regain its prestige by resolving that all its members should give advice gratis to the sick poor of London and the environs. The physicians next accused the apothecaries of raising the prices of medicines to people who were suspected of having obtained free prescriptions, and so the next step was to establish a public dispensary at the College of Physicians, then located in Warwick Lane. The disputes between the College and the Society waxed warmer and warmer, but the apothecaries were strengthened by dissension among the physicians themselves. After many years of bitter contention, a peace was patched up and the College dispensary closed, and soon afterwards the apothecaries obtained a legal acknowledgment of their right to dispense and sell medicines without physicians' prescriptions.

The Apothecaries Act of 1815 gave the Society enlarged powers, and under that Act originated the large class of medical men who, obtaining in addition to the licence of the Society membership of the College of Surgeons, became known as general practitioners. By the Medical Act of 1858 the Society of Apothecaries was recognised as a licensing body and authorised to have a representative on the Medical Council then created. Further important changes were effected by the Apothecaries Act Amendment Act, 1874, which provided that the Society should choose examiners outside its own membership, abolished apprenticeship as a condition of obtaining a licence, and authorised the Society to strike off its list of licentiates any person convicted of felony or misdemeanour. Until 1886 the Society could not grant a statutory licence to practise surgery, but legislation adopted in that year has since enabled the Apothecaries to grant a statutory and registrable diploma in medicine, surgery, and midwifery. So at the present time an apothecary is no longer merely a man who keeps medicines for sale, but a fully qualified medical practitioner.

Nearly all the members of the Apothecaries' Society belong to the medical profession, the only exceptions being a few who have obtained membership by patrimony. The master, wardens, and assistants are almost invariably medical men. The livery is limited to one hundred and ninety, and the yeomanry, as the freemen are called, now numbers about one hundred and sixty. Most of the funds are obtained from examination fees, and the trust money is not large. There is a fund maintained by the contributions of members for the relief of members' widows left in necessitous circumstances, and a distressed members' fund. Subscriptions are also made from time to time to medical charities, and about five hundred pounds a year is spent on the botanical garden at Chelsea, to which medical students have access. "Drugs are still made and sold at Apothecaries' Hall, not, however, with a view to profit, but for the purpose of maintaining a standard of purity," observes the writer of this interesting article. This is not an exact statement of fact, however, for there is little doubt that a balance on the wrong side would soon lead to the extinction of this department. The Society undoubtedly constitutes an interesting link between the apothecaries of last century, who learnt their trade by apprenticeship, and the medical practitioners of the present day who qualify themselves for their honourable profession with much study and expense. Its history also affords a curious instance of the conservatism of the English people, whose old institutions from time to time are brought into line with modern requirements, and then in the most matter of fact way accustom themselves to the spirit of the times.

AMERICAN PHARMACEUTICAL ASSOCIATION.

THE volume recording the proceedings of this Association for 1894 has at last come to hand, and the suggestion that it was intended not to send copies to the conductors of journals sent in exchange (see last volume, p. 1159) would appear therefore to be baseless. Whether the intention did ever exist or not we are ignorant, but we are very glad to be able to record the fact that no such intention has been carried into effect. With regard to the volume before us, it contains 1394 pages, 466 of which record the proceedings at the Asheville meeting, whilst 815 are devoted to the annual report on the progress of pharmacy, including descriptions of novel apparatus and manipulations, new remedies and formulæ, and brief records of the year's work in chemistry, botany, materia medica, and pharmacy generally. This report is exceedingly well done, and so conveniently arranged that no one referring to it should experience any difficulty in finding the information given on any desired subject. The Association is cordially congratulated on having produced a most useful and satisfactory volume.

It is especially interesting to find that, in the introductory section with which the report is prefaced, the first article

is that entitled "Pharmacy for the Pharmaeist," which appeared in the editorial eolumns of the *Pharmaceutical Journal* for February 17, 1894. The following passage from that article is singled out by the editor of the "Proceedings," and rendered prominent by printing in italies:—"The pharmaeist is not speeially a chemist or botanist, any more than he is a mere hanger-on of the medical profession; but he will reap the greatest benefit from his scientific training by applying the results of that training in pharmaceutieal praetice, rather than by attempting to usurp the functions of professional ehemists, botanists, or medical men." It is satisfaetory to find that the principle here laid down is aeeepted by the more prominent of our transatlantie brethren.

An equally important principle is enunciated in an artiele by J. U. Lloyd, relating to pharmaceutieal preparations, and taken from the *Pharmaceutische Rundschau*, the following sentence being italicised in the reprint in the "Proeeedings": "Unless there be a revival (and there seems to be no prospect for such), the practice of plant pharmacy will fall exclusively into the hands of manufaeturers, who, working by private methods and with the aid of aecomplished pharmacists and ehemists, ean and will accomplish that whieh seems to be now generally overlooked, and whieh lies dormant among the outreaches beyond pharmaey." The idea thus expressed is as worthy of ineulcation as that previously referred to, as together they probably eonstitute the key to the pharmaeist's position in the world at the present time.

OPENING OF THE SCHOOL OF PHARMACY.

The President of the Pharmaceutical Society will take the chair at three o'clock precisely on Wednesday afternoon next, October 2, on the oeeasion of the inauguration of the fifty-fourth session of the Society's School of Pharmaey. The reports on the progress of the School during the past session will be presented, and the President will then distribute the sessional prizes and certificates to the suceessful students. Subsequently, an address to the students will be delivered by Professor F. T. Roberts, M.D., F.R.C.P., of University College Hospital, London. Pharmaeeutieal students generally are invited to attend and bring their friends—ladies as well as gentlemen. At the eonclusion of the proceedings the Soeiety's House will be open for the inspeetion of visitors.

PRESENTATION OF THE HANBURY MEDAL.

At the meeting of the Pharmaeeutieal Soeiety on Wednesday afternoon next, in addition to the usual business, the eighth biennial presentation of a gold medal will be made by the President, in aeeordanee with the conditions of the Hanbury Memorial Fund, the reeipient on this oeeasion being Dr. August E. Vogl, Professor of Pharmaeology in the University of Vienna. Professor Vogl is unfortunately unable to attend personally on Wednesday, but the Austro-Hungarian Ambassador has requested Count Siegfried Clary, Counsellor to the Embassy, to attend the meeting, in order to receive the medal. It is to be hoped that there may be a thoroughly representative assembly of British pharmacists on this occasion.

THE PRICE OF CAMPHOR.

According to the New York *Journal of Commerce* the reeent rapid rise in the priees of raw and refined camphor is due to the operations of an English syndieate, whieh has had eontrol of the entire supply of the raw article for some time past, thus holding refiners at its merey. The priee in New York of Ameriean refined camphor has been equivalent to as mueh as 2*s.* 6*d.* to 2*s.* 7*d.* per pound, whilst Japanese and German refined were quoted at 2*s.* 3*d.* per pound, whereas little more than a month ago Ameriean was being sold at 2*s.* 2½*d.* to 2*s.* 3*d.*, and Japanese at 1*s.* 11½*d.* to 2*s.*, whilst at the eorresponding date last year the quotations ranged about 1*s.* 9*d.* per pound. The *Journal of Commerce* states that the American consumption of eamphor has steadily deelined sinee the time that 1*s.* 5½ per pound was exeeeded. Substitutes have been employed as far as possible, and will hold their plaee so long as the priee remains above 1*s.* 8*d.* Stocks in the hands of refiners and merehants have steadily diminished, however, and the present available supply in the United States is much below that of ordinary times. In London the market for bothraw and refined camphor continues very firm, priees of the latter being proportionately lower than those of the former. Very little English refined is being offered by merchants, but supplies of German are fairly abundant. The main cause of the advance of prices is said to be the apprehension of diminished supplies from Formosa, consequent upon the unsettled state of the island sinee the China-Japan War.

THE MISERIES OF A CHEMIST'S LIFE.

A copy of an artiele with this title, published in *Scottish Nights*, has been forwarded by a eorrespondent who concludes his letter with the equivocal statement that it is true, so far as he is eoncerned. However this is meant to be taken, we sincerely hope it is based on a misapprehension. At the outset the writer of the article states that the "miseries" are multitudinous, and that no man who has a tendency to gloomy imaginings, or who is hyper-sensitive, should think of qualifying as a ehemist. "No matter how loudly a British publie may shout about elevenpenee being profit in every shilling; no matter what your great maiden aunts may say as to its being 'sueh a respeetable calling, you know'; and no matter how big an intelligence you've got on your own hook, don't, as you value your piece of mind, ever be led to drudge behind carboys and speeie jars." He then proceeds to detail a number of "miseries" caused by real or imaginary aecidents, and narrow eseapes from aeeidents, and eoncludes with a pathetic though implied protest againt the want of space, which forbids him to dwell upon a multitude of other things that eontribute to the miseries (?) of a ehemist's life, "sueh as the want of unanimity amongst the brotherhood, the contest continually going on to find out who can sell cheapest, the miserably long hours, and the ehance of a visit from an officer who has an inordinate taste for sweet spirits of nitre, or some other highly volatile medicament." We are strongly inelined to suspeet the writer of either humorous or hypochondriaeal tendeneies. Most of his "miseries" are "vain imaginings," and if he be indeed a chemist and in earnest, we would advise him to try the effeet of a brief holiday, the further away from the source of his eares the better.

NOTES AND NEWS.

Opening of the Winter Session.—Secretaries of scientific societies, pharmaceutical associations, etc., are requested to send copies of their programmes for the session 1895–6 to the Editor as soon as published. Subsequent notices of meetings should be sent not later than Wednesday in the week preceding that during which any given meeting is to take place. Announcement will then be made in due form in the Journal "Diary."

Pharmacy in Ultima Thule.—During the herring fishery season in Shetland this past summer, when about 300 boats were congregated in Baltasound—a magnificent natural harbour in North Unst, the most northerly island of the Shetland group—a branch business was opened for three weeks by Mr. Robertson, of Frazerburgh, much to the convenience of the fishing population, which, on the approach of the herring shoals, suddenly rises from two or three hundreds to as many thousands. The season is very short. For a few weeks there are 2000 fishermen and almost as many female gutters and packers toiling through the endless summer days of these high latitudes, the temporary telegraph office being constantly besieged by excited curers and agents. Then we find again the silence only broken by the break of the waves or the scream of the sea-gull. Long rows of storm-bleached wooden sheds are all that is left to tell of the tumultuous gathering at this "harvest of the sea" which annually takes place in the lonely Voe. The fisher-folks of Baltasound vanish as quickly as they come, betaking themselves along with the herring shoals southwards. Mr. Robertson's enterprise met with satisfactory reward, his north journey not interfering with the usual home season, which immediately follows the other. We suppose such enterprise does not find time to complain that "the best days of the drug trade are gone." Above the door of the Frazerburgh shop a conspicuous tablet reads, "Apotheke; Chemikalien und Droguen-handlung." If Mr. Robertson's net does not yield him a good "catch" it cannot be because of its limited extent or his timidity in "shotting."

'The Chemists' Compendium.'—Messrs. Whittaker and Co. announce the publication of a work specially adapted for pharmacists' assistants and students under the above title. It is intended to serve the purpose of a book of reference and to furnish information on the many subjects with which pharmacists are concerned in the daily exercise of their craft. The work is compiled by Mr. C. J. S. Thompson, and judging from the table of contents in the prospectus issued, it promises to fulfil his anticipation that it will be an indispensable companion for the pharmacist.

"Free Research."—Our esteemed contemporary, the *Chemical News*, publishes an address to students which is in a somewhat unusual vein. After grumbling at large at the Legislature and its officials, the writer of the article accuses some medical men and a few pharmacists of keeping up a chronic agitation "to encumber the sale of the ordinary mineral acids with red-tape provisons," and concludes with the statement that "any such enactment cannot have other than an unfavourable action upon chemical research. 'Free research' should be the watch-word of every man of science, and it is in the long run 'essential to the welfare of the community.'" Without calling in question the value of the sentiments expressed, we may yet venture to doubt whether a regulation enforcing the use of a poison label on all supplies of mineral acids is likely to prove a real hindrance to research, and we believe that regulation is the most that is asked for.

Restoration of Old Oil of Lemon.—As the result of experiments conducted to determine the possibility of restoring oxidised oil of lemon, B. W. Kelling (*West. Drugg.*) definitely states that, if the oxidised terpenes be removed and the residue be fortified with citral, the desired result can be obtained. The resin-like constituents can be removed by shaking the oil with caustic potash solution, diluting the mixture with water, then separating the layers, neutralising with sulphuric acid, and distilling the oil by passing steam through it. But a saturated aqueous solution of potassium permanganate is preferred for removing the terpenes, and after shaking thoroughly with the oil, the latter is separated and distilled with steam. Sufficient citral is then added to the distillate to give the oil the proper odour.

American Pharmaceutical Association.—Canada is to have the honour of entertaining this Association next year, as our United States fellow-pharmacists, who think nothing of long-distance rides to their annual business meeting and picnic, have decided to assemble at Montreal on August 12, 1896. The president-elect is Dr. George J. Ward, of St. Clair. The Association now numbers nearly eighteen hundred members.

Hooker's 'Icones Plantarum.'—The *Kew Bulletin* announces that the fourth and concluding part of the fourth volume of the fourth series of this work—plates 2376 to 2400—has been published. Amongst the species referred to is *Mascarenhasia utilis* (Apocynaceæ), a native of Madagascar, from the collection of the Rev. R. Baron, who states that it is one of the important plants from which india-rubber is obtained. *Mussændopsis beccariana* is a Malayan tree allied to the American *Calycophyllum*. This is the second genus of this affinity recently figured in the work, the other being *Emmenopterys*, a native of China. Several interesting grasses are figured, among them *Cyathopus*, a new genus from Sikkim. *Didissandra longipes*, *Rhododendron hancockii*, *Brandisia racemosa*, *Jasminum primulinum*, and *Codonopsis convolvulacea* are Chinese plants of an ornamental character, collected in Eastern Yunnan by Mr. W. Hancock. From the Rev. R. B. Comins's last Solomon Islands' collection there are the curious *Tabernæmontana anguinea*, *Stemonurus megacarpus*, and *Oxymitra macrantha*. *Argostemma concinnum* is a miniature one-flowered plant belonging to the Rubiaceæ, collected in Northern Siam by Mr. Smiles, of the Royal Survey Department.

Official Guide to Kew Museums, II.—The 'Official Guide to the Museums of Economic Botany, No. II.,' lately issued, is the first entirely devoted to Monocotyledons and Cryptogams. It contains notes on the orchid, ginger, iris, narcissus, and lily orders, and affords specially valuable information respecting the palm order, which furnishes the daily food, habitation, and utensils of a large proportion of the human race. It deals with the economic productions of the *Gramineæ*, including all the cereals and the tropical bamboos, and discusses also the various uses of the Cryptogams, including the club-mosses, ferns, seaweeds, and mushrooms.

Plymouth and District Chemists' Association.—We are requested by Mr. Jas. Cocks, Honorary Secretary of this Association, to state that he will be glad to know the results of the efforts of those who have not already reported to him, in connection with the issue of the circular asking them to interview local parliamentary candidates. It is proposed to tabulate the results for presentation at the meeting on the occasion of the annual dinner of the Association next month.

THE "JEREMIAH OF PHARMACY."—The *American Druggist*, commenting on the proceedings of the Pharmaceutical Conference at Bournemouth, remarks that Mr. Martin "succeeds fairly well in vindicating his claim to be considered the Jeremiah of pharmacy," but since the latest "jeremiad" is directed at British pharmacy, our contemporary is inclined to accept it with greater equanimity than the "arraignment of American pharmacy some two years ago."

NATIONAL FORMULARY EPITOME.—With a view to attracting the attention of pharmacists and physicians to the advantages offered by the National Formulary as a work of reference, at the meeting of the Kentucky Pharmaceutical Association held last year it was decided to draft an Epitome of the work. This, we are informed, is now ready for publication. It is described as a small leather-bound vest pocket book of fifty-three pages, so arranged that the name of each preparation, ingredients and quantity in each dose, and general medical properties, can be seen at a glance. There is also a therapeutic index. It is anticipated that pharmacists will present copies of the Epitome to neighbouring physicians, and quantities will therefore be supplied at cost price, about sixpence or sevenpence each. Orders are to be sent to Mr. Charles G. Morris, 28th and Dumesnil Streets, Louisville, Ky., U.S.A.

LIVERPOOL SUNDAY SOCIETY.—The programme of this Society for the season 1895-6, received from the Honorary Secretary, Mr. J. Shacklady, 94, Allington Street, St. Michael's, Liverpool, should specially appeal to local pharmacists and their assistants, who may be prevented by business exigencies from attending lectures and concerts during the week. There are two distinct series each Sunday afternoon, a high-class lecture or concert being available to the members joining each series. The annual subscription is three shillings only, and lectures are announced by Sir W. M. Conway, Mr. F. Carruthers Gould, Mr. James Ashcroft Noble, Dr. Andrew Wilson, Mr. A. J. Grant, Mr. Douglas Sladen, Professor Windle, Mr. T. C. Hepworth, Professor Rhys Davids, Mr. Fred Enock, and other well-known individuals.

BRITISH ASSOCIATION.—British scientific men are once more to assemble in Canada, the general committee of the British Association having unanimously accepted an invitation to hold the meeting for 1897 at Toronto. The commencement of the meeting to be held at Liverpool next year has been fixed for Wednesday, September 16; and Sir Joseph Lister has been nominated for the presidency. The total attendance at the recent meeting at Ipswich is given as 1324, of whom 261 were ladies, and 22 were foreign members. The sum received from subscriptions was £1236; and the total amount appropriated in money grants for scientific purposes was £1160.

ILLEGAL SALE OF POISONS.—The *Medical Press*, referring to the recent cases at Edinburgh, observes that the public ought to be grateful to the Pharmaceutical Society for "protecting them against the danger of swallowing pellets containing enough corrosive sublimate to kill more than the proverbial two birds with one stone," every credit being due to the Society for affording such measure of protection as is possible in the present state of the law. It is suggested, however, that pressure should be brought to bear, as soon as Parliament meets, to get the schedule of poisons revised so as to include carbolic acid.

ACCIDENT TO MR. FRANCIS RANSOM.—We are glad to learn that Mr. Francis Ransom, of Hitchin, is progressing very favourably after the serious accident reported last week.

ENGLISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

HOMŒOPATHISTS IN CONGRESS.—The Annual Congress of British Homœopathic Practitioners was held in Leeds, on Thursday, Sept. 10, under the presidency of Dr. E. M. Madden, of Bromley. Gentlemen attended as representatives from several of the principal centres in the kingdom. The president's address was devoted to "Recent pathological investigations on theories," with special reference to certain points which seem to bear on the doctrine *similia similibus* and on Hahnemann's speculations as to the *modus operandi*. He referred to the lamented deaths of Mr. Henry Harris and Dr. Stephen Leedham, whom he spoke of as men who had borne the brunt of the battle for medical freedom, and who had filled the presidential chair with honour and dignity. He claimed that in respect of recent pathological investigations whilst the self-styled rational practice was changing and shifting its ground, homœopathy in its essentials remained as it was given to the world by Hahnemann, being founded solely upon observed facts and the effects of poisons on diseases. The next Congress is to be held in London, and that of 1897 was fixed to be held at Bristol. Dr. Dudgeon was elected Honorary President; Dr. A. C. Pope (Grantham), President; and Dr. Dyce Brown (London), Vice-President for next year; Dr. Proctor (Birkenhead), President; and Dr. U. Williams (Bristol), Vice-President for 1897. Papers were afterwards read by Dr. Burford (London) and Dr. C. W. Hayward (Liverpool). In the evening the representatives dined together at the Great Northern Hotel.

DEATH FROM EATING POISONOUS BERRIES.—A child, aged about three years, named William Harrison, son of Mr. J. Harrison, a mason, of Upper Gate, Ingleton, died from eating poisonous berries. The child was very ill on Saturday, September 14, and so much worse on the Sunday morning that Dr. Griffiths was called in. An elder child said that deceased had eaten a quantity of red berries, and as death was attributed to this, it was considered unnecessary to hold an inquest.

POTASSIUM CHLORATE AND SAFETY MATCHES.—The *Daily Telegraph* observes that anyone desirous of avoiding spontaneous combustion should refrain from carrying in his pockets potash lozenges in proximity to a box of matches. The importance of such a precaution was forcibly brought home to the mind of a City stockbroker on Saturday morning last. In leaving his inner private office rather hurriedly to speak to a client he bumped against the counter in the outer room, when suddenly an unexplainable hissing noise, like a squib before exploding, issued from one of his pockets, and immediately afterwards his coat was seen to be on fire. The visitor called out, "Pull your coat off!" and after the burning garment had been torn off and extinguished with considerable difficulty, it turned out that the stockbroker had been carrying some potash lozenges and a box of "safety" matches in his pocket. How the matches became ignited is inexplicable, except from the collision with the counter. The coat was ruined, and all the witnesses agreed that the man had had a very narrow escape from being badly burnt. Danger thus lurks even in medicine, naïvely remarks our contemporary.

BOLTON GROCERS' ASSOCIATION.—At a general meeting of the members of this Association on Wednesday, September 11, the Secretary (Mr. J. F. Steele) called attention to a case in which a grocer had been summoned for selling a well-known patent medicine because it contained morphine. This action had been taken by the Pharmaceutical Society, which demanded from the grocer in question a fine of five pounds. The grocer sold the article as he received it from the proprietor, and on his seeing that individual was calmly told that he had better pay the fine. The proprietor of the medicine refused to help the grocer in any way, and he was left in the lurch, although he had simply sold the goods as they were delivered to him. As the article was very largely sold by grocers they had better get rid of it as soon as possible to prevent trouble. The seller was not warned by the wholesale dealer that the medicine contained morphine, and therefore it came rather hard upon him to have to pay the fine.

Mr. Oddie said grocers must ask the wholesale dealers whether medicines contained morphine. He enumerated a number of pro-

prietary articles that did, and warned grocers against dealing in them.

Mr. Steele thought the action of the Pharmaceutical Society very arbitrary. Here they had fixed their own fine without the case having been heard. That seemed to him to be monstrously unjust. The summons set out that the grocer had "compounded and mixed" the medicine, whereas he simply sold it as he received it from the wholesale dealer.

The Chairman (Mr. Councillor Pugh) said that chemists and druggists, who spent a good deal of time and money in qualifying themselves for their profession, naturally felt sore at the extended sale of patent medicines by grocers and others, and had taken what steps they could in order to protect themselves. Having to keep these medicines on their shelves for a considerable time, they were obliged to put on a price which would pay them for the outlay and interest. Other people were now selling those medicines at half the price, and it was not to be wondered at that chemists and druggists should take steps to protect themselves.

After some further discussion the subject dropped, but there was a general feeling expressed that the grocer who had been summoned had been badly treated by the proprietor of the medicine.

Poisoning by Gases from Photographic Refuse.—Singular Case.—A singular case of poisoning, and one of interest to chemists generally, and particularly to those dealing in photographic materials, is reported from Bedminster, Bristol, where an inquest has been held on the bodies of Alfred Summers and Samuel Baker, who were suffocated whilst engaged in cleaning out a disused cistern on the premises of Messrs. Crosswells, Limited, wine merchants, of Bristol Bridge. It was stated in evidence that a pipe led from Mr. Willett's, photographer, into the cistern, and the chemicals used in his work drained off into it. The men were told to be on the look-out for the presence of foul gases. On two occasions during the cleaning out of the cistern it was tested for foul air, but there was no sign of carbonic acid gas.—Mr. D. S. Davies, Medical Officer of Health for Bristol, who visited Messrs. Crosswells' premises in company with other officials, deposed to a lighted candle descending nearly to the bottom. They took samples of the sludge and air in the cistern. He had also seen the bodies of the deceased, and his opinion was that death was due to the inhalation of poisonous gases. It was not the kind of gas one would expect to find in a cistern. The gases referred to were, he thought, accumulated from the photographers, and were disturbed by the use of a bucket occasionally. The lowering of a lighted candle was, in an ordinary case, a sufficient test. Candles would burn in these cases, but in an ordinary case he should have been satisfied personally with the candle test.—Mr. Frederick Stoddart, city analyst, said the atmosphere in the neighbourhood of the cistern was impregnated with sulphuretted hydrogen. The sample of the liquid which he had taken contained a large quantity of sulphuretted hydrogen and sulphur compounds, which would be present in the waste water from a photographer's room. The black matter in the water contained an appreciable quantity of silver. The sample of air taken showed the presence of sulphuretted hydrogen in a sufficient quantity to be fatal to life. He was rather surprised that the sulphuretted hydrogen did not cause an explosion. Without technical knowledge a layman would not know of any test for this gas. It was generally found with sewer gas, and the men, not being able to judge of its quantity, would probably have ignored it in the present case.—The jury returned a verdict to the effect that the two men died from having been accidentally poisoned by sulphuretted hydrogen gas whilst engaged in clearing out a cistern.

Pharmaceutical Classes at Exeter.—Mr. Alan H. Ware, of Woodbury, near Exeter, who is qualified to earn grants under the Science and Art Department, has been appointed to take charge of a pharmaceutical class in the science subjects of the Minor examination at the Exeter Technical and University Extension College, attached to the Albert Memorial Museum, at a salary of £100 per annum (mentioned in *Ph. J.* of August 24, 1895, p. 170). Mr. Ware is an old student of the Exeter Science School, and gained considerable distinctions in it. The classes in the technical department of this college reopen on the 30th inst., and, in addition to the usual classes being held, Mr. A. Drury, a well-known artist who exhibits every year in the Royal Academy, will give special demonstrations in advanced modelling. Mr. Clayden (the Principal of the College) informed our correspondent that endeavours would, he hoped, be made for a regular pharmaceutical class to be held at the College when it was once started, so that if it was successful, students who wished to qualify as chemists and druggists could enter and pass examinations without having to go to London or any other large centres. The *Exeter Flying Post*, commenting on the proposed establishment of these classes, says, "The pharmaceutical classes are the beginning of a school of pharmacy, and every effort will be made to secure thoroughly efficient teaching whereby there should be no necessity for candidates for the Minor examination to go to expensive cramming establishments on the eve of their examination."

Meeting of Junior Chemists at Plymouth.—A meeting of the members of the Junior Section of the Plymouth, Devonport, Stonehouse and District Chemists' Association was held at the Foresters' Hall, Union Street, Plymouth, on Thursday evening, September 19, at which Mr. E. A. Hodge occupied the chair. There were also present Messrs. Sleep, Buckner, Barber, Waldron, Darke, Cocks and Hearder. An eighth of a series of interesting and instructive lectures on "Materia Medica" was given by Mr. John D. Turney, his remarks being well appreciated. At the close a hearty vote of thanks was accorded the lecturer. During the evening the Chairman read a letter from the popular and energetic honorary secretary (Mr. H. O. Westcott), in which he tendered his resignation of that office. The resignation was accepted with general expressions of regret from the members, which will be shared in by all who know the valuable work the members of the Junior Section of the above Association are doing by the holding of debates from time to time on practical subjects. The members sustain a decided loss by the resignation of Mr. Westcott, who has, no doubt, taken an active part in arranging the meetings.

Chemistry Class at Newton Abbot.—On Saturday evening (September 21), at the distribution of prizes by Mrs. Harold St. Maur in the Alexandra Hall, Newton Abbot, to the successful students at the School of Science and Art, the Chairman (Mr. C. G. Vicary) announced that a chemistry class under Mr. Whipple would be started next term.

Chemistry and Physiology at Bideford.—The Bideford Municipal Technical School Committee have arranged for science classes to commence early in October. The subjects proposed to be taken are magnetism and electricity, agriculture (including horticulture and fruit culture), and hygiene or laws of health. Arrangements have also been made for teaching in chemistry and physiology to take place in the Bridge Hall, pending the completion of a new school.

Salisbury Infirmary.—The Earl of Pembroke has been elected president of Salisbury Infirmary in the place of the Earl of Radnor, who has been appointed visitor of the institution. Mr. William Gordon, of Salisbury, has been elected a house-surgeon in the room of Mr. H. E. L. Wilkes, resigned. There were seventeen candidates for the post.

Mr. Prosper H. Marsden, pharmaceutical chemist, has been appointed dispenser at the Liverpool Royal Infirmary. Mr. Marsden was a student in the Pharmaceutical Society's School during the Sessions 1888-89 and 1892-93.

The Blessings of Vaccination.—Dr. Charles Steele, of Clifton, writes to the *British Medical Journal*:—"I was lately conversing with my friend, Canon Kissack, in his rectory at Ballaugh, and he read to me several interesting facts from the old church register, which he had carefully copied; amongst others these items, which I took down at the time, as they show what an immense blessing vaccination has been, and I hope that you may like to insert them as a record of this fact:—

Parish Register, Ballaugh Church, Isle of Man.

Date.	Smallpox.	Deaths. Other Causes.	Total.
1704—July 2nd to Oct. 10th... ..	17	4	21
1713-14—Sept. 8th to April 30th	36	3	39
1725 —	30	17	47
1764-5—Dec. 13th to March 31st	28	6	34
1772-3—July 16th to April 30th	33	11	44
1799—Feb. 8th to June 11th.....	22	9	31

Alarming Fire in Pontefract.—About half-past six on September 23, an alarming outbreak of fire occurred on the premises of Mr. W. R. Maud, chemist, of the Market Place, Pontefract. An

assistant in the shop (a lad) had gone into the warehouse where the paraffin and other oils are stored, and in order to see better what he was doing, struck a light when about to draw some paraffin from a cask. The result of this act was an immediate outburst of flame, which overwhelmed the lad and sent him flying, all ablaze. The flaming oil soon started a dangerous conflagration. An alarm was raised, and Police-constable Beever and a number of helpers were speedily on the spot, and, with a good supply of water, some played on the flames while others rolled away the various tubs and casks of oil. The neighbourhood was greatly alarmed and excited, for it was known that within a dozen yards of the spot where the fire broke out were a spirit stores, another warehouse full of turpentine and so forth, and the gunpowder magazine of an ironmonger in an extensive way of business. After great labour the fire (which, happily, had been caught in its early stage) was overcome, though not before considerable damage had been done.

PLYMOUTH, DEVONPORT, STONEHOUSE AND DISTRICT CHEMISTS' ASSOCIATION.—At the last Committee meeting of this Association, it was decided to hold the Annual Dinner in the middle of October, in addition to which a Conference will be held in the afternoon. The President of the Pharmaceutical Society and several other gentlemen from London, also others prominently connected with the trade have signified their intention of being present. It is hoped chemists from Devon and Cornwall will support the Association by their presence in welcoming those from a distance. Full particulars will be published shortly, as soon as final arrangements are completed.

PROCEEDINGS UNDER THE FOOD AND DRUGS ACT.—The *Craven Herald* reports that at the Petty Sessions, Settle, last week, Mr. Jno. Hoar, of Hellifield, was summoned by Inspector Randerson for selling tincture of rhubarb that was not of the nature and quality of the article demanded.—Mr. T. Brayshaw appeared for the defence. The case for the County Analyst was that the mixture was deficient in alcohol, whilst an excess of water was shown. The defence, which was supported by the defendant, and by Mr. Walker, registered chemist and druggist, was that the tincture was exactly as supplied by Messrs. Goodall, Backhouse and Co., but as the demand was small it had been in stock a considerable time, and the alcohol had evaporated. Fined 1*s.* and costs.—Mr. J. W. Shepherd, of Settle, was summoned under the same Act for selling compound liquorice powder, which was not of the quality demanded. Mr. T. Brayshaw, solicitor, defended.—Inspector Randerson proved that on July 23, he bought seven various articles at the defendant's establishment, and that all these were satisfactory except the compound liquorice powder, which was slightly deficient in sulphur. —Mr. Brayshaw contended that the quantity omitted was very small and unimportant, that no question of pecuniary gain arose, the cost being infinitely small, that until recently sulphur was not one of the ingredients set out in the British Pharmacopœia, and that the purchaser was not prejudicially affected. The magistrates, however, considered that an error had occurred in the mixing, and inflicted a penalty of 1*s.* and costs.

SCOTTISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

FIFESHIRE CATTLE POISONING CASE.—An action has been raised in the Dunfermline Sheriff Court at the instance of Watson Kirkham Drysdale, farmer, Killarnie, Saline, against the Saline Valley Coal Company for payment of £35 as the value of three two-year-old bullocks. The animals died from poisoning, and the pursuer alleges that they had strayed into a disused engine-house belonging to the defenders, and licked up a quantity of red lead. The fencing of the ground, he states, had been allowed to get into a dilapidated condition.—The defenders deny the latter averment, and allege that the bullocks died from consuming poison that had been laid down for the purpose of poisoning dogs, several of which died about the same time as the bullocks.—The record has been closed, and proof ordered for October 18.

POTASSIUM CHLORATE AND SAFETY MATCHES. — A correspondent of the *Scotsman* writes as follows:—"It might be a useful thing for some of your readers to hear of an accident which occurred to me to-day, and to take a timely warning therefrom. I was carrying in my coat pocket a box of safety matches and some small potassium chlorate pellets, when all of a sudden an alarming fire took place, presumably by the pellets rubbing against the outside of the match-box. It ruined a new suit, and burnt a hole in the drawing room carpet before the flame could be extinguished. As many people might do the same, not knowing the consequence, I thought it would be a good thing to let them know what might very easily happen" (see also report on p. 274).

GLASGOW AND WEST OF SCOTLAND PHARMACEUTICAL ASSOCIATION.—A circular is being issued by this Association pointing out that two years ago a letter was issued inviting the co-operation of chemists throughout the West of Scotland; large numbers of chemists in all parts of the district responded, and, as a result, the Association was formed. It is now fairly representative of the West of Scotland, and is steadily increasing in influence and usefulness. Every suggestion for the betterment of pharmacy and pharmacists, whether educationally, socially, or commercially, is taken into consideration, and every effort is made to carry into effect whatever seems good and practicable. The meetings in the past have been both interesting and useful from an educational point of view, and members have found good fellowship and sympathy towards each other, greatly stimulated and strengthened by contact and interchange of ideas. "As for the position which chemists occupy in relation to traders and the public generally, it is not too much to assert that the increased energy in seeking in a practical way to improve the position of the general body, which chemists throughout Great Britain now show, is largely due to the efforts of this Association. Much more enthusiasm in this direction is wanted, however, and it is felt that the more fully the Association represents the district the greater will be its influence. For this reason it is earnestly desired that every chemist join the body." Though country chemists are necessarily unable to enjoy so frequently as city chemists the privilege of attending the meetings, and on that account many may think it not worth while becoming associated, it is pointed out that union and organisation are the things particularly wanted, so that on any important matter every chemist in the west may be appealed to personally without difficulty or loss of time, and may indicate his views through an influential medium. On these grounds, the amount of annual subscription, payable by country members, is now reduced by one-half, the sum of 2*s.* 6*d.* being considered sufficient to cover the expenses connected with their membership. This sum being so insignificant and the need for union and organisation amongst chemists so evident, the hope is expressed that no chemist will now refrain from going to the little trouble of sending in his name for membership. Applications for membership should be sent, accompanied by subscriptions, to the Secretary, Mr. J. Anderson Russell, 212, New City Road, Glasgow.

POISONING CASE IN FALKIRK BURGH BUILDINGS.—Mrs. Finlayson, wife of William Finlayson, Burgh Officer, Falkirk, was, on the afternoon of September 22, found by her husband in their house at the Burgh Buildings in an unconscious state. Drs. Griffiths and Watt applied the stomach pump, when it was discovered there were traces of benzine among the contents of her stomach. Notwithstanding the efforts made to restore consciousness, Mrs. Finlayson died some time after the arrival of the doctors. She had been suffering from sore throat, and had been recommended to use as a wash for it "Sanitas" diluted with water. It is believed that she had used the benzine in mistake for "Sanitas." Mrs. Finlayson, who was sixty-eight years of age, had been in delicate health for some time.

WHOLESALE DOG POISONING AT PENICUIK, MIDLOTHIAN.—During the past fortnight large numbers of dogs and cats, many of them valuable, have been poisoned in the neighbourhood of Penicuik. It is believed that the poison has been laid intentionally by some evil-disposed persons.

POISONING BY SALTS OF SORREL, ETC.—Mrs. Jane Smith, or Daly, wife of Conner Daly, 5, Castle Wynd, Edinburgh, died on Tuesday, September 17, from the effects of a poisonous liquid inadvertently taken early in the afternoon. She took the drug about half-past three and died at five o'clock. The bottle was empty and smashed, and the nature of the poison has not been ascertained. About eight o'clock on September 17 it was reported to the Greenock

police that a woman named Helen Stewart, or Hannah, 3, Harvie Lane, had taken a quantity of salts of sorrel. Dr. MacDougall at once saw the woman, who was seriously ill, and removed her to the Infirmary for treatment. She was carefully attended to, but died shortly after admission. She is said to have committed suicide.

Alleged Theft from a Chemist.—Robert Davidson, aged 13, residing at Kilblain Buildings, Greenock, was on Tuesday charged with stealing, on August 31, from George Wilson, druggist, 30, Cathcart Street, five bottles of tabloids, four bottles of lavender water, and one cake of soap. Defendant pleaded not guilty, and the evidence having been led, the Sheriff assoilzied accused and dismissed the case.

IRISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Pharmaceutical Chemists' and Apothecaries' Assistants' Association of Ireland.—The Committee of this Association met on Monday, September 9, at the "XL" Café, 84, Grafton Street, Dublin, Mr. J. B. Alister, M.P.S.I. (President) in the chair. The following were present:—Messrs. McCarthy (Vice-President), Glover, Hardy, Parker, Chamberlain, Corcoran, and Griffith. The minutes of the last meeting having been taken as read, a suitable explanation was afforded by the President as to the cause of the meeting not being held on the evening of the 6th inst. The irregularity, which was due to an error of the manager of the "XL" Café, was not likely to recur. To avoid complications, however, a circular explaining the circumstance had been printed, and would be sent by post to each member; or inviting a large attendance at the meeting to be held on the evening of Friday, the 13th inst., at the "XL" Café, when a debate, "Is a new edition of the B.P. necessary," would be sustained in the affirmative by Messrs. Long and Corcoran, and in the negative by Messrs. Alister and O'Sullivan. It was stated that upwards of forty members had already subscribed to the Association. Mr. McCarthy reported generally on the engagement of new rooms, this question was deferred until the next meeting. It was resolved to send in future the proceedings of the Association to the *Pharmaceutical Journal* directly through the official channel, this course being considered the fairest for the Journal, enabling it to secure at first hand the matter for publication. It was resolved to send copies of the rules to every employer in Dublin, and to invite these gentlemen to become hon. vice-presidents of the Association. The patronage of the employers would be of great service to the society, and it was hoped a liberal response would be made to the invitation. It was resolved to defer conferring membership *honoris causa* on distinguished ex-pharmacists, such as Dr. Ninian Falkiner, Sir George B. Owens, etc., until permanent meeting-rooms had been engaged. The revision of the rules and their reprint in book form was left over for further consideration. The secretary was instructed to prepare a draft circular of invitation to employers, and to wholesale firms in England and Ireland, asking the latter, direct or through their respective representatives, for their help—financially—in bringing the Association to the front rank of the trade. Mr. Griffiths' suggestion to extend a general invitation to the provincial assistants to become members was well received, and noted for attention. The hon. treasurer was asked to prepare a statement of accounts at an early date. Mr. Hardy and Mr. McCarthy spoke on the hopeful outlook of the Association. It was resolved to hold a committee meeting at the end of the general meeting on the 13th inst. The proceedings then terminated.

The Pharmaceutical Chemists' and Apothecaries' Assistants' Association of Ireland held their weekly meeting in the hall of the "XL" Café, Grafton Street, Dublin, on Friday evening, the 13th inst., at 8 p.m., Mr. J. B. Alister, L.P.S.I., President of the Association, in the Chair; when the debate on the question, "Is a new B.P. necessary or not?" took place, Messrs. Long and Corcoran supporting the affirmative, and Messrs. Alister and Wilkins the negative view.

On the motion of Mr. Hardy, Mr. Alister vacated the chair, and Mr. Chamberlain appointed to same *pro tem.*

It was announced that Mr. O'Sullivan, who was to have taken part in the debate, was unavoidably absent; but that Mr. Wilkins had taken his place.

Mr. Long, L.P.S.I., opened the debate, and remarked that "owing to the advancement of scientific research during the last few years and the discovery of so many new drugs and remedies of definite physiological action, these were generally used and prescribed in preference to many of the preparations included in the B.P.

"To provide an official standard was necessary, in order that these modern remedies might be prepared of uniform strength, and that definite doses might be stated. The irregularities in the present B.P. render the present standard very impracticable. To avoid unnecessary confusion, he suggested a new B.P. having a general standard and strength for each class of galenical preparations. The tests given in the present B.P. were vague, no statement being given as to what they proved or confuted; also the results of the various processes were stated indefinitely, and this was calculated to ensure anything but uniformity in different samples of the same preparation. Until the General Medical Council were instructed to include in the B.P. Committee a contingent of pharmaceutical chemists, the B.P. would never become a perfect standard. The scientific knowledge of medical and pharmaceutical bodies was at present grossly misrepresented to the scientists of other nations by our present standard of drugs."

Mr. Alister, L.P.S.I., for the negative, held that "the present B.P. had been drawn up by a committee composed of those whom the General Medical Council thought most qualified for the undertaking, and that the advice of the pharmaceutical profession had been solicited." He considered that, if rightly used, the B.P. was adequate for all the wants of the medical and pharmaceutical professions. He was opposed to the introduction of new drugs and remedies into the B.P., especially as the action of most of these was as yet but imperfectly determined. These would only tend to enlarge a volume at present very extensive, and containing matter sufficient to cause the student much difficulty in mastering it.

Mr. Corcoran, for the affirmative, said that no preparation should be included in the B.P. for the preparation of which a definite process was not given; thus the important synthetic remedies having a specific action might be manufactured at home, independent of all foreign supply.

Mr. Wilkins held the negative view, and challenged the discrepancies pointed out by Mr. Long as existing in the B.P., drawing a comparison between the U.S. and other Pharmacopœias and that of our own nation.

After a warm discussion by Messrs. Watson, Corcoran, Hardy, Long, Alister, and Wilkins, the affirmative view was supported by a large majority.

The President announced that Mr. Wilkins had consented to read a paper at the next weekly meeting.

The Outgoing Members of Council are not to have a "walk over," three new candidates—Messrs. Patrick Kelly (the well-known teacher), Jas. Guiler, and R. W. McKnight—having come forward. Both of the two latter gentlemen have medical halls in the city of Belfast. The only Associate-druggist candidate is Mr. Samuel Gibson, one of the seven outgoing Members of Council.

Aqua Vitæ (John Jameson) is a favourite remedy with many for quite a variety of complaints, and by few more so, perhaps, than the paupers of the North Dublin Union, whose consumption of alcoholic stimulants is stated to be about four times per head that in the South Dublin Union. At last week's meeting of the guardians, one of them, a doctor, proposed to remedy this state of things by regarding stimulants as drugs, and entrusting them to the care of the medical officers. The other guardians, without any reflection on the M.O.'s, did not, however, adopt the proposal.

Mosquito Preventive.—Howard, of the United States Government Entomological Division, recommends the use of crude kerosene oil on ponds or pools where mosquitoes breed. A very little oil would go a long way, and the experiment wherever tried had proved successful in destroying all aquatic larvæ, including those of the mosquito. The kerosene seemed to exercise no deterrent effect upon the adult female mosquitoes. They still continued to attempt to deposit eggs, but in this attempt were defeated. One gallon of crude kerosene oil will, it is said, amply protect a pond 100 feet square for ten days under ordinary conditions (*Pop. Sci. News*, xxix., 118).

WELSH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Chemist's Shop on Fire.—On Friday night, September 20, a fire broke out in the shop of Mr. George, chemist, Pentre, the damage to the goods and fixtures being estimated at £300. Whilst Mr. George, jun., was making some furniture paste, a portion of the composition consisting of turpentine and beeswax bubbled over the saucepan which was resting upon an iron stand, containing a gas jet, on the counter. Mr. George instantly removed the pan, which was enveloped in flames, and in conveying it out of the shop the burning mixture trickled down upon the wooden floor. In a few minutes the fixtures were ablaze. Fortunately Mr. Cule, grocer, residing opposite, had a portable Queen's fire manual, ready charged with water and carbonic acid gas, and by means of this apparatus the fire was soon extinguished. The brigade with the steam fire engine soon afterwards arrived, but their services were not required. The building is valued at £4000 and the property is insured.

A New Company.—A new company has been registered under the title of J. F. McClune and Company, Limited, with a capital of £2000 in £1 shares, to acquire the business of chemist, druggist, etc., carried on by Mr. J. F. McClune at the Medical Hall, Pontypridd. The vendor is the managing director, and the registered office is at the Medical Hall, Taff Street, Pontypridd.

Drank a Poisonous Lotion.—An innkeeper named Joseph Jeremiah, landlord of the Oxford Inn, Cross Street, Blaenavon, died last week at the residence of his parents under painful circumstances. He drank in mistake a quantity of lotion which he had been using for blistered feet, and before medical aid could be procured he expired. A coroner's jury returned a verdict of "Death by misadventure."

Food and Drugs Act. — At the quarterly meeting of the Glamorgan County Council, held at Pontypridd last week, Mr. Clarence A. Seyler, B.Sc., F.I.C., the county analyst, presented a lengthy report on his work during the past three months. He stated that amongst the samples he received were one of honey, two of bicarbonate of soda, one of carbonate of soda, two of tartaric acid, two of tincture of rhubarb, one of Epsom salts, one of milk of sulphur, four of sweet spirits of nitre, three of paregoric elixir, one of senna leaves, two of cream of tartar, one of seidletz powder, one of castor oil pills, one of magnesia, one of soda water, thirteen of pepper, five of ginger, one of mustard, and three of linseed meal. Of the drugs received the samples of sweet spirits of nitre called for some remark. Under this name two articles were sold, one, the true "spirit of nitrous ether," as defined by the B.P., and the other an inferior article of the London Pharmacopœia of 1851. Two of the samples were of the strength prescribed by the B.P., though one was of poor quality. The other was evidently intended for the weaker article of the London Pharmacopœia, but was made from spirit below even the strength required by this, and was, moreover, almost devoid of nitrous ether, the characteristic ingredient of nitrous ether. It would be well that medical practitioners and the public generally should know if they ask for "sweet spirits of nitre" they are liable to get an inferior article, but that if "spirits of nitrous ether" is demanded, they should be supplied with the B.P. article. The remaining samples of drugs were genuine and of good quality.

Calcium Hypochlorite in Snake-bite. — Phisalix and Bertrand find that solutions of hypochlorite of lime are only useful in cases of snake-bite when injected directly into the actual locality of the bite; that the salt destroys the venom solely by its direct action upon it, and not by causing the formation of an antitoxic substance, nor by penetrating the circulatory system and there destroying the venom. It protects the system solely by its local action in destroying the poison and hindering the absorption of the surrounding tissue. It should, therefore, be deeply injected into the actual punctures made by the fangs of the snake (*Comptes rend.*, cxx., 1296).

FOREIGN NEWS.

[*From our Special Correspondents.*]

Large Black Diamond.—The largest black diamond that was ever seen was shown to the Academy of Sciences in Paris by M. Moissan, on Tuesday last. It weighs 3073 carats, and was found last July in a Bahia diamond field. Its hardness is greater than that of the brilliant, and for this reason it has great industrial value. M. Moissan has made an exact mould of it. The diamond presents a surface partly smooth and partly corrugated, and is exactly similar to the black diamonds produced by M. Moissan in the electrical furnace. The three largest ones previously found weighed 620, 810, and 1700 carats respectively. The last was not homogeneous or free from flaws, however, whilst the present specimen is apparently perfect.

Picric Acid for Burns.—A new and successful treatment for burns consists in the application of linen soaked in an aqueous solution of picric acid, about 5 grammes to the ounce. The good effects of this dressing were accidentally found out by a medical student, who from curiosity, applied a little to a burn which he had just received, and was surprised to observe that immediate relief was obtained. As in all large hospitals cases of severe burning are daily appearing for treatment, it was decided to give the solution of picric acid a practical test at the Hospital de la Charité, and the results have been very satisfactory, the pain being quickly allayed, and the sore which sometimes takes a long time to heal, disappearing in a very short time. In fact at the above-mentioned hospital the old method of treatment has been superseded for the present by the use of this simple remedy.

White Phosphorus in Matches.—The federation of French matchmakers is energetically pursuing the campaign with the object of procuring the suppression of the white phosphorus now generally used in the match industry, since it has, on account of the defective sanitary arrangements connected with its manipulation, been the cause of such disastrous effects on the health of the workers. A deputation waited recently on M. Ribot, the Minister of Finance in order to submit their grievance and solicit his interest on their behalf. They were well received by M. Ribot, who assured them of his intention to obtain for them a satisfactory solution of their difficulties. It was announced that the Commission charged to examine the question were steadily prosecuting their studies, and hopes were entertained that the completion of their work would enable them to totally abolish the use of white phosphorus next year. With reference to the other details relating to the sanitary arrangements for the workpeople involving the erection of properly ventilated workrooms, and other precautions against the influence of the noxious fumes, it was promised that as soon as the financial difficulties dependent on the Budget were overcome, full satisfaction would be given.

Novel Attempt at Suicide.—Alfred Balthazar, a clerk, aged twenty-five, whom family troubles had rendered desperate, decided according to a recent issue of the *Gaulois*, to seek in death a relief from his terrestrial miseries. He passed in review the various methods in use for committing suicide—the stove, revolver, knife, razor, rope, a jump into the river or from a high monument, etc. But he found all these different means either not to his taste or of too common a kind to be adopted by him. So he resolved upon something new. He would convert his own body into a bomb, load it with the proper ingredients, and blow himself to pieces. He bought some powdered sulphur and some chlorate of potash, placed each well wrapped in a separate wafer, swallowed them both, and drank a tumblerful of water to help them into the stomach. He then lay down on his bed, dressed in his best clothes, and awaited developments. He expected that as soon as the two explosive materials came into contact he would burst like a bomb and his troubles would be over. Instead of this, however, the most violent colic resulted, and the pains were so great that he had to call in the neighbours. He was taken to the St. Louis Hospital, where an application of the stomach pump may bring him round again to life and hope.

NOTES AND QUERIES.

[*The information given in this column includes both notes of practical interest to pharmacists, and replies to queries which seem to possess sufficient interest to readers generally. Readers requiring working formulæ for special preparations should intimate their wants to the Editor, who will be pleased to assist them to the best of his ability. The word "parts" invariably indicates parts by weight.*]

STRIPPING PHOTOGRAPHIC PLATES.

E. C. CRIPPS asks what preparation will strip photographic plates and subsequently enlarge the films? The preparation may take either of two forms, a solution or a powder. The former may be prepared as follows:—

Hydrofluoric acid	1 ounce
Citric acid	4 ounces
Glycerin	1 ounce
Glacial Acetic acid	1 „
Water	32 ounces

The film loosens very quickly and expands rapidly too, so much so that in hot weather it is unmanageable, and it is then advisable to omit the acetic acid. The preparation in the form of a powder is preferably sodium fluoride and tartaric or oxalic acid, combined of course in suitable proportions, such as—

Sodium fluoride	42 grains
Tartaric acid	150 „

or

Oxalic acid	130 „

This dissolved in water will soon fetch off any film. It will be noted that excess of acid is used that is more than is required to set free the whole of the fluorine; this is advisable. The solution must be kept in indiarubber, or indiarubber-lined bottles, and a precautionary label should be affixed, drawing attention to the caustic nature of the acid as regards the nails, and always recommend an ebonite dish. Our correspondent also asks why the film expands? The film is gelatin, and this, on absorption of water, expands, and therefore enlarges the total area of the picture, though sometimes this requires intensifying afterwards in consequence of the greater distance between the silver particles.

BROMIDE PRINTS AND PLATINOTYPES.

What is a ready test between bromides and platinotypes? We are not surprised at this being asked, as to such perfection now is bromide printing brought that it is somewhat difficult to differentiate, but platinum is of all metals one of the most intractable and indifferent to reagents, whereas finely-divided metallic silver is not by any means indifferent—a drop or two of mercuric chloride solution, 10 per cent., acidulated with hydrochloric acid, will immediately bleach a bromide print, but not affect the platinum image. [*Reply to Ernest C. Cripps.*]

DISPENSING CREOSOTE, ETC., IN PILLS.

Commenting on Van Nerom's formula (*ante* p. 216), J. Coelst (*Ann. de pharm.*) suggests the following as being more convenient in practice:—

Creosote or terpinol.	*x.*
Pulv. glycyrrh. or altheæ.	
Extr. gentian or glycyrrh.	aa. *q.s.*

This makes a firm mass which is quickly finished, rolls well, and does not fall. The pills are also of convenient size.

COMPRESSED TABLETS.

Starch powder is the best excipient for sulphonal, in preparing compressed tablets. This is probably what is employed in the readily disintegrating tablets of insoluble or slightly soluble medicaments. [*Reply to "Sulpho."*]

AIR-TIGHT COATING FOR CORKS.

"ZYMOS" wishes to obtain a formula for a preparation suitable for dipping corks of malt extract in when in the bottle, to form a kind of gummy coating that will set hard, remain permanent, inodorous, tasteless, and sufficiently plastic to obviate any cracking when the bottle is being capsuled by a Bett's machine. Probably something like the cement employed for electrical and chemical apparatus would answer the purpose. To prepare this melt together resin, 5 lbs., and wax, 1 lb., then stir in red ochre, 1 lb., and plaster of Paris, 2 oz. Has any correspondent a better suggestion?

PHÉNOL SULPHORICINÉ.

This preparation is a mixture of sodium sulphoricinate, 80 Gm., and carbolic acid, 20 Gm. To prepare the former pure castor oil, 1 kilo., is treated in the cold with pure sulphuric acid (66°), 250 Gm. The acid is added gradually in small quantities and the mixture agitated, so as to avoid any considerable elevation of temperature. There should then be but a slight evolution of sulphurous acid. In an hour's time the product, which is insoluble in water, is washed, first, with cold water, then several times with 10 per cent. salt solution. Finally, the "sulphoricinic acid" is neutralised with a sodium salt, and the product is known as "sodium sulphoricinate," though probably not a definite salt. Care must be taken to keep it somewhat acid, and after standing for an hour or two it may be cleared by decantation or filtration. The compound is a thick yellowish syrup, with no odour and little taste, and has been variously known as "solvine," "polysolve," and "sulpholein." The solution of carbolic acid in it (5 p.c.) has been chiefly used in the treatment of diphtheria. [*Reply to A. McKellar.*]

PREPARATION OF FLUID EXTRACTS.

The points to which M. Duyk specially directs attention in regard to the preparation of fluid extracts (see *ante*, p. 235) are the following: (1) It is necessary to use care in selecting an appropriate solvent of the active constituents of the drug; (2) the drug should be freed by a preliminary washing from certain substances apt to cause subsequent alteration in the finished product; (3) extraction should invariably be performed by percolation of the drug in uniform powder; (4) the second percolate should only be evaporated after the addition of a quantity of glycerin equal to one-twentieth the weight of the drug.

CHLOROSALOL.

This name has been given to a salicylic derivative of chlorophenol. It has been obtained in two isomeric forms (*Semaine Médicale*). The ortho derivative has a very powerful smell, whilst the para compound is tasteless and inodorous, and is best adapted for medicinal use. They are both prepared in the form of fine white crystals, which are insoluble in water, but soluble in alcohol or ether. Dr. Girard has obtained good results with para-chlorosalol in catarrhal affections of the urinary tract and in diarrhœa, as well as for dusting over sores in the same way as salol, and it possesses an advantage over the latter remedy in not causing any irritation.

PHOSPH-ERGOT.

This name has been applied to various combinations of ergot and sodium phosphate, which have given good results in cases of weakness, debility, etc. They are as follows:—1st. *Mixture.*—Solution sodium phosphate, 90 grammes; tincture of ergot, 30 grammes. Twenty grammes to be given daily. 2nd. *Powder.*—Sodium phosphate and freshly powdered ergot, of each 0·25 gramme. To be taken in a cachet. 3rd. *Pilules.*—Sodium phosphate, 2 grammes; ergotin, 1 gramme. To be made into twenty pills, two to four of which are to be taken daily. 4th. *Hypodermic injections.*—Sodium phosphate, 10 grammes; ergotin, 1 gramme; distilled water, 10 grammes. One to two grammes to be injected daily.

EGG SHAMPOO.

Dissolve potassium carbonate, ¼ oz., and transparent soap, ¼ o in water, 8 oz.; beat up 1 egg with a similar quantity of water, and add to the soap solution; add rectified spirit, 2 ozs., eau-de-cologne or bay rum, 1 oz, and make up to 25 ozs. with water. You can of course, vary the perfume at will. [*Reply to Carboy.*]

A NEW FORM FOR COPAIBA PILLS.

A pharmacist of Jassy gives a hitherto unpublished method of making copaiba pills (*Il Farmacista Italiano*); he adds from 1 to 3 drops of water for every gramme of copaiba used, and rubs until the mass begins to crackle under the pestle. Finally he uses a little carbonate or calcined magnesia, and any other medicine ordered. So prepared, the mass is ductile and perfectly adapted for cutting into pills.

EXTEMPORANEOUS CASTOR OIL EMULSION.

A perfect emulsion of castor oil may be quickly made by warming with milk (*Journal de Médecine*). Six drachms of oil are added to 6 ozs. of milk, which is heated with constant stirring until emulsification is effected. Syrup of orange flower is suggested as a flavouring agent. It is claimed that prepared in this manner the 6 drachms have the same effect as 1 oz. of the oil taken pure.

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

COMMUNICATIONS FOR THE CURRENT WEEK'S JOURNAL SHOULD REACH THE OFFICE NOT LATER THAN WEDNESDAY MORNING. TELEGRAMS CAN BE RECEIVED ON THURSDAY MORNING. ALL COMMUNICATIONS RESPECTING EDITORIAL MATTERS MUST BE ADDRESSED "EDITOR, 17, BLOOMSBURY SQUARE, LONDON," AND NOT IN ANY CASE TO INDIVIDUALS SUPPOSED TO BE CONNECTED WITH THE EDITORIAL STAFF OF THE JOURNAL.

ALL INSTRUCTIONS from Members, Associates, and Students of the Pharmaceutical Society, respecting the transmission of the Journal, must be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London, W.C.

BUSINESS communications—including advertisements, orders for copies of the JOURNAL, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Cheques and money orders should be made payable to "Street Brothers."

CORRESPONDENTS who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names—of course not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS for illustrations should be done with pen and Chinese ink, and consist of clean, sharp lines, without shading by washes. They should also be prepared twice the desired size, so as to allow for reduction.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

QUERIES addressed to the "Editor" will be replied to as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries."

REPRINTS of articles cannot be supplied unless authors communicate with the Editor before publication.

LETTERS.

"PHARMACEUTICAL EDUCATION IN A COUNTRY TOWN."

MR. GEORGE VOGT, of 4, Gandy Street, Kendal, says:—"In response to a 'Blackburn Chemist's Apprentice's' request, I may say that my description of pharmaceutical education in a country town is not hypothetical, but applies to Kendal, Westmoreland. I think if Blackburn chemists' apprentices would unitedly show an eagerness for improving and extending their knowledge, it would be worth while, under the South Kensington scheme, for the local authorities to meet their wants. The addition of a materia medica cabinet to any science school is not a very heavy matter, and if, as here, the chemists' apprentices formed a good nucleus for the respective grant earning classes, it is only policy to provide the additional attraction. The lack of other apparatus referred to ought certainly to be remedied, and probably would be, if the classes were properly supported. I will willingly give any information which would assist to make existing agencies more efficient."

A CAUTION.

MR. FREDERIC GALL, of 85, Arundel Street, Landport, says: "I should be glad if you would allow me through the Journal to caution my fellow-druggists against a temporary assistant named Morrison, who after taking charge for me for a fortnight, bolted with all the available cash. He is a man of about fifty, grey hair and whiskers, wears eye-glasses, and is about 5 feet 8 inches in height. Anyone seeing him, or hearing of his address, I should be glad to hear from. On making application to the magistrates I was informed that this gentleman had not stolen my money, or yet embezzled it, he had only committed a breach of trust, and therefore was outside the pale of the law. I should be glad to know if this is the law of the land or a local definition of it. If chemists or other people who employ managers for a time can get no redress in cases of this sort it seems to me that a slight revision of the law, for the advantage of those who have to put up with the loss, is really necessary. Possibly this gentleman has done the same before, and knows the law better than his employer."

THE DOSE OF IODIDE OF ARSENIUM.

MR. J. F. BROWN, of Dover, writes:—"At a recent meeting of chemists' assistants in Dublin, the dosage of arsenium iodide was discussed, and the probability of a typographical error in the British Pharmacopœia mooted. At variance with the usual practice, and singularly so in dealing with a drug like arsenic, having a wide range between the commencing dose, and that which can be borne when a habit of tolerance is established, the dose of the iodide is baldly stated at one-thirtieth grain, neither more nor less. Before accepting the suggestion that one-third is really meant, it may be worth while to tabulate the doses of the official arsenical preparations, and to state them in terms of the metal arsenium; omitting, of necessity, ferri arsenias, where the composition is so varied by oxidation as to baffle calculation.

Acid. arsenios.....	$\frac{1}{60}$ to $\frac{1}{12}$ gr.	·016 gr.	= ·012 gr.	metal.
		·083 „	= ·063 „	„
Liquor arsenicalis and Liq. arsen. hydrochl.	2 mins. to 8 mins.	·018 „	= ·0136 „	„
		·072 „	= ·054 „	„
Sodii arsenias, $Na_2HAsO_4 \cdot 7H_2O$	$\frac{1}{16}$ to $\frac{1}{8}$ gr.	·0625 „	= ·015 „	„
		·125 „	= ·03 „	„
Liq. sodii arseniat., containing Na_2HAsO_4	5 mins. to 10 mins.	·047 „	= ·019 „	„
		·094 „	= ·038 „	„
Then—				
Arsenii iodidum	$\frac{1}{30}$ gr.	·033 „	= ·0055 „	„
Liq. Donovanii, containing 4·5 grs. in ℥j. fl.	..... 10 mins. to ..... 30 mins.	·94 „	= ·0154 „	„
		·281 „	= ·0462 „	„

"So that the stated dose of the iodide of arsenium is roughly one half the minimum dose of arsenious acid, while the doses—maximum and minimum—of Donovan's solution range very fairly with those of the other liquid preparations. Any correction, if needed, of the official dose is the province of the physicians who deliberate on the Pharmacopœia."

ANSWERS.

J. H. GREEN.—Apply to the School Secretary, 17, Bloomsbury Square, W.C., concerning the photographs you refer to.

S. A.—Refer to Squire's 'Companion to the B.P.' or Martindale's 'Extra Pharmacopœia' for the information you require concerning the first two substances you mention. "Salt of lemons" is prepared by mixing potassium quadroxalate, 2 parts, and potassium bitartrate, 1 part.

E. MILDMAY.—See page 888 of last volume for particulars regarding media for so-called "gold paints." Benzol and mastic give the best results as regards brilliancy, since the quicker the medium dries the more brilliant the surface remains.

"BIBLIOS."—The books are equally reliable and accurate. The 'National Dispensatory,' however, is more suited to the needs of students, whilst the 'Dispensatory of the United States' possesses certain advantages as a work of reference.

"T. H. G."—Scott's 'Introduction to Structural Botany (Flowering Plants)' was published by A. and C. Black, London, in 1894, price 3*s.* 6*d.*

"BIS DAT QUI CITO DAT."—We shall be glad to publish your letter if you will verify it with your name and address; of course, not necessarily for publication.

"T. J."—The plant is *Malva borealis*.

LICENSEE.—To sell stamped medicines or methylated spirit you will require a separate licence for each separate shop.

"DERMATOL."—It is impossible to make a clear mixture according to the formula sent, either with P.B. or the so-called soluble pepsins.

PERCY NEWLAND.—No such article has appeared in the Journal.

HERBERT BRIDGES.—You will find an account of the salt in the *Pharmaceutical Journal* [3], xxi., 214.

V. MAGAN.—We are unable to give you any information on the point. Your best plan will be to advertise in the Journal.

JAS. M. DOW, S. HUDSON, E. C. CRIPPS.—Your queries will receive attention in due course.

QUERY.

A CORRESPONDENT will be glad to know the address of Messrs. Poulenc Bros., recently mentioned as having introduced pyrocatechin.

COMMUNICATIONS, LETTERS, ETC., have been received from Messrs. Bayley, Bolton, Brown, Burroughs, Butcher, Carter, Chattaway, Clarke, Cocks, Cripps, Cross, David, Dow, Flemons, Gaul, Green, Greenall, Guyer, Hall, Harper, Harvie, Hebron, Henry, Hill, Hudson, Jones, Kemp, Kendall, Lewis, Maiden, Mitchell, Newland, Picken, Reynolds, Russell, Tully, Willsher, Vogt.

SCHOOL OF PHARMACY.

OPENING OF THE FIFTY-FOURTH SESSION.

INTRODUCTORY ADDRESS.

BY

FREDERICK T. ROBERTS, M.D., B.Sc., F.R.C.P.,
Professor of Medicine at University College, London.

Mr. President, Ladies, and Gentlemen,—I esteem it a very great honour to have been invited to deliver the Inaugural Sessional Address on the present occasion, which must be one full of interest to all who have the welfare of the Pharmaceutical Society of Great Britain and its associated School of Pharmacy at heart. At the same time I am by nature of a very retiring disposition, and instinctively shrink from any public appearance outside my own particular sphere. I therefore really feel acutely conscious of the responsibilities of my position, and of the difficulties of the task which I have undertaken. They weigh upon me all the more because I have had the opportunity of perusing some of the addresses previously delivered here under similar circumstances, and was truly appalled when I found what eminent, learned, and eloquent members of my profession I had to follow. I conclude that I owe my selection indirectly to the fact that for many years I have been intimately associated with materia medica and therapeutics, as professor and examiner, and have even ventured to publish a book on the subject. I have a strong impression, however, that the more immediate cause will be found in the circumstance that I number some excellent friends amongst the members of the Council, and I hope and believe, Mr. President, that you are somewhat amicably disposed towards me. At any rate you approached me, when conveying the invitation in person, in your most pleasant, attractive, and winning manner, which I thus interpreted, and which I could not possibly resist.

The opening of a new session in connection with an important educational institution such as this cannot fail to awaken feelings and sentiments of a more or less exciting and even emotional character, associated with the past, the present, and the future, influenced and modified by the individual relations, experience, and status of those whom I have the privilege of addressing. I take it for granted that, while some of my remarks may appeal to all who have honoured me with their presence, and who, I presume, are interested in various ways in the proceedings, or may even have a wider scope, my more immediate purpose is to speak to the students whom I see before me, and who have come here for the avowed purpose of making themselves proficient in the science and art of pharmacy. For you, ladies and gentlemen (for I understand that I number among my audience some lady-students), the past history of the Pharmaceutical Society and School of Pharmacy must be peculiarly attractive and interesting, as it certainly has been to me. Indeed, before proceeding further, I cannot refrain from expressing my intense admiration for, and offering my cordial congratulations to, those who have been instrumental in bringing this Institution to its present state of activity and efficiency. I gratefully acknowledge that my information on this subject has been obtained chiefly from the "Jubilee Address" of your President, delivered in 1892, which I found most instructive, interesting, and helpful, and I can only hope that this address comes out in successive and inexhaustible editions, so that every pharmaceutical student to the end of time may be supplied with a copy.

Past Record of the School of Pharmacy.

The history given in the address to which I have just alluded of the establishment, aims, progress, and accomplishments of the Pharmaceutical Society and School of Pharmacy is most delightful and stimulating reading. Anyone who has the slightest knowledge or conception of the state of things existing previous to, or indeed for some time after, their foundation, of which I have personally a very vivid recollection, must feel a thrill of gratitude to the founders, who, guided by broad and, at that time, advanced views, with remarkable sagacity and foresight devoted their time, energy, and means to a beneficent and noble purpose, and having first obtained a charter to protect the interests of chemists and druggists, and to advance chemistry and pharmacy, immediately proceeded to establish this School, which has since undergone such wonderful development and made such great strides, that I certainly am not prepared to dispute your President's claim that "it is now the best equipped school of pharmacy and chemistry in the kingdom." Indeed, if it will make him any the happier, I will even permit him to crow unchecked over University College, in affirming that the first chemical laboratory in London was established in this place.

Another part of the address which interested me very much is devoted to reminiscences and criticisms of the truly great men who were the earliest professors and teachers in this School, and of those who subsequently took their place, and directed its affairs. Such names as those of Anthony Todd Thomson, Fownes, Pereira, Redwood, and Bentley stand out conspicuously and prominently in the history of scientific and practical education in relation to the subjects with which you are here more immediately concerned, and they will ever be remembered with admiration and veneration. Two names appeal to me more especially—that of Fownes, who has always been associated in my mind with University College, whither he was enticed, and whose early death was such a severe loss to that College and to chemistry; and that of Redwood, the "hard-headed Welshman." My particular interest in this distinguished man arises from the fact that I belong to the same nationality, which is the only qualification that I can claim in common with him. On this account, however, I felt a peculiar gratification in reading, not only of his attainments and capacity for teaching, but also of his physical advantages and attractions, his oratorical powers, but, above all, his fighting propensities and abilities. Contrary to what you seem to suggest, Mr. President, we Welshmen are really and essentially so meek and subdued, as the result of ages of oppression and want of opportunities for proper education, that it is quite exhilarating to read of a fellow-countryman who could assert himself and hold his own, and out of whom you could never "get any change."

I have thus briefly alluded to the past history of this institution because I feel strongly that you who are already students here, or are now about entering, and indeed the whole body of existing or potential pharmaceutical chemists,

ought never to forget or ignore it, and the remembrance of what has been done should not only rouse feelings of gratitude on your part, but ought also to have the effect of actively stimulating your zeal and energy.

In these busy and exciting times, however, we haven't time to indulge in much sentiment about the past, for we have to deal immediately and practically with the present and the future. My further remarks, therefore, must be guided accordingly, and I now proceed to lay before you certain thoughts which have suggested themselves to my mind as suitable for this occasion, and which I trust may not be without some influence for good.

Pharmacy in the Past.

First, entertain and cherish constantly a high conception and standard in relation to the nature of your calling, its purposes and aims, its possible achievements, and its social status. It is of no use attempting to conceal or deny the facts that in past times the business of a "chemist and druggist" was generally but a "paltry trade"; and that the apprentice, who was supposed to be learning pharmacy, was often nothing but a "shop-boy, employed to fetch and carry." Indeed, I very much fear that such a description will still apply not uncommonly. This ought not to be, and pharmaceutical chemists as a body should do their utmost to make it impossible for such a state of things any longer to exist. What think you were the motives which prompted the founders of this Society and School to enter upon the arduous task which they set themselves, and which they pursued with so much energy, devotion, and success? At first sight it may appear as if the motive were a purely selfish one, for it is acknowledged that the Pharmaceutical Society was started for the purpose of defence, and to protect the interests of chemists and druggists. But surely the stimulus which urged them to take this step came from deeper and higher motives than this, namely, a true and lofty idea of the nature of their vocation, of its grave and far-reaching importance in relation to the general community, and of the real dignity of the "Science and Art of Pharmacy." As you, Mr. President, have told us, they were men of considerable knowledge and eminent in pharmacy; at the "top of their business"; and they had nothing whatever to gain personally. They acted in a truly unselfish and self-sacrificing spirit, and for the benefit of future generations. Surely it is not too much to expect that those who follow them, and who are reaping the advantages of their efforts, and of their devotion to a good cause, should not allow the standard which they set up to be lowered in the smallest degree, but rather should join hand in hand to raise it if possible still higher, and to realise the prospect which they only glimpsed from afar.

Necessity of Adequate Instruction and Training.

But obviously if pharmacy is to reach and retain its proper and legitimate status, those who are engaged in its practice must be adequately instructed and trained. As Redwood said, "the occupation of the skilled pharmacist is becoming one in which education and science are essential to gain the position which pharmacy deserves." I presume, ladies and gentlemen, that by becoming students of this School you acknowledge the reasonableness of this proposition, but I rather fancy there are not a few who are not present who would be inclined to dispute it. I cannot now enter into any discussion as to what should be the exact scope and extent of the instruction and training, or the range and degree of severity of the examinations, especially as I understand that on these points there are differences of opinion even amongst those who have the interests of pharmacy at heart. The outline which you gave, Mr. President, as a sort of "ideal education" for pharmacists has much to commend it, but whether it is practicable at present is another matter. With many of your suggestions I personally cordially agree, and I venture to affirm that the higher you aim, within due and well-understood limits, whether in regard to general culture, instruction in your own special subjects, scientific and practical training, or qualifying examinations, the better will it be for pharmacists as a body, as well as for the community at large.

The Business Aspect of Pharmacy.

Of course, the fact must be fully recognised that the pharmaceutical chemist cannot ignore the business aspect of his vocation, but I really cannot conceive of anyone, because he is an "educated pharmacist," being ashamed of his business. Listen to your President's words: "There is nothing derogatory in standing behind a counter, however well educated you are, and dispensing medicines, and dealing with people in an honourable and upright manner." "I never was ashamed of my business, and I have never lost a jot in the social respect of anybody." Never were truer words uttered, sir, and they are full of downright commonsense. I only wish they could be echoed far and wide in these days of social humbug and pretentious snobbery. And here let me say that, speaking personally, I certainly do not claim any abstract social superiority for the vocation of the medical practitioner over that of the pharmacist, or that there is any line of demarcation between them. Their relative position must very much depend on individual attainments, character, and actions; and in my opinion the educated pharmacist may fairly regard himself as a "professional man" if he acts accordingly, and "carries out everything in a true professional spirit." There is no reason whatever why every pharmaceutical chemist may not be competent to associate with, and be a fit colleague for, the members of the medical or any other profession, both socially and scientifically, and it will mainly rest with you individually what position you take in these respects. In my profession I regret to say that at the present time there are not a few who degrade their vocation to a very low trade indeed, and who thus bring much discredit upon it. The lowest level yet reached is probably that of a scheme recently disclosed, in which some of its members are actually tacked on to the weekly purchase of a "quarter of a pound of tea" from a certain firm, who have the audacity to publish a list of qualified medical men whom they employ to give medical attendance "free of charge" in return for this most profitable investment!

The Responsibilities of Pharmacy.

I now proceed to deal with another point which experience has taught me that it is desirable and necessary to urge and impress again and again upon students, especially upon those who are beginning their career. It is that you should conscientiously realise your responsibilities, and fully appreciate your opportunities, taking the utmost advantage of the excellent means of instruction and training, both scientific and practical, which are now at your command. Your time is short, it rushes along with startling rapidity,

and you cannot afford to waste the smallest portion of it, of course with due regard to needful recreation. In looking over the Calendar, I have been deeply impressed with the high character, extent, and thoroughness of the instruction which has been provided for you; and with the eminent position and scientific attainments of your professors, lecturers, and demonstrators. Moreover, you have a museum and laboratories which are the envy of most medical schools, with an excellent library and reading-room; while your ambition and zeal are stimulated by prizes, scholarships, and valuable fellowships. Certainly your advantages are great, and I strongly advise you to live up to them. As a teacher and examiner of some experience, however, I feel bound to say that I do not expect you will all follow my advice. The highest aim which a large proportion of students seem to have at the present day, whatever their line may happen to be, is to pass the requisite examinations, which will enable them to assume a certain title or titles, indicated by appropriate letters, in "big type," after their names, and to reap the practical benefits which such titles are supposed to bring with them. Towards this end they do just as much as they think necessary, and no more, whatever their opportunities may be; nor do they despise the adventitious help of the "grinder" or "coach" who can give them a lift over the stile. And then if they fail, they blame, not themselves, but the system of examination, which in reality fairly tests their knowledge, and only prevents those from passing who are not competent; or, it may be, some individual examiner, who probably is as harmless and innocent as a "babe unborn." Now, I don't wish to be hard upon you, the students of the Pharmaceutical Society, and of course the preceding remarks do not apply to you at all, for I feel sure you will agree with me that your examinations must be founded on a sound basis, and sufficiently comprehensive and stringent to show that you are competent to undertake the duties which will devolve upon you in your future career. To pass such examinations is the lowest point that you can possibly aim at; but you may go as far beyond as your ambition prompts, or your opportunities permit. I cannot see any reason whatever why this institution should not train students to be professors and teachers in the subjects which come within its scope, or even prepare them for allied scientific and professional pursuits not immediately connected with pharmacy as a business. It is with great pleasure that I note amongst those who have at various times been partially educated here the names of many friends, and even students of mine, who have since found an opening in other directions, and have highly distinguished themselves in their several spheres of work. If any of you can equal or surpass your predecessors, you are perfectly at liberty to do so, and to that end I can only again urge you to avail yourselves thoroughly of the opportunities which are now within your reach, and not to be afraid to aim high.

The Medical Profession and Pharmacy.

Permit me now to refer briefly to two or three practical questions bearing upon the relations existing between the medical profession and that of pharmacy. Although they do not immediately concern you as pharmaceutical students, I think it is desirable to draw your attention to them, for no doubt sooner or later most of you will be interested in them, and they are of decided importance to the general public. I have already alluded to the social relations between the two bodies, and I now further affirm that there is certainly no inherent antagonism between the medical man and the pharmaceutical chemist in any sense whatever, as a superficial glance at much that is going on might lead one to suppose. On the contrary, there should be nothing approaching want of harmony or discord between them, and they ought to work together earnestly and cordially for the common good. In a state of perfect social order the one would really be the complement of the other, but although this desirable relation is not practicable at present, there is no reason whatever why they should not pursue their several vocations in a thoroughly tolerant and friendly spirit. This does not by any means imply that the views of doctors and pharmacists are always the same, or their interests identical. It may happen that they are really opposed. For instance, there are a great many therapeutic agents of the highest value which are not of the nature of drugs. Now, I am not one of those superior persons who are sceptics as to the usefulness of medicines, as they are about most other things, but I honestly confess that as a professor of therapeutics and a practical physician I do not place them first, that I frequently recommend or use other agents in preference, and that not uncommonly I have to check very considerably the injudicious employment of drugs by patients, or even by young and inexperienced doctors. Now from the pharmacist's point of view naturally this is not "good business," and he cannot be human if he does not feel an instinctive fondness for the physician who prescribes on an extensive scale. I feel sure, however, that no rational and honest chemist would bear me a grudge because I cannot conscientiously contribute to his prosperity and well-being to the degree that I should like to, if circumstances were only more propitious, and my mental bent were more in his direction.

Assuming then that we are well-disposed towards each other, I, as a member of the medical profession, claim from you pharmacists protection against certain dangers and evils with which we are really impotent to deal. In the first place we look to you to guarantee, within reasonable limits, that we are supplied with efficient, active, pure, and unadulterated drugs. As your President has put it, you are supposed to be "competent to know what you sell, to analyse everything you sell, and to know that it is what you say it is"; and if pharmacists generally only act up conscientiously to this standard, the medical profession will be perfectly satisfied. I fear, however, that it is by no means always reached, and that deliberate substitution of drugs other than those prescribed, or systematic adulteration, is not unknown even amongst qualified pharmaceutical chemists. Why this mean, contemptible, and most iniquitous variety of fraud and theft is only punished with a fine, while a poor starving wretch who steals a loaf of bread, or a turnip from a field, to appease the pangs of hunger, is put into prison, I cannot conceive. If I had my will, I would give the man or woman who adulterates anything, but especially food and medicines, a very hot time.

"Irresponsible Pharmacy."

I must pass over the questions relating to patent and quack medicines, merely remarking that a judicious discretion in dealing with them may be fairly expected on the part of pharmaceutical chemists, especially when they contain powerful or poisonous ingredients; and will certainly steer clear of homœopathy, lest I start another lively and advertising correspondence in the *Times*. I should like, however, to say a few words about what I may term "irresponsible pharmacy," upon which I very much wish

that the Pharmaceutical Society could exercise some check. Pharmacy is really in a somewhat curious state just now, and if one takes up any medical or pharmaceutical journal or periodical, not to speak of general, and, above all, so-called "religious" newspapers, the number and variety of preparations and compounds one sees advertised, for every kind of complaint, each vying with the other in brag and boastfulness, are positively most confusing and overwhelming. Moreover, every drug is so conveniently and attractively prepared for us, individually and in all sorts of combinations, that the art of prescribing stands a very good chance of dying out, and indeed even the British Pharmacopœia seems hardly to be needed any longer. Up to a certain point of course this is very pleasant and helpful, and we owe a deep debt of gratitude to many pharmaceutical and manufacturing chemists of honourable type for what they have done in this direction, but there are limits. Amongst other matters, I affirm that it is decidedly wrong that so many drugs, some of them very powerful and even dangerous, are now supplied freely to the public at large in the form of tabloids, capsules, and the like, which they can consume or use in other ways to any extent at their own discretion, and altogether apart from medical supervision. Again, I must enter my emphatic protest against the extreme haste which is exhibited to flood the market with all kinds of new drugs and special remedies, in endless variety of preparations and methods of administration, either before they have been fairly studied or tested at all, or only in a most superficial and inadequate manner. The consequence is that the large majority of these vaunted remedies fail ignominiously to maintain their position, thus inevitably bringing upon therapeutics and pharmacy undeserved discredit, and seriously impeding their true progress.

In order to maintain the cordial and friendly relations between medical men and pharmacists to which I have previously referred, I presume it will be generally agreed that it is most desirable that they should keep to their respective spheres as strictly as possible. I believe I am correct in expressing the opinion that a large majority of those belonging to the medical profession would rejoice to see dispensing by its members entirely done away with; and altogether apart from consultants, I know many "general practitioners" who act accordingly, probably to their own financial loss. But looking at the matter practically, I honestly do not see how the long-established custom of doctors dispensing and sending out their own medicines can possibly be changed on a general, or even a large scale for many a day to come, especially in the smaller towns and country districts. Even "doctors" must live, and so long as people will not pay for mere "advice," as they call it, or give a fair remuneration for a prescription, it cannot be expected that the medical attendant will give up his main source of income. We can only hope that, as the result of the progress of education, ideas will change, and that dispensing will, in course of time, be left entirely to the skilled pharmacist.

The Prescribing Chemist.

There is another aspect of affairs which I feel bound to notice, though I may be venturing on delicate ground. I allude to the "prescribing chemist." Whether I give offence or not, I must unhesitatingly and emphatically declare that for him there is no excuse whatever. He has never been educated or trained in any sense for the position which he assumes, and is certain to do infinite harm in a variety of ways. Therefore I earnestly exhort you whom I am now addressing as students from the very outset steadfastly to resist every temptation to resort to such a practice, and not to be led under any circumstances into what is an unfair and illegal competition with the medical profession. To treat patients merely on their own statement that they are suffering from indigestion, neuralgia, cough, palpitation, or what not, for which they require a remedy, is absolutely wrong in principle and disastrous in its consequences, and for their sakes, as well as having regard to your own sense of honesty and integrity, you ought invariably and without hesitation to refuse to do anything of the kind. You can only be working in the dark, for you know nothing about the actual nature of the case, and are utterly incompetent to investigate it, even if you tried. I feel ashamed to acknowledge that there are practices prevalent amongst a certain class of qualified medical men, which are not one whit better than those of the "prescribing chemist." The running of "cheap dispensaries," where "advice and medicines" are supplied to all comers without the slightest pretension to "clinical investigation," and, as a rule, at a figure that I feel sure would make you blush if I mentioned it; and the extensive employment by medical men of "unqualified assistants," who are absolutely ignorant and incapable, and not a few of whom are but the wreck of immoral and degraded lives, are standing blots upon our profession, and it is a scandal that it is possible for such practices to continue. Our so-called "statesmen" and "politicians," however, of all parties, care nothing for these things. I sincerely hope that you have a higher conception of your vocation than to compete with individuals of such a low type. As well, or better, may you compete with the "penny in the slot automatic doctor" of which I recently read. In a nude bronze figure, the well-known apertures are placed above the principal vital organs for the reception of the humble coin. The speculator makes his own diagnosis as to his particular ailment; he introduces his "fee" into the corresponding orifice; and from the drawer thus opened he obtains a prescription supposed to be applicable to his case, for the ridiculous sum of one penny, plus the further charges of the chemist, who has therein a decided advantage over the doctor. In relation to the subject I am now discussing, I was much gratified, Mr. President, to read in your address the following passage. "If there is one thing more than another that our educational system has taught us it is that the best educated men amongst us are those who never trench on the medical man's province." I have no doubt whatever that this is a true statement, and I have every confidence that those who study here are so educated, and have such a high standard constantly placed before them, that they ought to give no opportunity for being "found fault with for prescribing or dabbling in things which they do not understand."

Co-operation of Medicine and Pharmacy.

It is pleasant to pass from controversial questions, and to consider for a moment that of co-operation, which in these days is such an attractive word. Taking a comprehensive glance at the existing state of things, and looking forward into the future, one cannot fail to see many directions along which the authorities who guide the affairs of the medical profession and the Pharmaceutical Society, as well as the general body of members of the respective branches, may and ought to work together on legitimate and rational lines. I believe that we all desire a higher standard of education, and

that true knowledge and culture may be more widely disseminated among our ranks. At the present time we are co-operating in the preparation of a new edition of the British Pharmacopœia, under the able editorship of Professor Attfield, and I hope and believe with most beneficial results. From your chemical laboratories we have every reason to expect that you will supply us with additional and really useful remedies and active principles; while your laboratory of pharmacy cannot fail to be of great service in advancing this important department in various directions. For much valuable help thus already received I thank you cordially on behalf of the medical profession, but we anticipate far greater things in the future. With regard to pharmacology as a science, I understand that you have the means of encouraging workers to aid those on the medical side in establishing and extending knowledge, correcting errors, and making new discoveries, according to the principles of modern experimental observation and research. Thus are you preparing the way, in most excellent fashion, for the true progress of practical therapeutics, with which the members of the medical profession are more immediately concerned.

Novelties in Pharmacy.

What will be the actual course of events in the future it is difficult or even impossible to foretell. The administration of internal organs or their products in different forms; the introduction of serum-therapeutics, with the injection of antitoxins and the like; the development of physical methods of treatment; and other modern therapeutic novelties, are unquestionably revolutionising our ideas about treatment in many respects. Methinks, however, that drugs will still hold their own, and that to the end of time there will be no diminution in the demand for the services of the pharmaceutical chemist. With regard to so-called modern progress in therapeutics, I confess I feel personally some misgiving. At any rate I am sure that there is a great deal too much hurry in the matter, and that we all need to be warned to advance cautiously and circumspectly, like beings supposed to be endowed with intelligence and common-sense, and to "keep our heads." For some notions and expectations still widely entertained there is no foundation whatever, and amongst them I confidently affirm is that of the cure of pulmonary consumption by subcutaneous injections of various kinds. I thought that this craze had received a salutary check, but I see it has recently broken out again violently in a new place! Apart from other aspects of the matter, it is a cruel thing to hold out such illusory hopes to those suffering from this terrible disease, for which so much can really be done by rational methods.

Conclusion.

I cannot conclude my address without offering you, and more especially the male students, a few words of general exhortation and encouragement, though I can only repeat what has been said over and over again. I have now been intimately associated with medical students as a teacher and friend for thirty years. Whatever their particular line may be, I fancy that students are very much the same all the world over. I believe I have come to understand them fairly well, and to appreciate their feelings and aspirations, their difficulties and disappointments, their trials and temptations. I can assure you that I sympathise with you deeply and sincerely, and from the bottom of my heart I wish you well. Upon each of you, in your individual capacity, serious responsibilities rest, which you cannot ignore or shirk. If you desire to be successful in the immediate future, as well as prosperous and happy when you come to face the stern realities of life, the principles which must guide you are precisely those which apply to every other sphere of work. You must be diligent, attentive, zealous, and earnest in your pursuit of knowledge, and in training your mental and moral faculties for the inevitable battle, and it may be a severe one, which lies before you. Nor must I forget or overlook your duties and responsibilities in relation to each other. As students of this Institution you are brought into more or less intimate association, and the experience thus gained you ought to regard as an essential part of your education. It has been truly said that the stimulus of example and companionship in early life is required by the great majority of individuals, in order to ensure successful study. Moreover, as your President has well put it, you learn by rubbing against each other; you learn temper, tact, and human nature; while your manliness is developed, a quality which he seems to think is peculiarly important for chemists and druggists. Might I add that you may also learn self-control and self-repression; as well as the satisfaction which is associated with kindly feelings, courteous behaviour, and due consideration for others. It may be that eventually you will succeed in learning the very hard lesson of how to crush down the natural feelings of envy and jealousy, so that you can even rejoice in the success of competitors who have fairly proved themselves your superiors. The legitimate effect which each should have upon his fellows is to stimulate to friendly emulation and rivalry, which cannot fail to be beneficial all round. But this association of students has also its dangerous side. We cannot ignore the influence of evil example, or even of the deliberate tempter—the man who would wantonly lead others astray, to waste valuable time, to spend their days in idleness and frivolity, or even to wreck their lives in vicious pursuits. I earnestly hope that there are none such here. I have so often seen such disastrous consequences from their devilish work that I feel bound with affectionate emphasis to warn you all against them, but especially the new-comers. Some of you are so young and inexperienced that I really tremble for you in this great city, probably just removed from the guidance of loving parents, and the salutary control of home-life. I can only trust and pray that you may be constantly guided along the paths of virtue and rectitude by a power that is higher than man.

And now, in closing, let me offer my cordial congratulations to the successful winners of prizes and distinctions who have come before us to-day, and my no less cordial encouragement to those who for the present have not achieved all that they aimed at or desired. May you all work on loyally, steadfastly, hopefully, and cheerfully, conscientiously striving to fit yourselves for the important public duties that lie before you in the future, so that, whatever position you may in the course of events be called upon to occupy, you may be enabled, not only as accomplished and successful pharmacists, but as men and women of "high personal character, moral rectitude, and fine sense of honour," faithfully to serve your day and generation, and to contribute your due share to the well-being and progress of humanity.

OPENING OF THE SOCIETY'S SCHOOL OF PHARMACY.

The fifty-fourth session of the School of Pharmacy was inaugurated on Wednesday, Oct. 2, the chair being taken at three o'clock by Mr. Michael Carteighe, President of the Pharmaceutical Society.

The proceedings commenced with the

PRESENTATION OF THE HANBURY MEDAL.

The PRESIDENT said his first duty was to present the Hanbury medal to a distinguished Austro-Hungarian gentleman, who represented the embassy of his country and, for the purpose of the present occasion, Professor Vogl, of Vienna. The Hanbury medal was founded to commemorate a man whose single-minded devotion to one particular branch of scientific research was probably unique in this country. Mr. Hanbury was a specialist at a time when people did not understand specialism, and had Daniel Hanbury been able to follow his own inclinations he would probably have become professor of materia medica, but the claims of business were too strong for him; nevertheless, he contrived, while assisting in the carrying on of a historic house in pharmacy, during his spare hours to make so many observations and to write so many papers on the chemistry of drugs that he became early in life a F.R.S., and had always been looked upon as a distinguished member of the Society. After stating the conditions under which the medal is awarded, the President continued by saying that amongst those who had done special work in connection with the natural history of drugs was the distinguished Professor to whom the award had this year been made. Professor Vogl might be said to have been the father of pharmacognosy, or of that particular application of materia medica which had reference to the histology of drugs, the cutting up and analysis of drugs, whether alive or dead, and endeavouring to see what part they were playing in nature, and whether any inferences might be drawn therefrom. Professor Vogl had contributed many papers, had published a most complete monograph on the subject, and in the judgment of the committee of judges was thoroughly entitled to the distinction they had asked him to accept. He was not able to be present, for, like the distinguished man of science in France who had just passed away, he was one of those hard-working, self-denying men who would not absent themselves from their professional work. He wrote to say that his duties commenced on October 1, and that it would be impossible for him to come here and receive the medal, greatly as he appreciated the honour. In his absence the Austro-Hungarian Ambassador had asked Count Siegfried Clary to come here to receive it, and in the name of the committee of judges, and with the congratulations of the members of the pharmaceutical body to which Daniel Hanbury belonged, he had now the pleasure of giving Count Clary the medal. He concluded by drawing the attention of the audience to a photograph of Professor Vogl.

Count CLARY said he was very happy to receive the medal on behalf of Professor Vogl, and felt very proud that one of his countrymen had been considered worthy of this distinguished honour.

The Dean of the School, Professor GREEN, was then called upon to read his report on the work of the past session, as follows:—

SCHOOL OF THE PHARMACEUTICAL SOCIETY.

FIFTY-THIRD SESSION—1894-5.

The School of Pharmacy has during the session been attended by 83 students.

In the department of chemistry, Professor Dunstan reports that the diligence and attention of his pupils have been well maintained, and nothing but praise can be bestowed on their general behaviour. Both in chemistry and in physics the amount at present demanded in a single session puts a very severe strain both on students and on teachers. The important question as to the relation of the educational curriculum to the examinational requirements is one which now demands serious attention both by teachers and examiners, for it is obvious that some re-adjustment is highly desirable.

In this department the Sessional Silver Medal is taken by Mr. Harold Brown, one of the Bell Scholars, who has since gained both the Pereira Medal and the Redwood Scholarship. The Sessional Certificates of Honour are taken by Messrs. Harold Read and J. R. Walker. Mr. F. F. A. Tunbridge secured the Bronze Medal awarded at the termination of the winter term, while Certificates of Honour were taken then by Messrs. H. Brown, M. Cashmore, and H. Read.

Professor Attfield reports that there have been 67 students attending his class in practical chemistry, which is an average number. As regards their general behaviour, there is no serious lapse to record, while as regards the progress made, a larger proportion of the pupils have passed the examinations than has been the case for twenty years, large though that proportion has always been. Eleven students competed for the Silver Medal, which has been awarded to Mr. J. R. Walker, the second place being gained by Mr. H. Read, the third by Mr. S. Davis, and the fourth by Mr. L. J. Giles. At the end of the winter term the Bronze Medal was awarded to Mr. F. F. A. Tunbridge and Certificates of Honour to Messrs. A. Lilly and R. E. Wright. The classes in botany were attended by 48 students, who worked with one or two exceptions conscientiously and well. In view of the growing requirements of the examiners, the Professor feels it to be extremely desirable that more time should be allowed to the practical work in histology than can under the present system be afforded. In the examinations both in March and in July, the work done by the best candidates was extremely good, a very high degree of excellence being attained. The Bronze Medal in March and the Silver Medal in July were both won by Mr. H. Brown, Certificates of Honour being gained in March by Messrs. J. R. Walker and D. P. Fuge, and in July by Mr. J. R. Walker.

Professor Greenish reports that in the materia medica class 35 students entered for the first, and 32 for the second course. The work was steadily maintained throughout the session, and was in every respect satisfactory. At the end of the first course 28 students competed for the Bronze Medal, which fell to the share of Mr. H. Brown, Mr. J. R. Walker taking the Certificate of Honour. At the end of the session Mr. Brown carried off the Silver Medal, Mr. Walker and Mr. Sidney Bastow being awarded Certificates of Honour.

Mr. Ince reports that pharmacy during the past session has been in a satisfactory position, the attention paid to the subject by the students leaving nothing to be desired. During the winter term 39 attended the course; the Bronze Medal was awarded to Mr. J. R. Walker, *proxime accessit* Mr. H. Read. The summer course was followed by 21 students and the Silver Medal was gained by Mr. H. Brown, Mr. Walker being second in order of merit. The numbers taking the Laboratory courses of practical work were 37 and 11 respectively.

At the end of the session the secretary of the School, Mr. F. W. Short, B.Sc., found himself compelled to resign his post, having undertaken other duties which necessitated his removal. The vacancy has been filled by the appointment of Mr. E. J. Eastes, F.I.C.

J. REYNOLDS GREEN,
Dean.

October 1, 1895.

After the reading of the report the President proceeded to distribute the prizes and certificates to such of the successful candidates as were present, offering in each case a few appropriate words of congratulation.

List of Prizemen in the School of Pharmacy Competitions.

Sidney Bastow.
Certificate of Honour—Session—Materia Medica.

Montagu Cashmore.
Certificate of Honour—1st Course—Chemistry and Physics.

Sidney Davis.
Certificate of Honour—Session—Practical Chemistry.

Dingley Palmer Fuge.
Certificate of Honour—1st Course—Botany.

Lewis John Giles.
Certificate of Honour—Session—Practical Chemistry.

Arthur Lilly.
Certificate of Honour—1st Course—Practical Chemistry.

Robert Edwin Wright.
Certificate of Honour—1st Course—Practical Chemistry.

Francis F. A. Tunbridge.
Bronze Medal—1st Course—Practical Chemistry.
Bronze Medal—1st Course—Chemistry and Physics.

Harold M. Read.
Certificate of Honour—1st Course—Chemistry and Physics.
Certificate of Honour—Session—Practical Chemistry.
Certificate of Honour—Session—Chemistry.

John Robert Walker.
Certificate of Honour—1st Course—Botany.
Certificate of Honour—1st Course—Materia Medica.
Bronze Medal — 1st Course — Pharmacy and Practical Pharmacy.
Silver Medal—Session—Practical Chemistry.
Certificate of Honour—Session—Chemistry.
Certificate of Honour—Session—Botany.
Certificate of Honour—Session—Materia Medica.

Harold Brown.
Certificate of Honour—1st Course—Chemistry and Physics.
Bronze Medal—1st Course—Botany.
Bronze Medal—1st Course—Materia Medica.
Silver Medal—Session—Chemistry.
Silver Medal—Session—Botany.
Silver Medal—Session—Materia Medica.
Silver Medal—Session—Pharmacy.

Mr. Hanbury's Gifts of Books.

The following prizemen were presented with the books mentioned, which are given by Mr. Thomas Hanbury in memory of his brother, the late Daniel Hanbury, F.R.S.:—

To Harold Brown, 1st Prizeman in Chemistry, Botany, Materia Medica, and Pharmacy, copies of 'Pharmacographia' and 'Science Papers.'

To John Robert Walker, 1st Prizeman in Practical Chemistry, copies of 'Pharmacographia,' and 'Science Papers.'

The Herbarium Prize.

Professor Green, in reporting on the competition for the Herbarium Prize, said he was not often able to recommend the award of a silver medal, but this year one collection out of the four sent in was of such exceptional value, that it fairly entitled the collector to this recognition. The herbarium sent in by Mr. G. C. F. Last, was an admirable one; the specimens were well chosen, carefully treated, and fully typical of the natural orders they were intended to illustrate. Another collection not quite so good, but very highly commendable, was sent in by Mr. Payne, and he recommended the award to him of a bronze medal. The other two were distinctly creditable, though they were overshadowed by the first two, and he therefore recommended for the award of certificates of honour Mr. Frederick A. Upsher Smith, and Mr. Edward George Martin.

Council Examination Prizes.

Mr. Seward presented the report on this examination as follows:—

As the examiner in botany for the Pereira Medal competition, I have the honour to report on the examination as follows:—Ten candidates entered for the examination. The papers on the whole were well done, and showed that the candidates had made a serious effort to obtain a sound knowledge of the subject. The work of the successful competitor, Mr. Harold Brown, reached a high standard of efficiency; but in speaking in eulogistic terms of his work, I must add that the papers of Messrs. Henry Fraser and Fred Herman Tully, who were placed respectively second and third in the examination, are deserving of scarcely less praise. As this is the first time I have had the privilege of acting as examiner in the Pereira competition, I am unable to make any comparison of the general level of the work sent in with that of former years, but I may at least express the pleasure which was afforded me by the thoroughness and wide range of the botanical knowledge of the best candidates. In looking over the various papers it was at once apparent that some of the students had received a special scientific training in the subject, whilst others had been dependent on teaching of a less satisfactory type. It would seem that in examinations of this kind, the student or teacher, or both, forget that the examiner looks primarily for real intelligent knowledge, and not for dry facts which have been learnt but not understood. In conclusion, I would, therefore, emphasise the necessity for students who would know something of botanical science to approach the subject in the common-sense spirit of searchers after scientific truth, and not in the spirit of examiners whose interest in the problems and principles of botany terminates simultaneously with the examination. The medals were then presented to the following:—

I. PEREIRA MEDAL (SILVER); and Books of the valve of £5, presented by the late Thomas Hyde Hills.

Harold Brown.

II. PHARMACEUTICAL SOCIETY'S MEDAL (SILVER); and Books of the value of £3, presented by the late Thomas Hyde Hills.

Henry Fraser.

III. PHARMACEUTICAL SOCIETY'S MEDAL (BRONZE); and Books of the value of £2, presented by the late Thomas Hyde Hills.

Fred. Herman Tully.

Jacob Bell Memorial Scholarships.

Mr. Holmes read the following report upon this examination:—

On behalf of my colleagues I beg to report upon the examination for the Jacob Bell and Manchester Scholarships.

Thirty-two candidates competed for the (2) Bell Scholarships and the examinations were conducted at twenty-one centres.

This number is rather above the average.

The candidates are examined in Latin, arithmetic, English, and French or German, so that the foundation of a good education, the only foundation for a career of pharmacy, is ensured.

An elementary knowledge of chemistry, botany, and pharmacy is also required.

It is satisfactory to note that thirteen of the candidates obtained

more than the minimum number of marks required to qualify them for the Scholarship.

The two successful candidates obtained a high percentage and I heartily wish them every success in their future career.

The examination for the Manchester Scholarship is held separately, but is conducted on similar lines.

The Scholarship is open to subscribing students of the Society between the ages of 19 and 21 years, who have been engaged for not less than three years in the pharmacy of a registered chemist in Lancashire, Cheshire, or the High Peak division of Derbyshire. One candidate only presented himself, but failed to obtain the requisite number of marks. A precisely similar thing occurred last year. This points to a very unsatisfactory state of things.

These scholarships, independently of their money value, offer priceless advantages to the holders of them. They are not only the means of obtaining a good scientific training, but also the fellowship of other students, the effects of which last a life-time.

I do not think that it would be fair to assume that the young men of Lancashire and Cheshire think themselves incapable of passing the examination, but I do think it shows a lamentable want of enterprise on their part and an absence of that professional spirit which should animate all who enter upon the calling of pharmacy

The two successful candidates for the Jacob Bell Memorial Scholarships are:—

FRANCIS UNDERWOOD STAMP, of London,
and
GEORGE SENTER, of Edinburgh.

THE REDWOOD SCHOLARSHIP.

THE PRESIDENT said this Scholarship was founded in memory of a man whose voice many remembered in that room, a man possessed of unflinching courage and unflagging industry, who worked until within a few months of his death in a manner which would surprise most people. The Scholarship was awarded under conditions which allowed the holder to continue his scientific work in the Research Laboratory. It was in the power of the Committee to enforce an examination on the candidates, but when they found a student who had done such splendid work as Mr. Harold Brown, they unanimously felt that they could not do better than ask him to accept the Scholarship. He had no doubt that in the course of one year or two, if he could stay so long, the promise he had already shown would be borne out, and that he would prove not only a distinguished student but an able investigator, and that he would become a credit to the pharmaceutical body.

Professor ROBERTS was then called upon to deliver

THE INAUGURAL SESSIONAL ADDRESS,

which is printed at p. 281.

At the conclusion of the address, the PRESIDENT moved a cordial vote of thanks to Professor Roberts for his admirable address, which showed that he was not only an accomplished physician, but a man of common-sense.

The VICE-PRESIDENT (Mr. Harrison) in seconding the motion said he had listened to the address with the greatest pleasure. With the closing remarks he was thoroughly in accord; improved education would do much to raise the status of the pharmacist, but at the same time he felt that, unless it were accompanied by high moral culture and high moral ideas, it would utterly fail. Therefore, in addressing both the successful competitors and those who had not been so fortunate, he would ask them to aspire to the high ideal to which Professor Roberts had pointed, and to strive to render themselves not only useful, efficient, and earnest members of the pharmaceutical profession, but also useful and earnest citizens. If they took this address to heart they would find they had a good deal to think over, and a very high ideal for which to work.

The vote of thanks having been carried by acclamation,

Professor ROBERTS briefly responded, and the visitors then proceeded to inspect the School premises and partake of refreshments.

ANIMAL CHARCOAL AS A PILL EXCIPIENT.

BY SEÑOR EVICLÉ.

The dispensing of pills containing creosote, croton oil, etc., is one of the most important operations which present themselves to the pharmacist, and the processes published sufficiently indicate how much this question occupies the attention of every dispenser jealous of the faithful discharge of his professional duties. Animal charcoal exhibits, as regards creosote and croton oil, a considerable absorptive power. With creosote it is moreover absolutely necessary to use some inert substance capable of binding the pill mass; with croton oil this is unnecessary.

1. Creosote Pills containing 5 centigrammes in each. Place in a mortar about 2 grammes of animal charcoal, pouring on to the powder a gramme of creosote, or better, 43 drops measured by the regulation pipette, stir quickly until a soft paste is obtained indicating that all the creosote is not entirely absorbed. Add little by little more animal charcoal (about 0·60 gramme) until the mass is converted into a moist powder not adhering to the pestle nor to the mortar. The creosote now forms with its excipient a powdery mixture which binds beautifully on the addition of 0·20 to 0·25 gramme of Venice turpentine. Beaten together quickly a pilular mass of perfect homogeneity and plasticity is produced, which, when cut into twenty pills, soon sets satisfactorily.

2. Croton oil pills containing 5 centigrammes each. Croton oil, 49 drops. Animal charcoal enough to make twenty pills.

For these it is not necessary to use Venice turpentine as the mass is easily made, and rolls well on the machine.

3. In the case of a more complicated formula in which, for example, the creosote is associated with tannin and iodoform, animal charcoal will be found again very useful, as in the following prescription, which is very often met with—

Beech creosote	1	gramme.
Tannin (prepared with ether)	1	,,
Iodoform	1	,,

Make twenty pills.

To quickly get a satisfactory and smooth mass, first absorb the creosote with animal charcoal as previously directed, add the tannin and iodoform triturated together, mix well, and mass with Venice turpentine.

Pills thus prepared may be sent out rolled in magnesia, silvered or varnished with tolu varnish, which latter helps to mask the caustic taste of the creosote, although the animal charcoal does this to a great extent.

Animal charcoal enables one also to dispense creosote and similar medicines in the form of cachets, as in the two annexed prescriptions:

1. Cachets of creosote of 20 centigrammes each.

Beech creosote	2	grammes.
Animal charcoal	5	,,

Mix intimately and divide into ten cachets.

2. Cachets of Venice turpentine of 50 centigrammes each.

Venice turpentine	5	grammes.
Animal charcoal	5	,,

Mix and make ten cachets.

One can thus see that these substances hitherto only sent out in capsules, perles, or boluses, may be prepared by the pharmacist himself at his own dispensing counter, and by this means he will be able to send out an accurately dosed and prepared remedy of whose quality he has previously satisfied himself (*Revista Farmaceutica Argentina*).

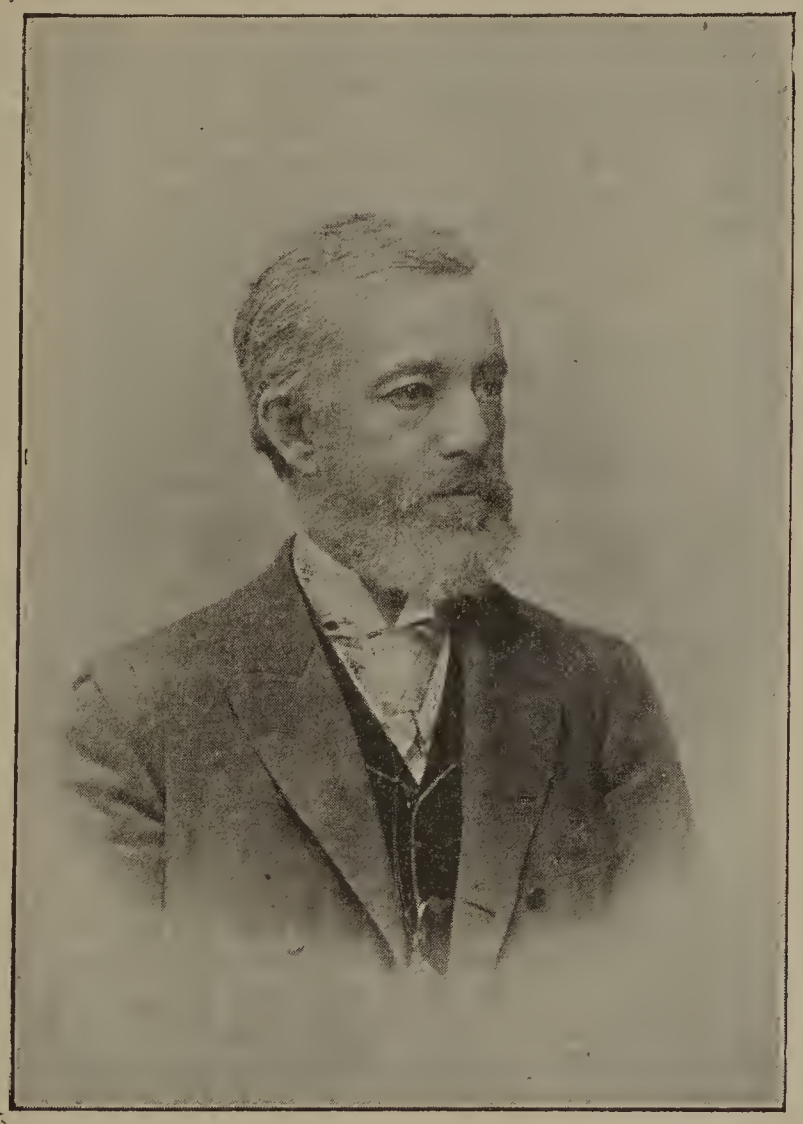
THE HANBURY MEDALLISTS.

Twenty years have elapsed since Daniel Hanbury passed away. A desire to perpetuate the memory of one of the most able of pharmacognosists was felt at the time by scientists in all countries, and finally found expression in a proposal, emanating in the first instance from the Council of the Pharmaceutical Society, but more definitely formulated by Professor Dragendorff, that such commemoration should take the form of a medal to be awarded at intervals "for original research in materia medica or pharmacy." By means of a limited subscription a sum of money was collected from pharmacists and scientists sufficient to allow of a gold medal "for high excellence in the prosecution and promotion of original research in the natural history and chemistry of drugs," being provided every second year. The award of this was to be made by a committee consisting of the Presidents of the Pharmaceutical Society, the British Pharmaceutical Conference, the Linnean Society, and the Chemical Society, together with one pharmaceutical chemist, to be nominated by the first-named two bodies.

In accordance with resolutions to this effect, the first Hanbury gold medal was struck in 1881, and unanimously awarded to the late Professor Flückiger, who, in conjunction with Hanbury, and only a short time before his death, had published after years of work the classical 'Pharmacographia.' Professor Flückiger had established his reputation both as a pharmacognosist and chemist, but had made his particular study the history of drugs, a work dealing with which he was writing at the time of his death. His successor in receiving the medal was John Eliot Howard, whose name will be for ever associated with cinchona barks and their alkaloids. In 1885 the Committee selected Professor Dragendorff (Dorpat) for the honour in their gift. Professor Dragendorff had devoted years of unceasing labour to the analysis of plants, the separation of their active principles, and the forensic chemical detection of those principles, and had identified himself therefore with the chemistry rather than the natural history of drugs. Two years afterwards Dr. Dymock, of Bombay, whose researches on Indian drugs had won him a world-wide reputation, received the medal, whilst in 1889 it was awarded to Professor Planchon whose treatise on materia medica is to be reckoned amongst the classical works on that subject. Both of these last-named recipients represented essentially the botanical rather than the chemical side of pharmacognosy, but in 1891 the condition was reversed when the medal was awarded to Dr. Hesse, whose researches on the chemistry of the alkaloids had won him a high reputation. Professor Maisch, the recipient of the medal in 1893, was best known by his work in connection with American materia medica.

Professor Vogl, to whom the Hanbury medal has just been awarded, has for many years made the histology of drugs his special study, and has contributed more than any living pharmacognosist to place pharmacognosy on a sound and scientific basis, evidence of which is to be found in his 'Text-book on Pharmacognosy,' and 'Anatomical Atlas.'

It will be seen that the Hanbury medal is, as it was intended to be, essentia ly an international one. Only once has it remained in England. It has twice found its way to Germany, and once each to Russia, India, France, America, and Austria. "Scientia non unius populi sed orbis terrarum."



Dr. August Vogl

geb. 3. August 1833

Professor Vogl was born in August, 1833, at Weisskirchen, in Moravia, in which town his father exercised the calling of a pharmacist. After leaving school he studied medicine at the Josef's Academy in Vienna, served as surgeon during the Italian campaign of 1859, and finally in 1860 took his degree as "Doctor der gesammten Heilkunde" at the Academy, being the first candidate on whom the degree was conferred. From 1860 to 1864 Vogl was assistant in the Natural History Section of the Academy, after which he became Privat-docent of Pharmacognosy in the University. During the succeeding four years he was actively engaged both in the various military hospitals as well as in the chemical laboratory of the Academy. In 1870 he was chosen extraordinary professor of botany, zoology, and "waarenkunde"* in the German Polytechnicum in Prague, and in 1874 he was elected to the chair of pharmacology and pharmacognosy in the University of Vienna, which he still occupies.

Vogl devoted himself very early to the study of natural history, and especially botany, and even when a scholar in the gymnasium published several useful essays on the flora of his native country. Later on he zealously turned his attention to the anatomy and histology of plants, especially in their relation to pharmacognosy. This theme formed the subject of his introductory professorial lecture in Vienna, and the experience that he subsequently gained in this field has been published in numerous scientific journals such as that of the Academy of Sciences in Vienna, of which he is corresponding member. The substance of those contributions more directly related to pharmacognosy is contained in the 'Anatomical Atlas,' in the commentary to the Austrian Pharmacopœia published in conjunction with Professor

* Under this term is to be understood a knowledge, not of drugs only, but of all vegetable and animal products that are articles of trade.

Schneider, the materia medica part of which has been separately issued with an appendix under the title of 'Lehrbuch der Pharmacognosie.'

His duties in Prague carried him also into the field of technical "waarenkunde" and microscopy, and the results of his work in this direction are published chiefly in his 'Microscopy of Food Substances,' in Karmarsch-Heeren's 'Dictionary,' as well as in the various current journals.

In the position he at present occupies in the University of Vienna, where he lectures on pharmacology to medical, and pharmacognosy to pharmaceutical, students, Professor Vogl enjoys in a high degree the confidence of his colleagues, by whom he has been repeatedly elected Dean of the Medical Faculty, and in 1887–8 Rector of the University. In 1878 he became a member of the Supreme Sanitary Council, of which he is now vice-president and referee for all matters pharmaceutical. He has also taken a leading part in the compilation of the new edition of the Austrian Pharmacopœia, and in the introduction of a new system of education and examination for pharmaceutical students.

Professor Vogl is honorary or corresponding member of numerous scientific societies, including the Pharmaceutical Society of Great Britain, to which he was elected in 1878. With the late Professor Flückiger he was on terms of the most intimate friendship, the memory of which has been perpetuated by the award of the Flückiger medal last year on the occasion of the meeting of German naturalists in Vienna.

To all who are acquainted with Professor Vogl's scientific researches, the award to him of the Hanbury medal must be a source of satisfaction, but the greatest pleasure will be felt by those who enjoy the privilege of his personal friendship. Modest and retiring, sometimes even almost to brusqueness, it is not until his aid has been solicited that his desire to assist an earnest student, by skilfully leading and encouraging him, and by placing freely at his disposal the rich store of experience accumulated during years of unremitting labour, can be learnt and appreciated. But even such encouragement sinks into insignificance when compared with the stimulation afforded by his example. Even the brief months of relaxation from official duties bring no cessation of study. Surrounded in his country residence by scenery of surpassing beauty that well might seduce the most zealous student, every hour is devoted to the minute examination of the commonest as well as the rarest plants. "There is not," the professor is wont to say, "a single one that, when thoroughly investigated, will not yield much that is interesting and something that is new."

Sugar in Urine.—Klar describes in detail a reliable method of testing urine for sugar by phenylhydrazine. Pure phenylhydrazine hydrochloride should be used and the urine should be perfectly clear. If the latter condition cannot be attained by filtration, precipitation with basic acetate of lead must be resorted to, excess of lead being removed by sulphuretted hydrogen, and the free acid produced nearly neutralised by soda. Ten C.c. of the clear liquid diluted with 15 C.c. of water is introduced into a wide test tube, 1·25 Gm. of phenylhydrazine hydrochloride, and 2·5 Gm. of sodium acetate are added, and the mixture placed in boiling water for twenty minutes. If the heating is continued longer potassium glycuronate may, if present, interfere with the test. The mixture, after heating, is removed from the water bath and allowed to stand for several hours. If no yellow crystalline precipitate has formed, even after the addition of ether, sugar is not present. The appearance of such a precipitate indicates sugar, but it is always advisable to confirm by examining the precipitate microscopically (*Pharm. Zeitung*, xl., 372).

NOTES ON THE STAINING OF CELLULOSE.*

BY E. G. LOVE, PH.D.

Cellulose forms the basis of vegetable tissues, and also occurs to slight extent in animal membranes. It is composed of carbon, hydrogen, and oxygen, and its composition is the same as that of starch. In chemistry the words cellulose and lignin are often used as synonymous terms. It is preferable, however, to restrict the word lignin, as is commonly done in microscopy, to those older growths of the cell usually known as lignified or woody tissue, in which the original cell has received secondary deposits, and has, as a whole, been more or less changed in composition and reactions from cellulose.

Cellulose as it occurs in plant structures presents considerable variety in physical properties. Sometimes it is soft, as in the young plant, and again it is quite dense. This fact accounts for the varying results obtained when cellulose is subjected to the action of staining liquids. The staining of young and soft cellular tissue presents no special difficulties, but when the cellulose increases in density the difficulty is increased; and this is true whether the cellulose is in a nearly pure condition, as in the cotton fibre, or in the modified condition of lignin or woody fibre. Stains which readily attack young cellulose tissue have practically no effect upon it in its maturer form. Some time ago I had occasion to make a series of tests on the comparative value of several stains in the staining of cellulose and lignin as found in textile and woody fibres, and as the information on this subject in the books is very limited, it was thought that the matter might be of sufficient interest to bring some of the results before the society. It is, of course, important, in the staining of fibres for microscopic examination, that they should take the stain uniformly. In commercially dyed fabrics this will often be found to have been done very imperfectly. Thus a piece of Turkey red appears in the piece to be well dyed, and practically it is; but when examined microscopically it will be found that the individual fibres have taken the dye very unevenly. This is often the case with fabrics, especially cotton and linen, which have been dyed in the piece; whereas if the fibre is dyed before weaving, as in the ginghams, the result on the individual fibres is more uniform.

A mordant is a substance which has an affinity for both organic tissues and colouring matters, and which by virtue of this property, is employed in dyeing to fix the colour upon the tissue. The most common mordant in staining microscopic preparations is alum, a solution of which is usually mixed with the stain previous to its application. Other substances, as dilute solutions of organic and mineral acids, are sometimes used under the name of "fixers." Their action is seldom that of a true mordant, their efficiency, when they possess any, being confined to some decomposition of the colouring matter, or to some action upon the tissue itself. In staining animal and vegetable sections some stains require a mordant, while others do not. Thus hematoxylin, or the staining principle of logwood, is often used without a mordant, while most of the carmine stains require one.

The staining of tissues may be effected in four ways. First, when the stain has sufficient affinity for the tissue to be retained by it without the intervention of any outside agent. Second, when the stain and mordant are mixed and applied to the tissue in one solution. These two are the simplest and easiest methods of staining. Third, when the tissue is first immersed in the staining liquid and then transferred to some other liquid which shall fix the colour upon the tissue. Fourth, when the tissue is first impregnated with the mordant, or fixing agent, and then immersed in the stain.

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* From the *Proceedings of the New York Microscopical Society*.

The last method is the one usually followed in commercial dyeing establishments, and it is to be recommended in the staining of microscopical preparations which do not readily take the stain.

It is easy to see that in substances which are difficult to stain there is less chance of effecting the object when the mordant and stain are both presented to the object at the same time, than when it is first impregnated with the mordant and then brought into contact with the stain. The tests which I have made and the specimens which are here for examination amply prove this. They include a large number of specimens illustrating the action of the different stains upon cotton and linen fabrics, and in some cases upon woody fabrics also. Some specimens show the effect of the same stains when used alone, while others show the effect of the same stains when used in connection with different mordants. The mounted preparations placed under the several microscopes show the microscopic appearance of some typical specimens of these stained fibres.

Grenacher's carmine is a solution of carmine in alum, which one authority states will stain cellulose a fine red, but does not stain lignified or suberised tissues. This clearly refers to cellulose as it occurs in soft vegetable tissues, and the same doubtless applies to the staining of cellulose as described in works on the subject. Cotton and linen fibres which were immersed in this stain for twelve hours, and washed in water, had only a slight reddish tint. The fibres were then immersed in the stain for twenty-four hours with no better result.

Thiersch's carmine is a solution of carmine with oxalic acid. Cotton fibre was immersed in this stain for eighteen hours and washed. It has a dull rose colour, which was very faint when seen in individual fibres, as in the mounted preparation.

Borax Carmine.—The result with this stain, both upon cotton and linen fibres, was about the same as with Grenacher's carmine. Oxalic acid was used as a "fixing" agent.

Logwood and Brazil wood.—In the tests which were made with these dyes I used a tincture obtained by soaking the chips in strong alcohol, and filtering when necessary.

As already stated, hematoxylin, or logwood stain, can often be used without a mordant in the staining of vegetable sections, but when applied to cellulose fibres it is almost without action. A common preparation of hematoxylin for staining purposes is its solution with alum. This is claimed to stain both cellulose and lignified tissue, but not suberin. When cotton fibre is immersed in this solution for four hours it is very fairly stained, and when mounted in balsam has a light blue colour. If the fibre is first mordanted and then stained, almost any depth of colour can be obtained. The mordants tried were alum, acetate of aluminium, sulphate of copper and acetate of copper. These were used in strong solutions. The solution of acetate of aluminium is readily prepared by adding a solution of acetate of lead to one of alum (leaving the alum slightly in excess) and filtering. The fibre was soaked in the mordant for about one hour, the excess squeezed out and the fibre then immersed in the alcoholic solution of the dye-wood for an hour or longer, as the case required. The uniform staining of the fibre is facilitated by moving it about while in the mordanting and in the staining solutions.

As will be seen from the specimens, there is practically little difference between the results obtained with the different mordants and logwood. Alum and acetate of aluminium give a purple shade, while the copper mordants give a decided blue. With brazilwood the fibres mordanted with alum are not so deeply stained as when the other mordants are employed. Of the four mordants tried, the preference must be given to the acetates of aluminium and copper This accords with the general practice in dyeing establishments The reason is that the acetates are less stable compounds than the sulphates, and consequently yield the bases, alumina and copper oxide, more readily to the fibre. The specimens of cotton fibre dyed with brazilwood illustrate this very clearly, those mordanted with the acetates being of a much deeper shade than those in which the sulphates were used. For lignified fibres there is no better stain than logwood, with the previous mordanting of the fibre. With the mordant and stain combined in one solution, the result was not satisfactory, some fibres being fairly well stained, while others were not stained at all.

The mordants already mentioned were tried on a variety of woody fibres, with both logwood and brazilwood, but I submit for your examination only those of spruce and poplar. It will be seen from the specimens and slides that the fibres have taken the stain very uniformly.

Aniline Stains.—Satisfactory results in staining cellulose and lignified fibres can be obtained by means of the aniline colours. In my experience, however, the staining of lignified fibres is not in all cases as uniform as is desirable. When applied without a mordant, the fibre is only slightly stained, and a mordant is therefore necessary in order to obtain a stain sufficiently deep and permanent. In some cases this may be effected by staining first and then mordanting but, as already stated, it is better in the staining of fibres to reverse this order and apply the mordant first. In this way the staining may be effected in less time, and the fibre be more deeply stained. The method of mordanting the fibre was as follows. It was first immersed in a 10 per cent. solution of tannic acid for about an hour, the excess squeezed out, then placed in a 1 per cent. solution of stannate of sodium for about thirty minutes, transferred to water acidulated with sulphuric acid for a moment, washed in water, and placed in the stain for fifteen to thirty minutes, and finally, well washed. The times here given for the action of the different solutions can be shortened in many cases.

A solution of tartar emetic, or tartrate of antimony and potassium, was substituted in some experiments for the stannate of sodium, but I think the latter is to be preferred, for the reason that the tartrate solution soon develops fungus growths. The list of aniline colours available for staining purposes is quite a long one. I have tried some six or eight of these, but will refer to only four, all of which have given good results, and furnish all needed variety in colour. These stains were tried with cotton, linen, and spruce fibres, and the mixed fibre obtained from a sample of filter paper, and the specimens and slides here show the results obtained.

Fuchsine.—This was used in an aqueous solution containing 0·25 gramme in 100 C.c. of water. I may mention, parenthetically, that this stain, when properly applied, is the best material I have found for staining wool fibres so as to bring out distinctly the structure of the scales.

Hoffmann's Violet.—This was used in a strong alcoholic solution. Unmordanted cotton fibre is stained a very light blue, which, when mounted for the microscope, appears quite colourless. The fibre, when mordanted in the manner described, takes a deep blue.

Methyl Green.—This is a favourite stain, especially for vegetable sections, and it is very effective in double staining. When applied to fibres, whether of pure cellulose or of lignin, it produces a deep green if the fibre has been mordanted before staining, while a light green is produced when the order of stain and mordant is reversed. It was applied in strong aqueous solution.

Paris Violet.—This is a strong staining medium, readily imparting its colour to almost all fibres, but requiring thorough mordanting to render it permanent. It was used in a concentrated aqueous solution. It stains a decided violet, differing in this respect from the bluer shade obtained with Hoffmann's violet.

PROCEEDINGS UNDER THE PHARMACY ACTS.

Judgment in the Edinburgh Cases.

Pharmaceutical Society v. *J. M. Turnbull.*

The judgment of Sheriff Sym in the case of J. M. Turnbull, 6, Rose Street, Edinburgh (see *ante*, p. 269), was delivered on Thursday, September 26, as follows:—"The respondent is a dealer in articles of all descriptions which are used in photography, and keeps a shop for that business at 6, Rose Street, Edinburgh. Some of these articles are chemical substances, and of these some are poisons. In a circular which he issues he intimates that he does not sell poisons enumerated in the Pharmacy Acts except in wholesale quantities. His instructions to his assistants are not to sell such poisons by retail, and only to sell them to persons engaged in photography, and to chemists; and on some occasions it appears that he and his assistants have refused to sell such poisons. On the day libelled a man named Spence, who appears to be a chemist, but was unknown to the respondent and his assistants, went to the respondent's shop on the instructions of the local secretary of the Pharmaceutical Society. The respondent was out. Spence asked an assistant for certain photograph] plates, and also asked how corrosive sublimate was sold. He was told that it was sold at 3*d.* per ounce. He said he would buy one ounce. He was asked no further question, and paid for his purchases, including 3*d.* for the corrosive sublimate. It was wrapped in a piece of paper, and he carried it to his employer, who analysed a small part of it. No quantitative analysis was made, but it was proved that this is a very dangerous poison, even in very small quantities. The defence maintained to me was that this was a wholesale transaction, and did, therefore, not fall within the prohibition contained in the statutory provision libelled. I was of opinion that it was not, but was a retail sale. But I was of opinion that these facts, while they might have justified a prosecution of the assistant or possibly of the respondent for the offence of selling poison without legal qualification, did not, having regard to the other facts of the case as I have stated them, constitute what has been held to be the different and independent offence of keeping an open shop for retailing, dispensing, or compounding of poisons; I therefore hold the first charge not proved.

"The second charge is that the respondent styles himself a chemist, contrary to Section 1 and Section 15 of the Pharmacy Act. It was proved that he has a sign describing him as a 'photographic chemist.' The latter word is over the front of the shop; the former is at the corner looking into another street. But the word 'photographic' is intended to qualify the word 'chemist,' and though the latter word can be seen from some points from which the former is invisible, the respondent did not intend to represent himself simply as a 'chemist.' The respondent also styles himself a photographic chemist in the circular to which I made reference under the first charge. It was maintained to me by my friend Mr. Morison that the use of the word 'chemist,' whether alone or qualified by any other word, was sufficient to constitute the offence charged. From the uses of the word chemist in ordinary speech, I was of opinion that it was a word of which the signification is capable of being limited by the context in which it is used, and that in considering whether the offence charged had been committed it was necessary to construe it by reference to the mischief aimed at by the Act, the retailing, compounding, and dispensing of drugs without legal qualification. The cases in the English Courts to which I was referred were cases in which the judge decided that the accused person was conducting such a business, and was endeavouring to evade the statute by prefixing such an adjective as 'analytical' to his designation as 'chemist.' If that be all which these cases decided I agree with them. But I think that that is not the case of the respondent, and therefore, that the second charge is not proved."

Pharmaceutical Society v. *William Hume.*

The judgment of Sheriff Sym in the case of William Hume, 1, Lothian Street, Edinburgh (see *ante*, p. 269), was delivered on Thursday, September 26, as follows:—"The respondent is a maker of scientific instruments and has a thorough knowledge of chemistry. He does not dispute that in the course of his business he sells and has sold for many years chemical substances, including poisons included in the Pharmacy Act, and he maintained that it was legitimate to do so. I understood from him that a correspondence had passed between him and the Society several years ago upon the subject. On the day libelled, Thomas Allan, a person employed by the Pharmaceutical Society for the purposes of the Act, went to the respondent's shop at 1, Lothian Street, Edinburgh, and asked for cyanide of potassium, which is one of the poisons scheduled in the Pharmacy Act. An assistant named Smith, who has a knowledge of chemistry, but who is not a pharmaceutical chemist, supplied him with two ounces thereof. The transaction was recorded in the memorandum book kept in the shop. In that book the purpose of the purchase is stated to be that of "Cleaning Plate" upon Allan's information. This was a retail transaction, and appeared to be done in the ordinary course of business. I think there is sufficient evidence that he kept open shop for retailing poisons, and that the Act debars him from so doing. I therefore found the first charge proved, and as the respondent claimed to be acting *bonâ fide*, and the prosecution appeared to be only for the purpose of raising the question of his right to sell poison, I fined him in the nominal penalty of 1*s.*, but ordered him to pay the costs, which were modified at £2 2*s.* The second charge is wholly founded upon the use of the words 'technical chemist' in a trade circular issued by respondent. I did not think the offence constituted thereby, for the reasons stated in Turnbull's case."

Illegal Sale of Poisons at Bootle.

At the Liverpool County Court on Monday, before his Honour Judge Collier, an action was brought by the Pharmaceutical Society to recover from Owen Thomas Jones, 89, Marsh Lane, Bootle, two penalties of £5 each, the one for keeping open shop for the sale of poisons and the other for wrongfully using the title of chemist.

Mr. T. R. Grey, barrister, who appeared for the Society, stated that the action was brought under the Pharmacy Act of 1868, which made it unlawful for any person to keep open shop for the sale or compounding of poisons unless he was a registered chemist. Section 13 made the Register which was before his Honour evidence; that was to say, if the name of the person who was defendant did not appear in it that was sufficient evidence he was not a chemist and druggist within the meaning of the Act. The poison sold on this occasion was Towle's chlorodyne, which contained morphine, the latter being one of the poisons mentioned in the Schedule of the Act.

Judge Collier: Is there any defence?

Mr. E. Bardsley, solicitor, who appeared for the defendant: Yes, sir. Defendant denies that this poison was sold in his shop.

Arthur Foulds, an inquiry agent, said that in July last he was instructed to make certain purchases. On the 6th of that month he went to the shop at 89, Marsh Lane, Bootle, occupied by the defendant, and asked for a small bottle of glycerine. This he was supplied with, and he afterwards asked for and obtained a small bottle of Towle's chlorodyne. The bottles were wrapped in handbills bearing the words: "Sold by O. T. Jones, chemist and druggist, 89, Marsh Lane, Bootle." He handed the purchases to Mr. Moon as representing the Pharmaceutical Society.

In cross-examination witness stated that he went to the shop for the purpose of purchasing a poison, but he asked for a bottle of glycerine first. The bottles of Towle's chlorodyne were in a case in the shop, and he should say there were about twenty of them.

Mr. Grey stated that chlorodyne contained about two grains of morphine to the fluid ounce.

Owen Thomas Jones, who said he kept a drug and tea store in Marsh Lane, denied that he ever sold a bottle of Towle's chlorodyne, or described himself as a chemist and druggist. He never had any bottles of Towle's chlorodyne in his shop, and he never saw the witness Foulds in his life. His wife, however, was in the shop on July 6.

Arthur Foulds (recalled) said it was the defendant's wife who served him, she took the bottle of chlorodyne produced out of a case.

The defendant was shown the small bottle of glycerine, and admitted that it had come out of his shop. Notwithstanding the evidence of Foulds, he declared that he had never had chlorodyne in his shop. He had never been asked for it. The handbills might have come from his shop.

Mrs. Jones, the wife of the defendant, was examined, and stoutly denied having sold to Foulds a bottle of chlorodyne, or that the handbills had ever been in the shop.

The judge held that the Pharmaceutical Society had proved their case, and gave judgment for both penalties—£10 in all—and costs.

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THE COUNCIL MEETING.

After the minutes of the last Council Meeting had been read and confirmed Mr. Bottle mentioned, in reference to the work done in the Research Laboratory, that he had inspected it and found that it had been carried out in a very satisfactory manner.

The President read a letter from Mr. Greenish acknowledging the resolution passed at a recent meeting of Council in reference to his retirement. He also read a letter from the daughter of the late Mr. Bland conveying thanks on behalf of her mother and herself for the sympathy and respect expressed at the last Council meeting with regard to the death of her father. The President explained that the absence of Mr. Walter Hills was due to a slight illness from which he has been suffering, and though now convalescent, rest at the seaside was necessary at present. Mr. Newsholme was also prevented by a similar cause from attending the meeting.

The additions to the Society comprised two pharmaceutical chemist members, five associates, and eleven students.

The report of the Finance Committee was mainly confined to the ordinary details of receipts and payments which are usual at this time of the year, and did not call for special attention; but mention was made of a donation to the Benevolent Fund sent by the Junior Association of Brighton Pharmacists, showing a continued appreciation of that institution.

In referring to the death of Professor Pasteur, the President proposed that the Council should express its respectful appreciation of his distinguished services to science, and its sense of the loss the Society has sustained in the ranks of its honorary members, by passing a resolution of regret and sympathy to be forwarded to Mdme. Pasteur (*see* page 297). In seconding the motion, which was passed unanimously, the Vice-President remarked that the characteristic disinterestedness and modesty of M. Pasteur, to which the President had alluded, were points which could not be too strongly emphasised in these days, when the larger interests of the community are liable to be less regarded than private advantage.

Letters were then read from Mr. Robert Thomson, thanking the Council for electing him a corresponding member, and from Professor A. Vogl, acknowledging the honour conferred by the award of the Hanbury medal, and expressing regret that he would be unable to attend the meeting to receive the medal personally.

On the recommendation of the Benevolent Fund Committee, seven grants were ordered to be paid, one of thirteen pounds, one of twelve pounds, four of ten pounds each, and one of five pounds. The committee also recommended that four persons should be elected in December next as annuitants on the Fund, so as to replace the four who have died during the year and again make up the number of annuitants to forty-nine. In addition to the two candidates unsuccessful at the last election, the committee recommended that four other names should be placed on the list of approved candidates (see page 297). In proposing the adoption of the report, the Vice-President mentioned that the number of applicants had been unusually large, and though none of the cases called for special remark, they were all equally urgent. Although the Committee has not at its disposal more money than is actually required, it had recommended an addition of four annuitants, trusting that the liberality of subscribers would provide the means necessary. After the adoption of the report, the Treasurer, in making the formal proposal to place four additional annuitants on the Fund, said that though recognising the hopeless nature of the cause he advocates in regard to the mode of election, he could not miss the opportunity offered for again protesting against a method of distributing relief which he considered was barbaric.

In a communication from the Secretary of the Pharmacy Board of Cape Town, the Council was requested to accept in lieu of the Society's First examination the higher school or matriculation examination of the University of the Cape of Good Hope, as that would be a great convenience to candidates from South Africa. On the motion of the President this question was referred to the Board of Examiners for consideration.

In a report from the Law and Parliamentary Committee, a recommendation was made that the President and Secretary should be authorised to take steps, in co-operation with other bodies, for pressing upon the Board of Trade the necessity of amending the Companies Act in conformity with the views expressed by the Departmental Committee, which has recently reported on that subject. In moving the adoption of this recommendation, the President pointed out that in regard to "one-man companies," the Departmental Committee has indicated in its report that such cases should be dealt with, and has with that object introduced into the draft Bill certain provisions, by means of which companies formed for an unlawful purpose could be suitably dealt with. Upon consideration of the whole report the Law and Paliamentary Committee was of opinion that in furtherance of the views there expressed, it would be desirable to co-operate with other bodies interested in the matter, first to press upon the President of the Board of Trade the importance of his moving in it, and, secondly, to set on foot an organisation by which influence could be exercised in Parliament in the event of a Companies Bill being introduced.

This recommendation was adopted by the Council, and in reference to it the Vice-President remarked that he thought the Council would be neglecting its duty if it did not bring before the Board of Trade the very serious evils which have arisen through the operation of the Companies Acts as they

now stand. Since other bodies besides the Pharmaceutical Society are now suffering by the operation of the Companies Acts, they should conjointly be able to make an impression on the Board of Trade, by showing that statutes having for their object the financial protection of the public, are being taken advantage of to frustrate the provisions of other Acts of Parliament passed for the public benefit, and that by losing sight of the necessary personal qualification of persons carrying on certain occupations the public is exposed to great danger.

In reply to a question put by Mr. Storrar, as to the amended Pharmacy Bill, the President said that its consideration had been adjourned. The draft Bill would be considered at the next meeting of the Committee, and it would probably be brought before the Council at the December meeting.

In reference to the Manchester Scholarship Fund, the President mentioned that application had been made to the Research Committee by a former Bell scholar who was a Lancashire man, for some assistance to enable him to continue his work in the Research Laboratory, and the application having been approved by the Research Committee, he had been requested to bring it before the Council with the proposal that, with the consent of the founder of the Scholarship, a grant of thirty-five pounds should be made to Mr. Thos. Anderson Henry, and a resolution was passed to that effect. Incidentally Mr. Martindale suggested that an extension of the area to which the Scholarship now applied might be desirable in view of the difficulty experienced in its award. Mr. Young stated in reply that the founder of the Scholarship is averse to its extension beyond Lancashire. He was disappointed that Lancashire with its vast population had not produced candidates coming up to the standard required for the Scholarship, and he should be glad if the donor could consent to its extension as Mr. Martindale suggested.

The report of the General Purposes Committee gave an account of the results of a number of prosecutions recently instituted against persons for infringements of the Pharmacy Act, 1868. In accordance with the recommendation of the Committee, it was resolved that proceedings should be taken in a number of other cases which have been reported and considered by the Committee.

DEATH OF PROFESSOR PASTEUR.

The Pharmaceutical Society has numbered many distinguished scientific workers in its ranks as honorary members, but none have more indelibly marked the record of scientific progress than the illustrious Frenchman who passed away on Saturday last. Though from first to last a chemist, Louis Pasteur created for himself a unique department of scientific investigation as he gradually and patiently developed the study of the prevention of zymotic diseases. In his younger days, as Professor Balard's assistant at the École Normale, he studied crystallography and discovered the cause of dissymmetry in substances that are chemically identical, but during the course of this work he was attracted by the subject of fermentation, and thence he was led on to the study of diseases associated with the presence of minute organisms, which subject he made peculiarly his own.

Louis Pasteur was born at Dôle, in the Jura, on December 27, 1822, and after attending the elementary schools of his native town, he was admitted to the École Normale of Paris in 1843. He studied chemistry, which from the beginning engrossed his attention, under Dumas and Balard, and molecular physics under Delafosse. Later, he taught physical science in Paris and at Besançon, and on graduating as Doctor of Physics in 1847, he was appointed Professor of Chemistry at Dijon and Assistant Professor of Physics in the University of Strasburg. About this time he married Mademoiselle Marie Laurent, daughter of the Rector of the Académie, and his son-in-law records that on the morning of the professor's wedding day he was so absorbed in his work that some one had to go to his laboratory to remind him of the pending interesting occasion. In 1854, Pasteur became Dean of the Faculty of Sciences at Lille, and three years later he returned to Paris to take charge of the scientific instruction in the École Normale. Here he worked for ten years, during which time he was appointed Professor of Geology, Physics, and Chemistry at the School of Fine Arts. The work done in those years was vast. Spontaneous generation, the silkworm disease, splenic fever, chicken cholera, and hydrophobia received attention at Pasteur's hands, as well as the preservation of wine and vinegar, the system of "pasteurisation," now general throughout Europe, being the outcome of his researches on the latter subject. The germ theory of disease received an enormous impetus through his investigations, and various serums, etc., originally prepared by him, are at the present time in every-day use for the prevention or cure of hydrophobia and other diseases by inoculation. From 1867 to 1875 Pasteur was Professor of Chemistry at the Sorbonne, where he had formerly studied under Dumas. He then retired on a pension, and a special annuity was voted by the French Legislature to enable him to continue his research work. A few years ago he was warned that this work was likely to result in an attack of paralysis. He persisted in his favourite occupation, however, and shortly afterwards lost the use of an arm, besides growing nervous, and unable to attend public functions. The recent excessive heat affected him greatly. Weakness of the heart was very pronounced, and other bad symptoms were also present, and on Saturday afternoon this most useful life ebbed slowly away at Garches, near Paris.

Among the numerous honours received by Pasteur from his own and every foreign country may be mentioned the Rumford Medal of the Royal Society of London, which was accorded in 1856 for his researches on polarised light, and the Copley Medal, which he received in 1874 in respect of his discoveries in fermentation and the silkworm disease. He became a member of the Institute of France early in his career, and was in 1882 elected as successor to Littré to a seat in the French Academy. He was also a foreign member of the Royal Society, and had received the Albert Medal of the Society of Arts. In his own country he has been honoured in every possible way, one of the latest instances of the esteem in which he was held being the celebration of his seventieth birthday under the presidency of M. Carnot. Further recognition of his pursuits will probably be afforded by a public funeral. This will be but a fitting close to a career devoted to the good of humanity, for Pasteur's work has almost entirely tended to the alleviation of human suffering. Though not a medical man, he has almost revolutionised the science of medicine, as has been fitly pointed out by Dr. Daremberg, who says:—"La médecine humaine possède déjà les vaccins du charbon, de la rage, et

de la dipthérie. Telle est l'œuvre admirable de la microbie, créée de toutes pièces par Pasteur, qui ne s'est pas contenté d'étudier la naturc des maladies, mais qui a toujours cherché à les guérir. Car cct illustre chimiste, qui n'est pas médecin, a été plus médecin, plus guérisseur, que tous les médecins de son siècle."

AS OTHERS SEE US.

It is always difficult to please evcrybody, and the fact that the recent proceedings in Scotland under the Pharmacy Act are not generally appreciated comes in no degree as a surprise. A leader-writer in the *Edinburgh Dispatch* commences his lucubration with a "general thesis," of which he considers the Pharmaceutical Society is the latest example. It is the inherent vice of all legalised monopolies, readers of the paper are gravely informed, to endeavour illegally to extend the boundaries of their territory and control, perpetually forgetting that the legal limit is meant to be a limit from within as well as from without; and that "it is a more serious and heinous offence for a privileged corporation to invade the common liberties of the citizens than for any individual citizcn to encroach on the privileges of the corporation. The corporation enjoys its privileges in the interest ultimately of the common weal, and not for the sake of aggrandising or enriching itself. The very possession of special privileges has unfortunately a tendency to enrich and aggrandise it; and with increase of wealth and power comes the inevitablc temptation to be selfish and tyrannical in the use of both."

The moral drawn from this "general thesis," as illustrated by the action of the Pharmaceutical Society, is that it is wrong to interfere with "thc photographer or purveyer of *materia photographica*." The qucstion of the safety of the public is not for a moment considered, though it would appear but right that, if it be necessary for chemists to adopt special precautions in sclling poisons, photographers and others ought not to be pcrmitted to distribute them without restriction to all and sundry who choose to apply for them. Pharmacists are told that they are on thc eve, if they work wisely, of bccoming a "profession" instead of a "privileged conglomeration of shopkcepers." But they are also warned that if they wish to become a "profession" they must keep strictly to the scientific limits of their calling, "and encroach neither on the province of the physician nor the photographer." Our readers will probably appreciate the prophecy and the warning at their proper value, and regard them with amusement. The production from which we have quoted is also interesting, as illustrating the self-satisfied ignorance of thc universal critic.

Dealing with the same subject, the *Edinburgh Evening News* remarks that the gencral public will have little sympathy with thesc prosecutions by the Pharmaccutical Society, the action taken by thc latter being that of "a large medical trades union desirous not so much of protecting the general public as of protecting trade interests, which in this case conflict with public convenience." Unfortunately for this statement of the case, the facts prove just the reverse of what is suggested. Though it may suit an individual's convenience to be able to purchase corrosive sublimate or cyanide of potassium without giving any information that may lead to his detection if he should use the poison for criminal purposes, it is certainly not to the public advantage that such a state of affairs should be possible. Again, it should at thc present day be unnecessary to insist that no persons should be allowed to deal in poisons, except they have proved their fitness to be entrusted with the duty. Chemists receivc a special training for this expross purpose, and there are now so many properly qualified individuals in Great Britain that no inconvenience nced be caused to anyone who rcquircs poisons for legitimate purposes. To advocate free trade in poisons because the law is supposcd to be not quite clear is absurd, and to assert that "the Legislature never intended to confine the salc of poisonous chemicals to a trades union, but only to prohibit the indiscriminate sale of poisons to the gencral public" is simply begging the question. Moreover, thc fact that "poisons quite as virulent as thosc scheduled are not taken cognisance of by the law," whilst affording good reason for extending the Schedule, is no excuse for blaming the Pharmaceutical Society, which has repeatedly recommended such extension. What inconsistency there is does not rest with thc Society, but with thosc who are rcsponsiblc for the existing state of affairs, and with the Society's irresponsible critics.

THE DAILY PRESS ON THE SALE OF POISONS.

Quite recently a modest little pamphlet has bcen written and published by Mr. James Phillips, chemist and druggist, of Liverpool, and this appears to have been freely distributed to the newspaper press. The matter contained in the pamphlet consists merely of two letters scnt by the author to a trade journal some years ago, on thc subject of the prosecution of chcmists by the Apothecaries' Company for counter prescribing; and a reprint of a report of thc inquiry into the death of two persons at Birmingham, who had taken strychnine instead of phenacetine, togethcr with some comments on the latter case. Neither good nor harm is likcly to result from Mr. Phillips' publication, and it is only referred to here to show how the action of an irresponsible individual may produce more apparent effect than the deliberate and well-considered movements of bodies having recognised duties and possessing a fair amount of influence. Thus, the *Globe* judges from the pamphlet that "there is considerable agitation going on among chemists and druggists on the question of the sale of poisons," and the *Western Morning News*, after observing that "thc chemists and druggists of England are again drawing public attention to the sale of poisons," delivers itself of a long but ably-written article in which thc whole history of poison legislation in this country is brought under review. It is satisfactory to note that the *Globe* quite agrees "with the chemists in thinking that it should bc made penal for any unqualificd pcrson to have anything whatever to do with the handling or dispensing of poisonous drugs, whether he be a doctor's assistant or the manager of a shop," whilst its western contemporary considers that "the only means of effectually guarding thc sale of poisons is, first, that it should be confined to qualified chemists, that other poisons should bc added to the list prepared by the Government, and that none of thc poisons included in part one and part two of the Schedule should be sold to anyone who does not present an order signed by a practitioner, or who is not accompanied by some good pcrson who can vouch for the customer's respectability and requirements." The requirement suggested with respect to part two of the Schedule is not likely to be approved either by customers, chemists, or the Legislature.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

MEETING OF THE COUNCIL.

WEDNESDAY, OCTOBER 2, 1895.

Present:

Mr. Michael Carteighe, President.

Mr. J. Harrison, Vice-President.

Messrs. Allen, Atkins, Bottle, Corder, Cross, Gostling, Grose, Hampson (Treasurer), Johnston, Martin, Martindale, Savory, Schacht, Southall, Storrar, Warren, and Young.

The minutes of the last meeting were read and confirmed.

The Research Laboratory.

Mr. Bottle said he had inspected the work done in the Research Laboratory, and found it had been carried out very satisfactorily.

Letters of Acknowledgment.

The President read a letter which had been received from Mr Greenish acknowledging the resolution recently passed with regard to his retirement. He also read a letter from Mrs. Mainwaring thanking the Council on her own and her mother's behalf for the kind expressions of sympathy and respect given at the last Council meeting with regard to the death of her father.

Absent Members.

The President regretted to announce that Mr. Hills had had a slight attack of illness, and although getting better had been ordered to the seaside by his medical attendant. They would all hope to see him amongst them again at the next meeting completely restored to health. Mr. Nowsholme also wrote to say that he was confined to his room by a cold.

Election of Members.

Pharmaceutical Chemists.

The following having passed the Major Examination and tendered their subscriptions for the current year, were elected "Members" of the Society:—

Brown, Harold .....London.
McKellar, Arthur.....Glasgow.

Election of Associates in Business.

The following having passed the Minor Examination, being in business on their own account, and having tendered their subscriptions for the current year, were elected "Associates in Business" of the Society:—

Round, William Henry .....Thornaby-on-Tees.
Smith, Walter .....West Kirby.
Towan, Frederick William .....Devonport.

Election of Associates.

The following having passed the Minor Examination, and tendered their subscriptions for the current year, were elected Associates" of the Society:—

Kerruish, Henry .....Ramsey (I.M.).
Moat, Henry.....Newcastle-on-Tyne.

Election of Students.

The following having passed the First Examination and tendered their subscriptions for the current year, were elected "Students" of the Society:—

Bailey, John Herbert .....Nottingham.
Bowman, Edward .....Bunker's Hill.
Boyle, Joseph .....Nottingham.
Browne, James Leonard .....Liverpool.
Elliott, John.....Wallsend.
Errington, John William .....Penrith.
Harrison, Thomas Arthur .....Bourne.
Lacey, Edgar Hiram .....London.
Stubbs, William Campion .....Easington.
Wardale, Francis Charles.....Boston.
Webb, Harold Edward .....Chislehurst.

Several persons were restored to their former status in the Society upon payment of the current year's subscription and a nominal restoration fee of one shilling.

Restorations to the Register.

The names of the following persons were restored to the Register of Chemists and Druggists:—

Catherine Love Smith, Jessamine, Lethington Avenue, Langside, Glasgow.

Alexander Steel, 10, Bruce Grove, Nottingham.

Joseph William Sugden, 3, Wightman Road, Harringay, N.

George Frederick Tuck, The Bridge, Harrow.

Finance Committee.

The report of this Committee was of the usual character, and recommended the payment of sundry accounts.

The President (as Chairman of the Committee) moved the adoption of the report and recommendations. The report contained nothing to which special attention need be called. As usual during the recess they had not received, and did not expect to receive much money, and their payments would be of the ordinary character. The hon. secretary of the Junior Association of Brighton Pharmacists had sent a cheque for £2 7*s.* 3*d.* they had collected for the Benevolent Fund. Though this was less than last year they were glad to know that the junior pharmacists showed so practical an appreciation of one of their most commendable institutions.

The report and recommendations on being put to the meeting were adopted.

The late Professor Pasteur.

The President said he had to announce officially the loss by death of one of the Society's honorary members, the distinguished savant, Professor Pasteur. His early work was in the domain of pure chemistry, but latterly he had become associated with several other branches of scientific investigation, and probably was now better known to the world than most men of science. He proposed to move a resolution of regret and sympathy to be forwarded to Mdme. Pasteur. The remarkable character of the man came out most strikingly in the singular modesty which he had shown during the whole of his life. Throughout his career he had laboured at purely scientific subjects, without considering for one moment his own personal interests, in that respect resembling our own Faraday. He thought Pasteur's life not only reflected credit on science, but his name would stand out to all time as one of the brightest stars in the intellectual firmament. The resolution ran as follows:—

"That this Council deeply regrets the death of Professor Louis Pasteur, F.R.S., an honorary member of the Society, whose labours in chemical and biological science are universally honoured, and whose simplicity of character is everywhere revered. This Council desires to offer to Mdme. Pasteur its most respectful condolence, and begs to assure her of their warmest sympathy."

The Vice-President, in seconding the motion, said they ought to strongly emphasise that particular feature of M. Pasteur's character to which the President had already drawn attention, his simplicity and fervent devotion to the cause, not to forward his own ends or to amass a fortune, but for the purpose of relieving human suffering, and, if possible, of preventing death and disease. These points could not be too strongly emphasised in these days when men were too liable to devote their energies rather to their own private advantage than to that of the community in which they lived. It was a matter for congratulation that men of such high character and attainments were willing to become honorary members of the Society.

The resolution was carried unanimously.

Letters of Thanks.

The President said a letter had been received from Mr. Robert Thomson thanking the Council for electing him a Corresponding Member, and sending some specimens for the Museum.

A letter had also been received from Professor Dr. A. Vogl in acknowledgment of the honour conferred upon him by the award of the Hanbury Medal, which he esteemed as one of the highest distinctions he could attain, and regretting that he was unable to be present personally in London to receive it.

Benevolent Fund Committee.

The report of this Committee included a recommendation of the following grants :—

£10 to a former pharmaceutical chemist, member (64), who has been in business for thirty-seven years, but has been obliged to dispose of it. (Chatteris.)

£12 to a registered chemist and druggist (78), who carried on business in Battersea for fifty years, but is now destitute and paralysed. (Cheltenham.)

£10 to a registered chemist and druggist (67), who has had three previous grants, amounting in all to £16, and who is in very bad health. (Liverpool.)

£5 to a former associate (53), who has had two previous grants of £5. He is in a very bad state of health, and unable to do anything. (Wrexham.)

£10 to a registered chemist and druggist and former subscriber to the Fund, who was assisted last year, and is unable to get employment. (Southampton.)

£13 to a registered chemist and druggist (66), who has had three previous grants of like amount. Suffers from chronic rheumatism. (Landport.)

£10 to the widow (54) of a registered chemist and druggist who died in 1875. She has had three previous grants, the last being in January, 1891, to enable her to purchase furniture and let lodgings; but she has been unsuccessful. (London.)

Three other cases were deferred for further information, and one was not entertained.

The Secretary submitted a statement showing that there are now forty-five annuitants on the list, four having been added in December and four having died during the year. The Committee having considered the matter recommended that four additional annuitants be elected, and that the election take place on Tuesday, December 10.

The following were unsuccessful at the last election :—

Board, Thos. (age 67), Cheltenham.
Willson, Elizabeth A. (age 59), Bath.

And the Committee recommended that the following, who had been deemed to be most necessitous, be placed on the list of approved candidates :—

Ramsden, George (age 68), Newport, Salop.
Heys, Vera (age 59), Ealing.
Young, Tonkin (age 67), Barry.
Eyre, Jonathan S. (age 71), Penge.

The Vice-President (as Chairman of the Committee), in proposing the adoption of the report, said the Committee had an exceptionally large number of cases before them, namely fourteen, the largest number, he believed, which they had ever had to deal with at one time. He pointed out the recommendations of the Committee, and said he thought none of the cases called for special remark. They were all equally urgent, and of a character which the Committee thought called for treatment. Next directing attention to the numbers on the Benevolent Fund, he added that having regard to the number of cases eligible, and also that they had not more money at their disposal than was actually required, the Committee yet had sufficient faith in the liberality, he would not say the generosity, of the members to believe that the necessary amount now called for would be forthcoming; hence their recommendation that four annuitants should be placed on the Fund in December next, and his hope that this proposal would commend itself to the Council.

The report having been adopted,

The Treasurer, making the formal proposal thus to place four annuitants on the Fund, said, although he recognised the present hopelessness of his own views prevailing on the subject, he yet could not allow the opportunity to pass without once more again protesting against what he would call their barbaric method of distributing relief.

The resolution on being put was carried.

Cape Pharmacy Board and the First Examination.

The President read a letter from the Secretary of the Colonial Pharmacy Board of Cape Town, asking, with reference to the Society's Preliminary examination, whether the Council would be good enough to accept in its place the school higher or matriculation examinations of the University of the Cape of Good Hope. The matter had been discussed by the Cape Board, and it was agreed that if this could be arranged it would be a great convenience to candidates from South Africa. Papers set at the recent examinations were forwarded by mail, and the standard, it was hoped, would meet with the approval of the Council of the Pharmaceutical Society.

The President, saying that he thought if they could meet the request of their South African friends they should do so, suggested the reference of this communication to the Board of Examiners, and this was agreed to.

Law and Parliamentary Committee.

The Secretary read the report of this Committee, which recommended that the President and Secretary be authorised to take steps in co-operation with other public bodies to press on the Board of Trade the necessity of amending the Companies Acts in conformity with the recommendations of the late Departmental Committee. The consideration of the question of drafting a new Pharmacy Bill had been adjourned.

The President in moving that the report of the Committee be adopted, reminded the Council of the Report of the Special Committee of the Board of Trade, which was published coincidently with the last Council meeting. Reference was made in that report to the

question of personal qualification as affecting the formation of "one-man companies," and it included the statement which he (the President) at the request of the Council had prepared, and a number of letters which had been received as showing the necessity for some governmental action in a particular direction. There were words in the report which indicated that the Committee considered it desirable that such cases should be dealt with, and certain provisions with that object were included in the draft Bill. For instance it was suggested that when a company was formed for an unlawful purpose—and of course they would contend that it was unlawful to form a "one-man company" for the purpose of selling poisons—it should be open to a proper authority to have the company wound up. The Law and Parliamentary Committee carefully considered the whole report, and was of opinion that he (the President) and the Secretary should take such steps as they might find convenient to combine with other bodies interested in the matter, to press on the President of the Board of Trade, in the first place, the importance of moving in the matter, and secondly, if a Bill were brought in containing such a clause as he had referred to, that an organisation should be set on foot with a view to exercising influence in Parliament. Of course no one could say whether the present head of the Board of Trade would introduce such a Bill, but it seemed desirable that an opportunity should be taken of impressing upon him the importance of some amendment in the Companies Acts being made in this direction, which he hoped would modify, if it did not remove, some of the evils under which they at present laboured.

Mr. Martindale seconded the motion.

Mr. Storrar asked what was being done with regard to an Amended Pharmacy Bill.

The President said the draft Bill would be considered at the next meeting of the Committee, and it would probably be brought before the December meeting of the Council.

The Vice-President said he thought the Council would certainly be neglecting its duty if it did not bring before the department the very serious evils which had arisen through the operation of the Companies Acts as they now stood. He was glad to see the recommendation that they should co-operate with other bodies, which of course meant the Medical Council, the Society of Veterinary Surgeons, and the Dental Society. The Pharmaceutical Society was the first body which had suffered by the operation of the Companies Acts, and those other bodies now found themselves attacked in the same way, and he thought they would be able conjointly to make a strong impression on the Board of Trade by showing that a series of Acts which had for their object the financial protection of the public, had been so worked that personal qualification on the part of those carrying on certain businesses had been entirely lost sight of, to the great danger of the public.

The resolution was carried unanimously.

Manchester Scholarship Fund.

The President said it would be in the recollection of the Council that this Scholarship could not be awarded at the last competition. Application had now been made to the Research Committee, on the part of one of their students, a former Bell Scholar, who was also a Lancashire man, that, if possible, some assistance should be made to him. He was happy to say that the Committee had agreed to such a course being pursued if it met with the approval of the Council. The gentleman in question was Mr. Thos. Anderson Henry, who had done very good work, and being also a Lancashire man would come within the qualification. The Research Committee had requested him (the President) to bring the application and suggestion before the Council, subject to a reply to a letter of inquiry which he had written. A satisfactory answer to that had now been received. He proposed that, with the consent of the founder of the Scholarship, a grant of £35 from the Manchester Pharmaceutical Association Scholarship Fund be made to Mr. Henry, formerly Bell Scholar and Redwood Scholar, to enable him to continue his work in the Research Laboratory.

Mr. Martindale suggested, considering the difficulty experienced in respect to awarding this Scholarship, whether its area might not be extended, the North of England being kept in view in any such re-arrangement.

Mr. Young said the idea had already been mooted, but it was understood that the founder was at present averse to the extension, desiring it to continue limited to Lancashire. Personally, he confessed to some disappointment that that county, with its vast population, had proved unable to produce men coming up to the standard laid down for this Scholarship. He should be glad indeed if the donor at no distant future could see his way to extending the area, as Mr. Martindale had suggested.

The resolution was then put and adopted.

General Purposes Committee.

The report of this Committee, which included the usual letter from the Solicitors, and details of alleged infringements of the Pharmacy Acts, was as usual read and considered in Committee.

On resuming, the report and recommendations were adopted, and special resolutions were also passed authorising the Registrar to take proceedings against the persons named.

MAJOR EXAMINATION QUESTIONS.

Monday, September 30, 1895.

CHEMISTRY.

Hours—10 *a.m. to* 1 *p.m.*

[*Six Questions only are to be attempted.*]

1. Distinguish between the terms atom and molecule, and give a clear account of the fundamental experimental facts on which the hypothesis of the existence of atoms and molecules is based.

2. State fully what is meant by the terms exothermic and endothermic as applied to chemical compounds and reactions respectively. Mention two endothermic and two exothermic substances. What are the general conditions under which endothermic substances are obtained?

3. What is alkali-waste, and how can free sulphur and sulphuric acid be respectively prepared from it?

4. Describe accurately how you would quantitatively determine the copper and tin in a bronze coin.

5. Given some ethyl alcohol, indicate how the following substances could be prepared from it:—(*a*) acetylene; (*b*) ethylamine; (*c*) acetamide; (*d*) normal ethyl cyanide; (*e*) ethyl isocyanide.

6. What is amygdalin; how can it be decomposed, and into what substances? Write the graphic formulæ of its decomposition products.

7. In what various ways and under what conditions does chlorine act on benzene and its homologues, and how is the action of chlorine on toluene made use of for the preparation of benzaldehyde and benzoic acid?

8. Mention some of the principal reactions into which urea enters How would you propose to determine the amount of urea in a sample of urine?

PHYSICS.

Hours—2 *p.m. to* 5 *p.m.*

[*Six Questions only are to be attempted.*]

1. Explain the difference between quantity of heat and temperature, and describe an instrument by which the calorific power of a fuel can be determined.

2. Describe the construction of the spectroscope, and explain the difference between a pure and an impure spectrum. Why did not Newton discover the Fraunhofer lines in the solar spectrum?

3. Describe experiments showing the resemblances between light and heat.

4. If you have a bar magnet and a straight piece of copper wire connected to a galvanometer, how would you show that an electric current can be produced by the relative motion of the wire and the magnet? Is there any direction in which the wire could be moved near the magnet without a current being generated?

5. Describe the construction and action of a secondary battery.

6. What is meant by magnetic induction? How does it affect the compasses in iron ships?

7. Describe the construction and action of the Holtz machine, or of any induction machine with which you are acquainted.

8. What is meant by "solution," mentioned in the syllabus?

Tuesday, October 1, 1895.

BOTANY AND MATERIA MEDICA.

Hours—10 *a.m. to* 1 *p.m.*

1. Discuss the effects of gravity, light, and darkness on a green plant. Quote any experiments in support of your statements.

2. What is pollen? Describe in detail the manner of its development. What are the corresponding structures in vascular cryptogams?

3. Refer the following plants to their natural orders, and give a concise account of the chief characters of each order:—*Malva silvestris*, *Anemone pulsatilla*, *Origanum vulgare*, *Potentilla anserina*, *Bryonia dioica*, *Scrophularia aquatica*.

4. From what parts of the plant and by what means is conine obtained? Mention such characteristic features as would enable you to distinguish the hemlock fruit from that of other official *Umbelliferæ*.

5. Mention any substances used in medicine which are obtained from the plants of the natural order *Solanaceæ*, and state from what parts of the plants they are obtained in each case.

PRACTICAL BOTANY AND MATERIA MEDICA.

Hours—2 *p.m. to* 5 *p.m.*

1. Draw a diagram and give a concise description of a transverse section of the stem provided. To what class of plants do you refer the specimen?

2. Identify the specimen A. Make a careful transverse section, mount it in glycerin, and, with the help of a diagrammatic sketch, point out its distinctive histological features.

3. Describe in technical language the flowering plant provided, and refer it to its natural order, giving your reasons.

Artocarpus integrifolia (Urticaceæ) yields a yellow dye, the rasped wood being used in conjunction with alum for colouring the robes of Burmese priests. A. G. Perkin and F. Cope (*Journ. Chem. Soc.*, lxvii., 937) find that the wood contains "morin," one of the colouring matters of old fustic (*Morus tinctoria*), and "cyanomaclurin," a similar compound to the "maclurin" of old fustic but not a colouring substance

NOTES AND NEWS.

Aberdeen and North of Scotland Society of Chemists and Druggists.—In a communication received from Mr. Alexander Strachan, secretary to this Society, it is stated that in consequence of a decision to re-model the classes held in the Society's rooms by including the teaching of practical pharmacy, and giving greater prominence to advanced pharmaceutical chemistry, it has been found necessary to eliminate the teaching of elementary chemistry and botany. These subjects, however, are already amply provided for at Robert Gordon's College. The Society has secured the services of Mr. Henry Fraser, pharmaceutical chemist, as teacher, and it is expected that the work of the session will be commenced during the third week in October. A prospectus will be issued as soon as practicable, and in the meantime any further information may be obtained from the members of the laboratory committee (Messrs. Clark, Craig, J. Cruickshank, Ritchie, and Shepherd), who will be happy to receive the names of intending students.

Extracts of Meat in China.—The British Consul at Canton states that in China the extracts of beef and other meat juices are coming into favour. The Chinese like to imagine that they have run down, and are fond of nursing themselves. They possess many invigorating nostrums for restoring exhausted nature, and, probably on account of its high price, extracts of meat seem to afford them great satisfaction.

Flora of Berkshire.—Since the publication of his 'Flora of Oxfordshire,' Mr. G. Claridge Druce, of Oxford, has devoted a considerable portion of his leisure time to the compilation of a 'Flora of Berkshire.' This will form a volume of about five hundred pages, and be a history as well as a catalogue of the plants of the county. Brief sketches will also be given of the topography, meteorology, geology, river drainage, and physiography of the district, as well as short biographies of botanists who have investigated the Berkshire botany. The subscription price for the work will be 12*s.* 6*d.*, post free, and orders should be sent direct to Mr. Druce, at 118, High Street, Oxford.

Pharmacy in Tennessee.—The Tennessee Board of Pharmacy is responsible for the regulation of the practice of pharmacy and the sale of poisons in the State of Tennessee, and is also required to render effective the prohibitory clause in the local Pharmacy Act, with respect to the adulteration of drugs. In the third annual report, just received, the Secretary of the Board says he "is glad to report" that, of thirty-three samples of laudanum assayed during the year, about "half" were fully up to the required standard. It is pointed out, however, that not one of the samples examined the year before came up to the standard. In this respect, therefore, Tennessee pharmacy would appear to be improving. It is also stated in the report, which is dated June 30, 1895, that "there seems to be some little apathy among the druggists in obtaining the new Pharmacopœia (published 1894) and the weights and measures of the metric system.' As yet, therefore, Tennessee pharmacists apparently neither live up to the lofty standard of the new U.S.P. nor appreciate its manifold excellences. With regard to the metric system they are in a painfully benighted position, since they will not expend five or six dollars to procure the necessary weights and measures, even for the sake of showing physicians that they are "keeping up with the procession." Let us hope that improvement may soon manifest itself in these respects in Tennessee.

Photographic Exhibition.—The fortieth annual exhibition of the Royal Photographic Society was opened at the Gallery of the Royal Society of Painters in Water Colours, 5A, Pall Mall East, London, on Monday. Though there is nothing strikingly novel in the exhibition, the photographs as a whole are well worthy of inspection. The great variety in processes, too, renders the show peculiarly attractive. Twelve medals have been awarded as follows:—'Inward Bound' (*Silver*), by L. C. Bennett; 'Parting Day' (*Platinum*), by R. J. Fry; 'A World of Smoke,' by F. P. Cembrano; 'Sunset on Lake Iseo' (*Carbon*), by J. A. Sinclair; 'Winchester Cathedral, South-East Processional Aisle' (*Platinum*), by S. B. Bolas and Co.; 'Scurrying Home' (*Photogravure*), by A. Stieglitz; 'Castle Garth, Newcastle' (*Carbon*), by E. G. Lee; 'A Derbyshire Dale' (*Platinum*), by C. B. Keene; Twelve Lantern Slides, by E. Marriage; Cooke Anastigmats Lenses, by Taylor, Taylor and Hobson; 'Puffins, Cormorants, etc.' (*Platinum*), by R. B. Lodge; 'Starling, Life Size' (*Platinum*), by W. Bush. Of special interest to many pharmacists is No. 405—'Ben Nevis from Carn Mor Dearg' (*Platinum*), by W. Lamond Howie, of Eccles. This exquisite little picture is the result of the combination of three photographs, and has been described as the most truly Alpine view ever taken of Scottish mountain scenery. The panorama has an angle of view of about 145°, thus embracing Loch Eil, on the extreme right, and Au Gearanach, on the left. Visitors to the exhibition, which remains open until Thursday, November 14, will do well to inspect Mr. Howie's masterpiece, and practical photographers will also find the style of mount and frame adopted worthy of notice, inasmuch as they are peculiarly adapted in their simplicity to concentrate attention upon the photograph itself, besides showing it to the best advantage.

The Metric System in Mexico.—The old Spanish weights and measures in use throughout Mexico are to be abolished, since a decree recently passed makes the metric system alone legal throughout the Republic, from September 16, 1896.

The Soap-berry Tree.—In a pamphlet recently published, Professor L. T. Trabut, of Algiers, a Corresponding Member of the Pharmaceutical Society, describes one of the soap-berry trees, *Sapindus utilis* (*S. mukorossi*, Gœrtner, var. *carinatus*, Radlk.). The fruits of this plant contain 38 per cent. of saponin, more than four times as much as quillaia bark, which contains 8 to 9 per cent. only. An adult tree will yield from 25 to 100 kilos. of fruits, and is, therefore, a plentiful source of saponin.

"Prostitution of Position."—Under this heading the *Canadian Druggist* speaks in no uncertain terms of the conduct of certain young Ontario graduates who have "foolishly and thoughtlessly" taken positions in the drug departments of large stores, "forgetting that in so doing they are giving their talents for hire to undermine a profession which it is their duty, and should be their chief aim, to support." It is pointed out that those who demean themselves in this way must be either thoughtless, selfish, or devoid of any of the finer feelings which induce the strict observance of an unwritten code of ethics (? honour), and it is suggested that their reasoning faculties cannot be of the highest order "when they can only anticipate the result of their week's work as so many dollars on pay-day." These remarks may profitably be taken to heart by those registered chemists and druggists in Great Britain, who, for the sake of temporary advantage, facilitate the transfer of the legitimate business of their craft to shareholders in limited liability companies by accepting positions in stores conducted by the latter.

ENGLISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

The Sale of Poisons to Chemists' Customers. — On September 25, Dr. Danford Thomas, the coroner, held an inquest at the St. Giles Coroner's Court on the body of Charles Frederick Jordan, aged forty-four, a brass finisher, who committed suicide on Monday at Denmark Street, St. Giles.—The evidence showed that the dead man had been much depressed of late owing to bad trade and the failure of a sweetstuff shop he had opened. He had not threatened to commit suicide, but had spoken about suicide. On Monday he sent his apprentice to a chemist for an ounce of cyanide of potassium, and shortly afterwards he was found dead on the floor of the workshop, having taken the poison.—Mr. William Cooper, of Greek Street, Soho, said that Jordan used cyanide of potassium in his work, and when his apprentice produced his business card he was supplied with the poison without signing the book as the law demanded.—The Coroner: By doing that are you carrying out the law?—The Witness: Well, not exactly; but if a customer is well known, and uses the poison in his business, we do not compel him to sign.—The Coroner: But that is not according to the law, and you know you place yourself under a penalty every time you do not make the applicant sign. You had better look up the penalties, and be very careful in future.—The jury returned a verdict of suicide during temporary insanity.

Pharmaceutical Classes at Plymouth.—According to particulars just published in connection with the Plymouth Corporation Grammar School, where there is a laboratory for chemistry and physics under the direction of qualified professors, sixty students have passed the Preliminary examination of the Pharmaceutical Society of Great Britain. During the past year four students have qualified themselves for commencing their medical studies.

Science at Tiverton.—According to the syllabus, just issued, of the Tiverton Technical Science and Art Schools, the following classes have been arranged:—Advanced physiography, Mondays; elementary, Fridays; theoretical and elementary inorganic chemistry, Wednesdays and Saturdays; practical chemistry, all stages, Wednesdays and Saturdays; theoretical organic chemistry, all stages, Saturdays; mathematics, stage I., Tuesdays and Mondays; theoretical mechanics, Mondays; magnetism and electricity, Fridays; physiology, Tuesdays; hygiene, Saturdays.

Chemists' Conference at Plymouth.—Active preparations are being carried out for a chemists' conference and reception to be held under the auspices of the Plymouth, Devonport, Stonehouse, and District Chemists' Association, at their rooms in the Foresters' Hall, Union Street, Plymouth, on October 16, full particulars of which will shortly be issued to all chemists in the district. Amongst those who have accepted invitations to be present and will take part in the discussion of important subjects in connection with chemists that will be brought forward, are Mr. Michael Carteighe (President of the Pharmaceutical Society of Great Britain), Mr. C. B. Allen (Member of the Pharmaceutical Council), Mr. R. Bremridge (Secretary), and Mr. E. M. Holmes (Curator). A large number of representatives from all parts are expected to be present, and in the evening the second annual dinner of this flourishing Association will take place at the Freemasons' Hall, Princes Square, Plymouth, at which the delegates will attend. During the conference rooms at the Grand Hotel will be engaged by the Committee of the Association for their guests.

Beecham's Pills.—The action of Beecham *v.* Cleaver, which came before Mr. Justice Hawkins (sitting as vacation judge) on Tuesday, October 1, was brought to obtain an injunction restraining the defendant from selling pills as "Beecham's," the same not being of the plaintiff's manufacture. It was, however, stated that the defendant was willing to consent to an injunction in the terms asked, and to pay to the plaintiff the sum of £40 for damages and costs, and his Lordship made an order in the terms arranged.

Intoxicating Ginger Beer.—At the York Police Court, on September 30, Ann Gibson, of Bond Street, Groves, and Thomas Bradley, of Laurence Street, were summoned for selling beer

without a licence.—Mr. J. O'Donoghue, supervisor of Excise, prosecuted, and stated that according to the Act any liquid containing above 2 per cent. of proof spirit came under the head of beer. The defendants were both selling ginger beer, a sample of which was obtained and sent to Somerset House, where, upon analysis, the samples were each found to contain 4·4 per cent. of proof spirit. —The defendants were each fined 1*s.* and 30*s.* costs.

CHEMISTS' ASSISTANTS' ASSOCIATION.—There is to be a smoking concert in connection with this Association, at the Frascati Restaurant, Oxford Street, on Friday, October 11, at 8.15 p.m. Mr. Charles Umney has consented to take the chair, and Mr. W. J. Rogerson the Vice-chair. The committee is anxious to make this concert thoroughly successful, and hopes, therefore, that members will specially endeavour to be present and bring friends with them. The hall is an excellent one, seating about 300, and a good programme is being arranged. Tickets, 1*s.* each, are obtainable from the Honorary Secretary, Mr. W. S. Crouch, 143, New Bond Street.

DR. JOHN ELLOR TAYLOR died at Ipswich on September 28. He was born at Levenshulme, near Manchester, his father being a foreman in a cotton factory. He was the author of a number of books, and was a man of varied accomplishments. His principal works were on botanical and geological subjects, but he also published a guide to Suffolk and an account of a naturalist's holiday in Australia under the title of 'Our Island-Continent.' Dr. Taylor's books were written in a popular style, and most of them ran into several editions. He possessed the art of writing pleasantly on any topic connected with natural history, and his interesting books have been the cause of many casual readers becoming serious students. Among his various works are 'Half-hours in the Green Lanes,' which was completed in seven editions between 1873-90, and 'Half-hours by the Sea-side,' both of which enjoyed a very wide sale. In 1872 Dr. Taylor succeeded Dr. M. C. Cooke as editor of the illustrated monthly journal called *Science Gossip*. This appointment he kept until a year or so ago. He was curator, for about twenty years, of the museum at Ipswich, on which he wrote a guide, and was a Fellow of the Linnean and Geological Societies.

THE "DAILY TELEGRAPH" ON THE SALE OF CARBOLIC ACID.—In Thursday's *Daily Telegraph* appeared the following:—"Can nothing be done to regulate the sale of carbolic acid? The largest number of deaths by poisoning is caused through its instrumentality, and it seems to be the favourite means taken by women to show that they are tired of worldly existence. This arises from the fact that its acquisition is easy and unrestricted. The Legislature has hedged round the sale of safe, pleasant, and expeditious poisons with all kinds of restrictions which render their possession by the ordinary public an impossibility, except under medical supervision; but carbolic acid, which is the cruellest and most frightful of all beverages, is allowed to be freely dispensed to all who ask for it. A child may enter a shop and obtain for a penny or twopence, without question or demur, as much as will poison half-a-dozen people. It thus appears that Parliament sternly reprobates painless extinction by laudanum or prussic acid, but tolerates, or at least permits, the abnegation of life so long as the act is accompanied by frightful suffering. Hardly a day passes without the record of a death by carbolic acid poisoning, and something ought to be done, and that speedily, to catalogue it among the poisons which must not be sold indiscriminately.'

IRISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

THE LIST OF IRISH PHARMACEUTICAL CHEMISTS ABROAD has been lately increased by Mr. Robt. Wolfe, L.P.S.I., who has gone to Dibrugarh, Assam. Mr. Wolfe seems to have a partiality for limited companies, as he was lately in the employment of Hamilton, Long and Co., Limited, Dublin, and is now with another limited company—the "Planters' Stores and Agency."

"THE HARCOURT ROAD PHARMACY," DUBLIN, which so recently figured in the police courts, is stated to have within the last few days passed out of the hands of Mrs. Barnes, who was fined at the suit of the Society, into the possession of Mr. Clement B. Vance, L.P.S.I., of Greystones, Co. Wicklow.

AN APPOINTMENT OF ANALYST to the Richmond Lunatic Asylum, Dublin, is to be made on the 22nd inst.; however, as the salary is to be only £30 per annum, it is not calculated to attract many applicants.

A DEATH UNDER CHLOROFORM occurred at the Coombe Lying-in Hospital last week. The chloroform was administered by a distinguished lady doctor, in the presence of two other doctors; and the coroner's jury found that no blame was attachable to anyone.

APPOINTMENTS OF EXAMINERS.—While the interest of members is at present chiefly centred on the Annual Election of Councillors, some will, no doubt, be looking forward with still greater interest to the appointment of examiners, which will take place at the November Council. No less than six Examiners are to be appointed: two for the Preliminary Examination; one for the Botany and Materia Medica division of the Pharmaceutical Licence examination; and three to conduct the Druggist examinations at Dublin, Belfast and Cork (one for each city). The Examiners who are about to retire will have held their appointments for five years, and cannot therefore be re-elected.

PHARMACEUTICAL PROSECUTION IN BELFAST.—In the Belfast Summons Court of Petty Sessions, on Friday, September 27 last, the presiding magistrates were Mr. Thomas McClelland (in the chair), Dr. McGee, and Mr. J. A. Doran, J.P. There was a pharmaceutical case which had been fixed for the previous Friday but had been adjourned, and in it a good deal of interest was manifested. A druggist named Alexander Bryans, 126, Agnes Street, was summoned at the suit of the Pharmaceutical Society of Ireland for having kept open shop for the compounding of medical prescriptions and compounding a prescription for one William Gibson contrary, to law, he not being a person qualified to act as a pharmaceutical chemist. There were four other cases against the defendant, two of which were for keeping open shop for the compounding of prescriptions, one for a similar offence to the first one, and the last for selling poisons when not registered to do so. The defendant pleaded not guilty.

Mr. W. B Galway prosecuted on behalf of the Society, and Mr. William Harper represented the defendant.

Mr. Galway said the prosecution was brought under the 30th Section of the Pharmacy Act of 1875, which prohibited people from dispensing medicines unless registered as pharmaceutical chemists. Mr. Galway read the section of the Act, which stated that for a contravention of the Act a person was liable to a penalty of £5. On the day in question, he stated, William Gibson entered the defendant's shop and handed him a medical prescription. The defendant filled a bottle for Gibson, and that brought him within the Act.

Evidence for the prosecution having been given,

Mr. Harper said their Worships would observe that, in addition to the summons before the Court, there were four others against the same defendant. In point of fact, if ever there was an apparent fact, that was one to absolutely ruin a young man who was just entering upon his career. The defendant had gone forward to pass his examination as a registered druggist. He had paid the necessary fees, but owing to ill-health he did not pass. He would withdraw the plea of not guilty and enter a plea of guilty in the first case. On looking over the Act of Parliament he found he could hardly address them on mitigation of the penalty, because the fine was fixed by the Act. He thought it would meet the ends of justice if a penalty was imposed in one case and the others withdrawn.

Mr. Galway: Even supposing he had passed his examination as a registered druggist he could not dispense medicines.

Dr. McGee said that as the cases had been brought more as a warning to others than anything else, the prosecution ought to allow the Court to dispose of the other cases, especially as a penalty would have to be imposed in the first one.

Mr. Galway observed that there was a strong principle underlying the prosecution. The lives of the public must be protected, and his instructions were to prove all the cases.

After some discussion, Mr. Galway withdrew the two cases charging the defendant with keeping open a shop for the dispensing of medicines.

Andrew Downey, inspector of the Society, proved the compounding of a prescription for him.

The Court imposed a fine of £5 in two cases for compounding, and 1*s.*, with 10*s* 6*d*. costs, for selling the poisons.

Dr. McGee said that the magistrates felt for the defendant as he was a very young man, but his mistake was a serious one no doubt, and these mistakes were too common in Belfast. He hoped, however, that would be a caution to a people not to dabble in things which they had no right to touch.

A Case of Alleged Poisoning, of which some sensational reports have been published in a great many newspapers, was finally disposed of at Cootehill, County Caven, on Friday last, 27th ult., when Mary Plunkett and James Plunkett were again brought forward on a charge of having caused the death of Philip M'Dermott, of Corimeen, late husband of the female prisoner, by administering poison.—Mr. R. F. Starkie, R.M., presided.—District-Inspector C. R. H. Jephson appeared for the Crown. The defendants were not professionally represented.—Mr. Jephson said he had received the following letter from Sir Charles Cameron, the public analyst, which he thought would dispose of the case:—"I beg to inform you that a most careful and prolonged examination of the viscera of the late Philip M'Dermott has been made, but no trace of arsenic, strychnine, or any other poison has been detected in them."—The Chairman then asked Mr. Jephson if he had any further evidence to put forward, and on receiving a reply in the negative, he formally discharged the prisoners.

Alleged Poisoning of Pigs.—At the Louth Petty Sessions on Friday, 27th ult., a woman named Ellen Gorman, of Dundalk, was charged with poisoning four pigs belonging to Patrick Larkin, with whom she had been employed as servant for several years. Some unpleasantness had arisen between the defendant and her employer recently, and this, with other circumstances, led to the suspicion that she had been guilty of the charge preferred. After a great deal of evidence had been given, she was remanded for a fortnight in order that the intestines of the pigs might be analysed.

WELSH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Death from Chloroform.—At the Newport Infirmary last week, a man named Amos Duffield, aged 47, died from syncope whilst under the influence of chloroform which had been administered for an operation. The coroner's jury found that the house surgeon had exercised all the precautions necessary, and returned a verdict of "Death from syncope."

Licence for a Chemist.—At the adjourned licensing sessions held at Newport on Friday last, a grocer's licence was granted to Mr. Phillips, chemist, Commercial Street. This was the only new licence granted.

FOREIGN NEWS.

[*From our Special Correspondents.*]

"Reprehensible Neglect" is what *El Memorandum* of Barcelona accuses the Pharmaceutical Faculty with in regard to the indiscriminate sale of quack medicines. It says that the protection of the profession, and consequently the prosecution of offenders against its interests, is one of its principal duties, but that it is perfectly ridiculous to see the barefaced way in which quack medicines are allowed to be sold and advertised unchecked, to the detriment of the pharmacist, and in defiance of the law. Amongst these nostrums it mentions "Dr. Kunz's powders or artificial stomach," "Alarcon de Marabellas English cure," "kola begea," "vital perles," and "ready relief," with "numerous other ready barbarities of interminable enumeration," as it quaintly styles them.

The Red Cross Commission in Barcelona, at the Military Headquarters in the Rambla Santa Monica, is daily receiving from pharmacists gifts of large quantities of medical stores, principally carbolic gauze, iodoform and sublimate cotton and similar antiseptic dressings, for the use of the wounded in the Cuban Civil War. Some of the donors, combining business with philanthropy, obtain a good and at the same time cheap advertisement by including in their gifts some of their own pet specialties, one gentleman, rejoicing in the euphonious appellation of Doctor Sastre y Marqués, forwarding six bottles of his "oyster wine!"

Pharmacists on Active Service.—The Spanish War Ministry's official Gazette publishes a royal order placing on the active list all those pharmacists who have entered the army on probation.

"Zaragatona."—A drug dealer is advertising in the Spanish papers 6000 kilos of "zaragatona" or fleawort, *Plantago psyllium*. In France its seeds are used under the name of "graines de puce" for making a thick mucilage for stiffening linen or for toilet purposes as a bandoline, so that probably in Spain also the "zaragatona" is in demand for similar uses.

Spanish Pharmacists and the Weights and Measures Act.—The *Royal Gazette* of Sept. 10 publishes the amendments in the regulations affecting the carrying out of the provisions of the Weights and Measures Act of July 8, 1892, making all trades and professions, including that of pharmacy, subject to this Act. The "Fieles contrastes," as the inspectors are termed, now have to visit each commune in order to verify the weights and measures, previously giving notice to the Alcalde or Mayor of the date of this visit, so that all who require their weights and measures inspected may have this done with the least possible trouble. Formerly there was considerable inconvenience to tradesmen, who had to attend the court of the "Fieles contrastes," and were obliged very often to travel a long distance to do so.

"A Notable Preparation" *El Memorandum* styles a new vesicating tissue or plaster invented by Doctor Don Domingo Andújar, called "el Esparadrapo vexicante del Doctor Andújar." The cantharidin, which is its active ingredient, is in the condition of a cantharidate of one of the alkalies, and the other compounds of the sparadrap are such as to quite obviate irritation of the urinary organs, whilst allowing complete and rapid vesication in from five to eight hours.

Poisoning by Stramonium.—A serious case of poisoning by *Datura stramonium* is reported from Arras, in the Department of Pas-de-Calais. A gardener of that town, unconscious of its toxic properties, threw into the street from his garden some plants of the *Datura stramonium* in full fruit. These fell into the hands of several children, who, thinking them edible, ate plentifully, and were soon seized with convulsive pains and vomitings. The poisonous nature of the plant having been recognised by the local doctor, he succeeded, by means of the usual antidotes, in saving the lives of all but one, a boy aged seven, who died the next day.

Death of M. Pasteur.—One of the glories of the French nation, personified in Louis Pasteur, has just passed away to eternity after a life-long labour in the cause of humanity, but his magnificent works will render his name as immortal as those of Harvey and Jenner. For many years in precarious health, which however did not deter him from his scientific investigations, his condition during the last fortnight had occasioned the most serious anxiety. On Friday last a crisis occurred which left no hope of recovery, he lost consciousness, and surrounded by his family he expired on Saturday afternoon, September 28, at the age of 73.

Whilst Dean of the Faculty of Lille, a town where the distillation of alcohol from grain and beetroot is so largely carried on, he instituted those researches on the phenomena of fermentation which led to the discoveries that have rendered him so famous. As an outcome of his experiments Pasteur proved that, contrary to the then accepted theory, fermentation was caused by a special organism, and that spontaneous generation, which was then considered a well-founded scientific truth, did not exist, but that definite germs capable of reproducing themselves were present in the atmosphere, and these were the active agents in organic chemical transformations. As may be imagined, these revolutionary doctrines provoked fierce controversies in the scientific world.

In 1849 a disease having made its appearance in silkworms, and by its ravages threatened the destruction of the silk industry of the South of France, M. Pasteur was induced to take up his residence at Alais in order to investigate the causes of this epidemic. He observed on the bodies of the insects certain corpuscles which he recognised as parasites, and during five years he remained there

to study the measures to be adopted for their extermination, the result being that thanks to Pasteur's counsels the devastations of the parasites were arrested, and thus the prosperity of that country was restored. But this victory cost him dear. He had undergone such harrassing fatigue and undermined his constitution to such an extent that he was attacked with hemiplegia and his life despaired of. He rallied, however, but he remained paralysed and never regained complete use of his limbs. In 1877 he read at the Academy of Science his mémoir on the causes of anthrax, and demonstrated that this malady was provoked by a bacillus. The cause once known, it only remained to find a cure, and following in the footsteps of Jenner he discovered that inoculation of the virus in an attenuated form ensured immunity from fresh contagion, and this discovery constituted the nucleus of the others that followed. It formed the basis of the system of vaccines which have since been applied in the treatment of hydrophobia and diphtheria with such success.

M. Pasteur has enjoyed the intense gratification of knowing before his death that the whole world has united in their acknowledgment of the value of his original researches and admiration of his great services to suffering humanity. His persistent aim in all his labours was to seek out the special agent of infection in each disease and the means of neutralising its virulence, either by prophylactic methods or by using suitable means to arrest its progress. In 1888 M. Pasteur took up his residence at the Institute bearing his name in the Rue Dutot, Paris, from which he and his fellow workers, aided by Government subsidies, have sent forth such wonderful discoveries, the latest of which was Dr. Roux's cure for diphtheria and croup by inoculation with the antitoxin serum. The life of this illustrious savant has been passed in uninterrupted studies for the benefit of the human race, and little wonder is it that the whole French nation will be represented at the funeral ceremony in order to render due homage to one who has shed such lustre on their country. Although the funeral will be a national one, his last resting-place will not be in the Panthéon, as was suggested by the Government. The wishes of his family are that his body shall be deposited in the Institut Pasteur, and surely no more fitting spot for the remains of this great man could be found than the building that is dedicated to the working out of those discoveries that have made the name of Pasteur familiar throughout the whole civilised world.

POISONING CASES AND INQUESTS.

Carbolic Acid.—Mrs. T. Carver died at Thurley Road, Battersea, from the effects of carbolic acid taken in mistake for brandy. At the inquest held on September 7, the jury returned a verdict of "Death from misadventure."

Laudanum.—Betsey Embury, aged 20, of Clarendon Square, Somers Town, died on September 7, in the University College Hospital, from the effects of laudanum. Verdict: "Death from misadventure whilst under the influence of drink."

Laudanum.—Joseph Halifax, a clay pipe manufacturer, of Lovers' Walk, Aston, died on September 10, from the effects of an overdose of laudanum, self-administered.

Chloroform.—Thomas Frederick Perks, aged 50, of 1, Belle Vue, Shrewsbury, died on September 10, in the Salop Infirmary, from the effects of chloroform whilst undergoing an operation. Verdict: "Death from misadventure."

Laudanum.—Harry George Birch, aged 39, of 71, Ogwen Street, Liverpool, died on September 8, in the Mill Road Infirmary, from the effects of laudanum poisoning. Verdict: "Poisoned by misadventure."

Strychnine.—Alfred Wood, aged 15, of Selston, died on July 2, from the effects of strychnine contained in milk. At the adjourned inquest held on September 12, the jury returned a verdict "That the said Alfred Wood, on the 2nd day of July, 1895, at Selston, partook of certain milk into which poison, namely, strychnine, had been placed; and the jurors further say that the deceased, on the day and at the place aforesaid, died by being poisoned with strychnine, but that there was not sufficient evidence before the jurors as to how or by what means the poison was put into the milk."

Chlorodyne.—Ellison Bannister, aged 34, of Rumford Street, Chorlton-on-Medlock, died on September 12, from the effects of chlorodyne, self-administered. Verdict: "Death was due to misadventure arising from an overdose of chlorodyne taken as a medicine while the deceased was under the influence of drink."

Chloroform.—Dr. David H. Dyte, aged 56, of 31, Mildmay Park, London, died on September 14, at his surgery, 12, Derby Street, King's Cross, from the effects of inhaling chloroform. Verdict: "Death by misadventure."

Poisonous Liniment.—George Partridge, aged 47, of Parkhouse beerhouse, Gloucester Street, Eastville, died on September 15 through drinking poison contained in a bottle of liniment, which had been placed on a washstand where some whisky was generally kept, and the deceased, in mistake, drank the poison.

Laudanum.—Frederick A. Hinchcliffe, aged 39, of 25, Newnham Street, Edgware Road, W., died on September 16, from the effects of an overdose of laudanum, self-administered. Verdict: "Death by misadventure."

Sulphate of Atropine.—James Bastable, aged 1 year and 11 months, whose parents reside in Mallin Street, West Smethwick, died from the effects of sulphate of atropine. At the adjourned inquest, held on September 23, the jury returned a verdict of "Accidental poisoning," and added that it would be better if poison should be sent from the hospital in green fluted bottles, with coloured labels, indicating that the contents were poison.

Morphine.—Cornelius Satterthwaite, aged 73, of Mason Street, Manchester, died on September 23, from the effects of morphine pills. Verdict: "Accidental death from an overdose of morphine pills taken to relieve pain."

Chloroform.—Ellen Louisa Livermore, aged 17 months, whose parents reside in Preston Street, Kentish Town, died on September 20, while under the influence of chloroform at the University College Hospital, during an operation. A verdict in accordance with medical evidence was returned.

Laudanum.—Florence E. Faulkner, aged 4 months, whose parents reside at Hinckley, died on September 24, from the effects of laudanum accidently administered by its mother in mistake for "Godfrey's Cordial." Verdict: "The child died from the dose of laudanum accidentally administered by its mother," and expressed an opinion that parents should be more careful as to how they kept such poisons in the house.

Methylated Spirit.—Peter Traynor, a furniture polisher, of Dundalk, died on September 20, from the effects of methylated spirit containing some colouring matter. Verdict: "Deceased died from excessive drinking of methylated spirit."

Poisonous Lotion.—Joseph Jeremiah, an inn-keeper of Blaenavon died on September 16, from the effects of accidently drinking a lotion prescribed for blistered feet. Verdict: "Death by misadventure by taking poison."

Laudanum and Arnica.—Leslie Dickenson, infant son of George Dickenson, of 6, Longmore Place, Balsall Heath, Birmingham, died on September 20 from the effects of laudanum and arnica, accidentally administered by its mother in mistake for a diarrhœa mixture. Verdict: "Accidental death."

Laudanum.—Ada Hart, aged 9 weeks, whose parents reside at 27, Dean Street, Pallion, died on September 22 from the effects of laudanum, contained in an infants' mixture. At the inquest held on the Wednesday an open verdict was returned, the jury remarking that they believed that the child had died from narcotic poisoning, though how or by whom administered there was no evidence to show.

Acetic Acid.—Thomas Doyle, aged 21 months, whose parents reside in Barratt Street, Ancoats, Manchester, died on September 23 from the effects of swallowing acetic acid. Verdict: "Accidental death."

NOTES AND QUERIES.

[The information given in this column includes both notes of practical interest to pharmacists, and replies to queries which seem to possess sufficient interest to readers generally. Readers requiring working formulæ for special preparations should intimate their wants to the Editor, who will be pleased to assist them to the best of his ability. The word "parts" invariably indicates parts by weight.]

Pharmacy in the Transvaal.

Pharmacists, medical practitioners, and dentists are required to be both registered and licensed before they can practise in the Transvaal. Pharmacists pay £10 per annum for the licence, and medical men £25 per annum. The Medical Act deals with the three professions, and you will probably obtain full details of the legal requirements as to registration, etc., by addressing the Registrar under the Act, Pretoria, South African Republic. [*Reply to J. M. D.*]

Cold Photographic Varnishes.

A. B. Clarke sends a sample of varnish made from a formula given in the *Supplement* for July 6:—

White hard varnish	5 ozs.
Liq. ammon. ·880	*q. s.*
Water	2½ ozs.

He has added sufficient ammonia to nearly cause a permanent precipitate, the result being extremely unsatisfactory, as the sample is now a solid mass in the bottle. Too much ammonia has been used; only sufficient should be added to clear the solution. The addition of water to the white hard varnish, which is generally composed of sandarac and Venice turpentine dissolved in methylated alcohol, causes precipitation of the resins, and the ammonia probably forms a soap with the same, which re-dissolves. Speaking generally, about 2½ ozs. of liq. ammonia is ample, and possibly about 1 oz. would be sufficient. Cold varnishes may also be made by boiling together for one hour—

Powdered shellac	96 grains
Borax	24 „
Sodium carbonate	6 „
Glycerin	5 m.
Water	2 ozs.

then cooling and filtering, or by replacing the borax and soda with ammonium carbonate ½ oz. The best cold varnish is made by using either pyroxyline or celluloid, the latter in the shape of spoilt films, etc., and a mixture of amyl acetate and acetone in about equal parts. The only disadvantage of this last varnish is that it smells very strong, and requires a very long time to thoroughly dry, in fact as soon as surface dry the negative should be placed somewhere near the fire to thoroughly drive off the solvents. From three to five grains of pyroxyline or celluloid to the ounce of solvents is about right.

Choice of a Camera.

"Lanternist" inquires what camera can be recommended as thoroughly serviceable for copying lithographic plates, and what lens would be most suitable for the purpose. The negatives would be used solely for the preparation of lantern slides. As the negatives will be used for lantern slides only, it is obvious that a quarter plate camera will be large enough, a square bellows camera with sufficient extension to allow of double the focus of lens to be used; this can be 5 inches, therefore, the bellows must extend 10 inches. The particular make of camera is not of much importance but a Lancaster's special is a good type. For the lens there can be no better than one of the new Cooke lenses as made by Taylor, Taylor, and Hobson, of Slate Street, Leicester, of 5 inch focus, price £4 10*s.* This will cover sharply at full aperture. We shall give full directions for this work shortly.

A Simple Photo-Engraving Method.

S. Sharp refers to a paragraph under this heading, copied from the *Inland Printer* (see *Ph. J. Supplement* for June 22, page v.), in which the soaking of a dry plate developed with pyro. soda in hot alum solution is recommended to obtain a high relief for stereotyping or printing from. It is a well-known fact that pyro. does tan gelatin where light has acted on it, but our experience is that the use of alum reduces this relief. If the plate is merely soaked in warm water and the temperature gradually raised, and the plate then removed and warmed gently, the relief obtained is high, but practically useless. Many processes have been suggested based on this property of pyro., but not one is so far a commercial success.

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

Communications for the Current Week's Journal should reach the Office not later than Wednesday Morning. Telegrams can be Received on Thursday Morning. All Communications respecting Editorial matters must be Addressed "Editor, 17, Bloomsbury Square, London," and not in any case to individuals supposed to be connected with the Editorial Staff of the Journal.

All Instructions from Members, Associates, and Students of the Pharmaceutical Society, respecting the transmission of the Journal, must be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London, W.C.

Business communications—including advertisements, orders for copies of the Journal, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Cheques and money orders should be made payable to "Street Brothers."

Correspondents who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for illustrations should be done with pen and Chinese ink, and consist of clean, sharp lines, without shading by washes. They should also be prepared twice the desired size, so as to allow for reduction.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Queries addressed to the "Editor" will be replied to in the Journal as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries." The Editor cannot undertake to reply to queries through the post.

Reprints of articles cannot be supplied unless authors communicate with the Editor before publication.

LETTERS.

Mr. P. B. Gray, in answer to the request of a Blackburn chemist's apprentice (see *ante*, p. 260), enumerates the advantages for pharmaceutical education in Northampton, a manufacturing town of about 70,000 inhabitants. He says we have a technical school, which I have attended for the last three years, the only subjects in the syllabus of use to the pharmaceutical student being chemistry, inorganic, practical, and theory, and physics. There is a laboratory for practical work accommodating a dozen students and a small lecture room. Two years ago there was a class in botany, which has been discontinued owing to the lack of students, and the inability to find a master. Success this year as follows:—

Practical inorganic adv.	7 sat.	2 firsts,	5 seconds
Theory „ „	4 „	1 „	3 „
Physics, elementary			2 passes

We have no such apparatus as your correspondent mentions, and there are no objects of pharmaceutical interest in the museum. I am afraid that this will compare rather unfavourably with Mr. Vogt's model country town, to whose standard very few attain. Thanking you in anticipation of insertion.

ANSWERS.

L. L. Stroud.—The specimen is *Xanthium spinosum.*

T. W.—No notice can be taken of anonymous contributions.

R. H. Rowell.—The presence of nitrate seems to be the disturbing cause, but you shall have a more definite reply later.

J. W. T. Morrison.—Your disclaimer is quite unnecessary.

OBITUARY.

Peck.—On September 16, F. Arthur Peck, Chemist and Druggist, Grimsby. (Aged 54.)

Richardson.—On September 20, Alexander Richardson, Chemist and Druggist, Newcastle-on-Tyne. (Aged 60.)

Jones.—On September 25, J. P. Jones, Pharmaceutical Chemist, late of Pontypridd. (Aged 42.)

Communications, Letters, etc., have been received from Messrs. Arundel, Bayley, Burge, Clarke, Crouch, Currie, Cuthbertson, Davis, Green, Hall, Hoit, Jones, Kemp, Mason, Merry, Mitchell, Powell, Reynolds, Speedie, Strachan, Stroud, Thomson, Tovey.

CREOSOTUM—CREOSOTE.

BY JOSEPH INCE.

I venture, in anticipation of an Imperial Pharmacopœia, to give in the bricfest possible manner a summary of the views which have been entertained respecting the etymology of this word, so that we may arrive at a definite conclusion, and may also understand the rcason for the discrepancy which has arisen.

The nomenclature of the term has wavered in a curious manner, and the highest authorities can be adduced in defence of either creosote or creasote.

I have had the opportunity of working out the subject, with assistance, in the library of Christ Church, Oxford; after consulting ancient and modern works of reference, Greek plays and manuscripts, two things scemed evident: first, according to the rule by which Greek words are latinised, or classical Latin words are converted into technical Latin, a strong case may be made out in favour of alpha (ά), and the spelling creasotum, creasote; secondly, taking as a guide a large proportion of thc Greek compounds of κρέας, a stronger case may be made out in favour of omicron (ό) and the spelling creosotum, creosote.

Two different standards of derivation have been adopted; the one in obcdience to an abstract rule, the other determined by a better acquaintancc with, or a closer adherence to Greek literature in general. Both sides of the question are herc presented. The rule alluded to is to take the root of a classical word, and from that to construct the technical Latin term desired. The root or stem is that part of the word which remains unchanged, and to which are added the changes or flexions.

In the case before us we have κρέας, κρέα τος; plural, κρεά των; the root is κρεα, and accordingly the coined Latin word resulting would be creasotum, creasote.

Hence we get κρεανομέω, to distribute flesh, to divide or cut; κρεανομία and κρεανόμος.

This has been adopted up to a certain date by many of our best writers and highest authorities in medicine and in pharmacy, as well as in pharmacopœias, British and otherwise.

A few selected examples will suffice; cvery pharmacist will be aware that the list might be amplified abundantly.

Christison. [On Poisons.] Creasote is another pyrogenous substance possessing considerable activity as a poison.

Sir Thomas Watson. [Principles and Practice of Physic.] There is onc other drug from which I think I have seen [in diabetes] the happiest effects, I mean the creasotc.

Ogilvie, 'Imperial Dictionary,' 1882, creasotc.

Pereira, Redwood, Bentley, Royle, Lauder Brunton, and Attfield, as well as the Dublin, Edinburgh, and British Pharmacopœias in concert write creasote.

A few American authorities may be quoted.

Stillé and Maisch, 1884, 'National Dispensatory,' creasotum.

'Dispensatory of the United Statcs of America,' 1888, creasotum.

'Remington's Practice of Pharmacy,' first and second editions, creasote.

'United States Pharmacopœia,' 1880, creasotum.

It will be concedcd that at, and up to, a certain date, the spelling creasote has been accepted as correct by writers of acknowledged cminence.

I turn now to the other side of the question.

The comment in the seventh and last edition of Liddell and Scott in reference to this point, 1883, is of especial weight.

It is there stated that in the MSS. words compounded with κρέας are written sometimes κρεο, and sometimes κρέω; that the former is the only form admissible in good authors, as obscrved by Porson in the prefacc to 'Hecuba,' p. 8, but that the latter seems to have bcen adopted by late writers.

Some few compounds, it is observed, take κρεα. It is needless to dwell on thc authority of Porson in questions of Greck etymology, but as a matter of personal satisfaction only I have examincd the Christ Church standard authorities and others in the British Museum, and found abundant confirmation of thc above statcment.

Examples of ό instead of ά, in words which are compounds of κρέας, exist in about the proportion of ten to one.

Further, some authorities dcscribe κρεα as a collateral form of κρεο; others, as Murray (quoted below) describe creasote as a variant form of creosote.

In illustration may be mentioned κρεοβορέω, to eat flesh; κρεοθήκη, a larder; κρεοκοπέω, to cut up like meat; κρεοπώλης, a butchcr; and κρεοφάγος, carnivorous. In ancient Greek manuscripts and inscriptions ό is decidedly in the ascendant; a longer research would be necessary to discover the occurrence of ά. I do not suggest that it is never found.

It seems that Greek construction points but to one conclusion, that we must accept a change in our previously sanctioned nomenclature.

Writers of recent date have adopted this second view with almost unanimous consent; it also would appear that the drug was originally known as creosotc, as the following reference shows:—

Murray's 'English Dictionary,' 1893, which has been put together by the united scholarship and research of many distinguished philologists, gives the spelling creosote in describing the drug discovered by Reichenbach in 1832. Elliotson in 1835 remarks: It is now a year since I began my trials of creosote.

In 1860, we have the sentcnce, "The creosote distilled from the pcat soon rendered the fish safe from decay." There is the verb to creosote; hence in the report of the Directors of the East Indian Railway we have a notice of creosoted sleepers; while elsewhere hop-poles arc said to be creosoted; and there is the phrase, creosoted timber.

Later writcrs, that is those of our immediate time, are strongly in favour of the revived nomenclature. In Watts' 'Dictionary,' we find, "commercial creosote consists almost entirely of phenol, but the true creosote, obtained by the distillation of wood, is a totally different substance."

Skeat's 'Etymological Dictionary,' 1884, writes the word creosote, with the derivation κρέως, Attic form of κρέας, σώζειν. The derivation is ingenious, but not supported by the construction of Greek compounds of κρέας.

Continental usage follows this, retaining occasionally k instead of c, which English practice does not consider necessary.

Chambers' 'Etymological Dictionary,' 1893, a most useful book, gives the first place to creosote with alternative permission to write creasotc.

The Editor of the *Pharmaceutical Journal* sanctions creosote, while American writers have had the courage of their opinions, and in their recent publications havc discarded creasote altogether. The change may be remarked in

Stillé and Maisch, 1894 (*vice* 1884), in the 'U.S.A. Dispensatory,' 1894 (*vice* 1888), in Remington's 'Pharmacy,' third edition, 1894 (*vice* first and second), and in the 'U.S. Pharmacopœia,' 1890 (*vice* 1880), in which creosote has been made official.

It is due to American writers on pharmacy to acknowledge that their persevering efforts have directed public attention to this subject; more especially has this been effected by their official adoption of creosote in exchange for a former nomenclature.

No very strong argument can be founded on general practice, for that would go to prove at one time that the old spelling creasote should be maintained. This summary will show, with regard to both spellings, that usage has been an affair of date.

Greek construction has more weight than ordinary rules of derivation, and a wish may be expressed that in due time the word creosotum, creosote, may find official recognition in the Imperial Pharmacopœia.

THE ORIGIN OF THE PRACTICE OF MEDICINE.

In the inaugural address delivered at the Yorkshire College, Leeds, by Dr. D. J. Leech, the Professor of Materia Medica and Therapeutics at the Owens College, Manchester, the conditions under which the earlier development of the practice of medicine took place were passed in review, with the object of controverting the opinion put forward by Mr. Herbert Spencer, that the profession of medicine is of sacerdotal origin. While admitting that there has been a very close connection between medical treatment and belief in the efficacy of supernatural means for the cure of disease, Dr. Leech holds that there is little to indicate that the initiation of the treatment of disease was developed from such beliefs.

The treatment of disease has been thought by some to have originated from the same instincts which seem to lead animals under certain conditions to eat when ill substances they usually avoid; others—*e.g.*, Schmiedeberg—have suggested that man has imitated the habits of animals in this matter. In the treatise of ancient medicine included in the works, bearing the name of Hippocrates, which Littré believes were written by the father of medicine himself, the belief is expressed that medical treatment arose from observations on the different influences of foods and their properties in health and disease. In connection with this view it is interesting to note that in the earliest works relating to treatment dietetic substances play a leading part in remedial agents. The oldest document bearing on medical matters we possess was discovered in 1889 at Kahun, near the pyramid of Illahun, in the ruins of an ancient town which has been apparently inhabited by the builders of the pyramid. It dates from the Twelfth Dynasty—2700–2500 B.C., more than 1000 years before the Exodus. It consists of instructions for midwives and includes prescriptions for treatment. Into these, articles of diet largely enter—namely, beer, cow's milk, oil, dates, and other fruits, herbs, sweet beer, honey, onions, etc. In the prescriptions of the medical papyrus obtained by Ebers at Thebes and usually bearing his name, the same feature is well marked. This most ancient of pharmacopœias was found between the legs of a mummy. There is a general consensus of opinion that it was compiled about 1500 B.C., though some of its contents date from an earlier period. It consists of formulæ for the treatment of a large number of ailments, both external and internal, some very simple, consisting of one or two ingredients only; others more complex, containing twelve to fifteen drugs, while directions more or less precise are given for their preparation and use. Most of the drugs are derived from indigenous plants, but a few minerals, such as alum, salt, nitre and sulphate of copper, are also found in them. Some of the ingredients cannot be recognised.

In the prescriptions of the papyrus of Ebers dietetic substances largely predominate; honey, milk, bread paste, several cereals, fruits, such as figs, plums, grapes, melons, and dates and like substances are found in a very large proportion of the prescriptions. That these ingredients were not used simply for flavouring purposes seems evident from the fact that many of the medicines are entirely composed of them. It is probable, too, that in addition to the large number of substances in this pharmacopœia which we recognise as foods, many of the other components which we look upon as drugs were used in ancient times for culinary purposes. Maspero points out that in the time of the Pharaohs castor oil was probably taken regularly in food; indeed, it is yet a favourite condiment amongst the Egyptian fellaheen, who flavour their salads with it. He thinks that the Egyptians "began by eating every kind of food which the country produced. Many of these, when their therapeutic virtues had been learned by experience, were gradually banished as articles of food and their use restricted to medicine; others fell into disuse and only appeared at sacrifices and funeral feasts."

In the drugs used by savage tribes foods and substances capable of being used as such predominate, as they did in Egypt of old. As was the case in Egypt, active poisons are comparatively rarely used as medicines. As medical knowledge has advanced, foods have been for the most part replaced in the treatment of disease by more active agents, but they have not yet entirely disappeared. The lettuce and pearl barley, with its preparation decoctum hordei, are to be found in the list of remedial agent in the present edition of the British Pharmacopœia, constituting a connecting link between the medicine of the present day and its origin in the dim past. It is not difficult to account for the prevalence of foods and the absence of active poisons in primitive medicine. The favourable changes in certain forms of disease which follow vomiting or excessive action of the bowels, skin, and kidneys must have attracted the attention of man in the earliest stage of his development. In the search for food, note would be taken in the first place of substances which cause death soon; these would be entirely discarded. Attention would also be drawn to certain animal, vegetable, and mineral products giving rise to vomiting, purgation, diaphoresis, or diuresis. Even the most untutored mind would infer that advantages might follow the administration of such substances in diseases where emesis or an increase of the secretions had been found beneficial. The character of the earlier formularies and of those of uncivilised people points to an origin of medicinal treatment from observation, and it is from this treatment that has sprung the medicine of to-day. That arising from superstitious ideas has been gradually discarded.

By what class of people was the treatment of disease introduced? Who were the earliest forefathers of the medical profession? Mr. Herbert Spencer says the priests, giving as a reason for his view the close connection of the function of the priest and physician in early societies. As we go back into Egyptian medical history we do not find evidence of a greater influence of the priesthood in medicine, but rather the reverse. In Greek literature the earliest allusion to the healing art is found in Homer, who represents it as derived from the gods indeed, but in the hands, not of priests, but of warriors, and, to a certain extent, of women. The only two physicians named in the Greek army are Machaon and Podalirius, who were also warriors and led thirty ships to the siege of Troy. Their father, Esculapius, is represented as a chieftain to whom Chiron taught the healing art as he did to Achilles. There is no allusion to temples open for the sick, or to priestly medicine. How early a

distinct medical class was developed out of the primitive system of medical practice which the Homeric poems delineate is not known. Pythagoras (580–510 B.C.) and other philosophers mixed up a little practical medicine with their speculative doctrines. At the end of the sixth century we hear of a famous Greek physician, Democedes, curing the King of Persia when the Egyptian physicians failed. At the end of the fifth a Greek, Ktesias, was physician to the Persian Court, and Hippocrates wrote his famous works. In almost all, if not in all, countries there are practitioners of medicine. Jagor, however, could find none amongst some of the tribes on the Philippine Islands: von Rosenberg denies their existence in a tribe on the south-west coast of New Guinea; but it is quite possible that in both cases they were overlooked. Statements with regard to the absence of medicine men and the use of drugs in wild tribes must be accepted with reserve unless the reporter has lived with them. In the Andaman Islands there seems hardly any indication of a medical class, and often medical treatment is undertaken by the wife of the household. Amongst the old Peruvians, too, the old women acted, at least in the case of the common people, as their medical attendants. In South Australia—in smaller ailments, at least—each one is his own physician; but these are exceptions. Almost everywhere we find medicine men. Sometimes, as in New Guinea, they are hardly differentiated from the other people. In most tribes, however, they form a distinct class, and often they hold a high position. Amongst the Dakota Indians they have the highest respect paid them, and they are the most influential people in the aboriginal tribes in Victoria and amongst the Ipurian Indians. In Samoa, however, they seem to occupy the highest position of all; in one place, at least, Turner found that an old medicine man was looked upon as the incarnation of a god. But this is no evidence that they are necessarily connected with the priesthood, although they deal largely with the supernatural.

From what we can learn of the past, and what we can observe among uncivilised people of the present day, it seems probable that a knowledge of the influence of drugs on external or internal ailments has tended everywhere to accumulate in the hands of certain individuals—usually, perhaps, in those of the chief of the tribe, sometimes in those of his wife, but not infrequently other members became the special depositories of medical knowlege. Schmiedeberg suggests that such knowledge would first accumulate amongst herdsmen. Eventually differentiation of function occurred. Doubtless this was a gradual process and was accomplished in many ways. At times it may be that the priesthood took part in it, but there is no evidence that this was always or even often the case.

Sugar in Urine.—Allen recommends the following procedure for the detection of small quantities of sugar in urine:—Seven to 8 cubic centimetres of the urine are heated to boiling point in a test-tube, and 5 C.c. solution of copper sulphate, as used to make Fehling's solution, is added. This precipitates nearly all the uric acid, xanthine, hypoxanthine, phosphates, etc. When nearly cold, 1 to 2 C.c. of a saturated solution of sodium acetate is added, which will render the precipitation complete. Filter, and add 5 C.c. of the usual alkaline tartrate solution, then boil the mixture for fifteen to twenty seconds. In the presence of more than 0·25 per cent. of sugar, separation of cuprous oxide occurs before the boiling point is reached, but with smaller proportions precipitation takes place during the cooling of the solution, which becomes greenish, opaque, and suddenly deposits the oxide as a fine orange-yellow precipitate. The best qualitative test for traces of sugar is, however, the phenylhydrazine test (*Analyst*, xix., 178).

NOTES ON ESSENTIAL OILS.

Anise Oil.—The introduction as an article of trade of pure anethol, the constituent of anise oil possessing the odour peculiar to it, appears to have met with appreciation, since Messrs. Schimmel state in their recent report that nine-tenths of the anise oil produced is now worked for obtaining anethol. The solubility of anethol in spirit of various degrees of strength varies considerably, and as this is a point of practical importance, the following data have been published as the results of exact determination:—

Solubility of Anethol in 1 *Litre Spirit at* 20° *C.*

Percentage of alcohol by volume...	20	25	30	40	50
Quantity of anethol dissolved	0·12	0·2	0·32	0·86	2·3

Experiments have been made by Hell and Gärtner to ascertain whether anethol is a propenyl or an allyl compound. The results obtained with one sample of anethol from star anise oil (b.p. 228°–232°), led to the conclusion that its constitution was correctly represented by the formula $C_6H_4{}^{OCH_3}_{CH:CH\cdot CH_3}$, *p*.methoxy-propenyl-benzene, but in the case of another sample of uncertain origin, the results obtained pointed to the presence of another isomeric anethol whose constitution would be represented by the formula $C_6H_4{}^{OCH_3}_{CH_2\cdot CH:CH_2}$, methoxy-allyl-benzene or methyl chavicol. Further investigation by Messrs. Schimmel has tended to confirm this result, and shown that the oil of *Illicium anisatum*, as well as that of *Pimpinella anisum*, probably contains methy-chavicol as well as ordinary anethol. When either of these oils is cooled in a freezing mixture and the crystallisable anethol separated, there remains a thin liquid oil, and on boiling this with alcoholic potash the boiling point is raised, the index of refraction considerably increased, and upon cooling a further quantity of crystalline anethol is obtained.

Camphor Oil.—The lighter portions of Japanese camphor oil obtained in the preparation of safrol have met with such very extensive application for various industrial purposes that the supply has not been equal to the demand for this material.

Cassia Oil.—Instances of the adulteration of this oil with resin and petroleum are still met with, and one parcel was found to contain 10 per cent. of alcohol, the presence of which would naturally render the result of the aldehyde determination incorrect. Extra care is therefore requisite in testing the quality of this oil. On the other hand the demands as to percentage of aldehyde should not be too stringent. Oil with 80 per cent. is now a rarity, and unless other adulteration can be detected, oil containing from 70 to 75 per cent. aldehyde may be regarded as satisfactory. The extent to which adulteration is practised is shown by the testing of four parcels of cassia oil examined in Hong Kong recently, the amount of aldehyde present in them ranging from 30 to 37 per cent.

Citronella Oil.—The considerable rise in the price of this oil does not appear to be due to falling off in production, but to be solely the result of increased consumption in the manufacture of soap. The adulteration of the oil renders careful testing necessary. Some samples examined by Messrs. Schimmel were found to contain instead of paraffin oil, the usual adulterant, an admixture apparently of East Indian gurgun or wood oil.

Essences.—The absence of stock, and the prospect of a poor crop, make further rise in price of all kinds of essences very probable, and it may be expected that the adulteration which has been much checked within the last two years will again become common.

Bergamot Oil.—The value of this oil being regulated by the amount of ester present, determination of that point is essential for judging as to the price at which it is offered. In regard to the method of testing, Messrs. Schimmel point out that the use of

strong alcoholic potash (10 per cent.) and heating in a sealed tube are inadmissible, because the linalool is acted upon, so that the larger quantity of potash consumed appears to indicate the presence of a larger amount of ester—about 1·8 per cent.—than the oil really contains. It is, therefore, essential that semi-normal alcoholic potash should be used in testing bergamot oil, as Messrs. Schimmel originally recommended. They have ascertained by means of special experiments that with semi-normal alcoholic potash the saponification is complete after heating for ten minutes, and that by long-continued boiling in a flask fitted with a reflux condenser there is no such action upon linalool as takes place when the oil is heated in a sealed tube with 10 per cent. alcoholic potash.

Cedro Oil.—This oil from the rind of fruit of *Citras medica*, Risso, is not to be obtained in trade; but in consequence of frequent enquiries for it Messrs. Schimmel have had a small quantity prepared for examination. It is of a yellow colour and its odour resembles that of citral and lemon oil. In physical and chemical characters it does not differ much from lemon oil. The specific gravity is ·871 at 15° C.: rotation + 67°8′ at 18° C. On distillation greater part passes over between 177° – 220° C. The presence of citral is proved by the formation of citryl β-naphto-cinchoninic acid (m.p. 197 to 200° C.), on boiling the oil with an alcoholic solution of β-naphtylamine and pyrotartaric acid.

Fennel Oil.—It has been shown by Wallach that fenchol yields *m*. cymene under the same conditions that camphor yields *p*. cymene, and recently he has established the identity of this *m*. cymene with that obtained from resin oil. He has also investigated some other derivatives of fenchol. This fenchyl alcohol yields by reaction with hydriodic acid a hydrocarbon, tetrahydro fenchol, $C_{10}H_{20}$ (b.p. 160°–165° C.), which on treatment with bromine yields a solid substitution product, with evolution of hydrobromic acid. Like camphor, fenchol yields, on treatment with sodium and carbonic anhydride, a carbo-acid, $C_{11}H_{16}O_3$, or $C_{11}H_{18}O_3$, and this acid on distillation yields neither fenchol nor fenchyl alcohol, but a crystalline acid, $C_{11}H_{16}O_2$. By heating fenchonitril, $C_9H_{15}CN$, with alcoholic potash there is formed together with fencholenic acid, $C_9H_{15}COOH$, a compound hitherto regarded as α-isofenchonoxim, which is found to be the amide of fencholenic acid $C_9H_{15}CONH_2$. When heated with dilute acids this amide is converted into an isomer (m.p. 137° C.), β-isofenchonoxim, which has not the properties of an acid amide, but is probably a lactam. By reduction fencholenic amide yields fencholenic acid, fencholenamine, and isofencholenic alcohol, $C_{10}H_{18}O$ (b.p. 218° C.). Under the influence of dilute acids, this alcohol is altered into an isomeric substance, fenchenol, having great resemblance to cineol, and like it may be regarded as an oxide; it boils at 183°–184° C. (cineol 176° C.); with hydrobromic acid it gives, like cineol, a crystalline addition product, which by contact with water is resolved into its components.

Pine Needle Oil.—There has recently been a great demand for the oil distilled from the needles of *Pinus pumilio*. The scarcity of extra fine pine needle oil is now at an end. It is prepared exclusively in Switzerland from the young cones of *Abies excelsa*, Link, and endeavours to obtain it elsewhere have hitherto been fruitless.

Among the coniferous oils examined recently, mention is made of the oil obtained by Umney from young needles and cones of *Pinus sylvestris*, containing levo-pinene, while that prepared by Messrs. Schimmel was dextro-rotatory. The oil of *Pinus nigra* examined by E. Kremers contains as much as 50 per cent. of bornyl acetate.

Geranium Oil.—The difficulty of obtaining a sufficient supply of this oil from Reunion to satisfy the increasing consumption has given increased importance to the Algerian product, by which the finer qualities of Spanish and French oils have been to some extent superseded. The supply of palmarosa oil, known as Turkish or Indian geranium oil, has been very abundant, and the quality excellent.

Heracleum Oil, obtained from the fruit of *Heracleum sphondylium*, L., consists chiefly of octyl acetate.

Pastinac Oil, from the fruit of *Pastinaca sativa*, L., is similar to heracleum oil, and consists chiefly of octyl butyrate.

Carraway Oil.—The specific gravity of the oil obtained from seed of different kinds is higher than it was last year, but whether that is the result of climatic conditions is uncertain. Normal oil should have a specific gravity of ·908 to ·910 at 15° C. When it is less than that the oil is inferior and deficient in carvol. Examination of samples of carraway oil gave the following results:—

	Specific Gravity at 15° C.	Rotation at 16° C.
1	·910	+ 79° 7′
*2	·909	+ 82° 35′
3	·909	+ 80° 33′
*4	·906	+ 78° 7′
*5	·902	+ 78° 14′
6	·901	+ 82° 4′
7	·892	+ 86° 35′
8	·889	+ 86° 26′

Only the first three were of good quality. No. 8 was very inferior. Alcohol was detected in the samples marked with an asterisk.

Wallach's investigations of the brominated derivatives of the carvol series have shown that by the action of bromine both active forms of carvol yield tetrabromides $C_{10}H_{14}OBr_4$, forming well-developed rhombic crystals (m.p. 120°–122° C.), The crystals of the racemic tetrabromide belong to the mono-clinic system and melt at 107°–109° C. By further bromination pentabromides are formed, $C_{10}H_{13}OBr_5$. All the bromine derivatives of carvol are reduced by zinc dust and re-converted into carvol. The inactive tribromide yields by treatment with ammonia a compound, $C_{10}H_{14}O_2$, which forms fine crystals melting at 69°–70°C.

From bihydrocarvol a bromide can be obtained, the active modifications of which melt at 69°–70°, while the racemic form melts at 96°–97°. This compound is also formed by brominating the trioxyhydrocymene, $C_{10}H_{20}O_3$ obtained by oxidation of terpineol. This fact is important as showing close relationship between carvol and terpineol. Wallach has formerly shown that the trioxyhydrocymene from terpineol yields, on boiling with dilute acids, a ketone, $C_{10}H_{16}O$, and now he shows that this ketone, which he calls carvenone, is formed on boiling bihydrocarvol with dilute acids. Carvenone boils at 233° C.; it forms two characteristic oxims, $C_{10}H_{20}N_2O_2$ (m.p. 162°–163° C.) and $C_{10}H_{17}NO$ (m.p. 91° C.).

Lavender Oil.—The production is this year most deficient in the departments Drôme, Gard, and Herault, which furnish oil of high quality with 28–32 per cent. ester. The extra fine oil with 38–40 per cent. ester comes from the highest parts of the Alpes Maritimes and Basses Alpes, towards the Italian frontier.

Messrs. Schimmel advise purchasers to be guided only by the guaranteed amount of ester. Though a discriminating nose is not to be despised, the sense of smell may be too much influenced by surrounding conditions to be trusted as infallible. Statements have lately been put forward that oil of fine quality may contain only a small amount of ester, but that assumption is altogether unsupported by experimental evidence, and it is inconsistent with experience.

Linaloe Oil.—The over-production of this oil in Mexico and Cayenne has reduced the price so much that for a time distilla-

tion in Europe was unremunerative. The Mexican oil is frequently adulterated with fat oil, and the content of linalool is subject to great variation.

The investigation of this oil by Barbier and Bouveault has at least led them to recognise the identity of linalool and licareol. According to these authorities the oil contains:—

Licareol (linalool)	90
Licarhodol (geraniol)	2
Sesquiterpene	3
Methylheptenone	0·1
Terpene (diatomic)	0·1
,, (tetratomic)	0·1

The presence of methylheptenone and geraniol had already been pointed out by Messrs. Schimmel in their Report for October, 1894. Barbier and Bouveault represent the methylheptenone as being identical with the ketone obtained by Wallach from cineolic acid, and they are of opinion that it had not been met with naturally. That view, however, is erroneous. Some time since these observers obtained a ketone from lemon grass oil, which they regarded as an isomeric methylheptenone, and its identity with Wallach's ketone was afterwards established. This methylheptenone is also present in citronella oil, and the same ketone appears to be frequently associated with linalool, geraniol, and citral: it has recently been found in palmarosa oil, and is probably present in many other oils.

Clove Oil.—The quality of the recent shipments of this oil has been unexceptionable, showing that the energetic measures taken by the Sultan of Zanzibar to stop adulteration have produced a good result.

In a previous report the fact was pointed out that the extraction of essential oils as hitherto practised by treating all materials in much the same manner with steam, does not maintain its ground under the light of present chemical knowledge. It is sometimes astonishing how much the character and yield of essential oil may be influenced by the mode of distillation practised. This has been found especially the case with clove oil. So far as is yet known, clove oil consists of eugenol a heavy phenol, and caryophyllen a light sesquiterpene. But clove oil cannot be produced by the mixture of these two substances: there is an absence of the peculiar aromatic odour of the clove blossom, the most distinctive means of distinguishing clove oil from the oil of clove stalks. Clove oil, however, contains so little of the substance possessing this odour that it has not hitherto been possible to examine it chemically. It is specifically lighter than water, and more volatile than eugenol or the sesquiterpene. By an alteration in the mode of distilling, having other objects in view, Messrs. Schimmel have been surprised to find they obtain a larger yield of oil possessing a larger amount of the above-mentioned characteristic constituent. The specific gravity of the oil obtained was 1·05–1·055, instead of 1·060–1·066 as in previous working. Hence they infer that in the former procedure this constituent was either altered or lost in the products soluble in water. The further investigation of this subject is in progress. At present it may be stated that the specific gravity of clove oil may vary according to the mode of distillation from 1·050–1·068 at 15° C., but that pure clove oil should have a specific gravity of 1·050 to 1·056. In the German Pharmacopœia, however, 1·06 is given as the minimum specific gravity of clove oil.

The brominated derivatives of eugenol and isoeugenol have been studied by Hell and Portman. By heating dibromeugenol dibromide, $C_6H_4Br_2(OH)OCH_3C_3H_5Br_2$, with zinc dust, the two bromine atoms in the side chain are removed. The dibromeugenol thus produced is easily convertible into dibromeugenol-methylether, and this when brominated yields dibromeugenol-methylether-dibromide $C_6H_4Br_2(OCH_3)_2C_3H_5Br_2$. The reaction of bromine with methyl eugenol, gives on the contrary, monobrom-eugenol-methylether-dibromide. When isoeugenol is treated with bromine in the cold only monobrom isoeugenol dibromide is formed. On brominating isoeugenol methylether bromine is introduced in the side chain forming isoeugonol-methylether dibromide. The bromine atoms in the side chain of monobrom-isoeugenol dibromide cannot be removed by means of zinc dust, showing a remarkable difference in behaviour as compared with the eugenol bromides. By acting upon isoeugonol-ethylether dibromide with sodium alcoholate all the bromine is removed and an alcoholate, $C_6H_3{\cdot}OCH_3{\cdot}OC_2H_5{\cdot}CH{:}C(OC_2H_5)CH_3$ is formed. When this compound is treated with dilute acids, OC_2H_5 is eliminated as alcohol, with evolution of heat, hydroxyl taking its place, and a compound melting at 56°–57°C is formed, the composition of which is $C_6H_3(OCH_3)(OC_2H_5)CH{:}C(OH){\cdot}CH_3$.

(*To be continued.*)

THE INFLUENCE OF WATER ON CHEMICAL REACTIONS.*

A SUMMARY OF RECENT INVESTIGATIONS.

BY R. E. HUGHES, B.A., OXON., B.SC. LOND., F.C.S.
Late Demonstrator in the University Laboratory, Oxford.

A considerable amount of interest has attached to those investigations on the conditions upon which some of the simpler chemical reactions depend. The result has been to demonstrate that what were hitherto considered simple are really complex reactions. The general conclusion of these investigations is that a very large number of chemical reactions are incapable of taking place except in the presence of water. What the precise influence of the water is is at present undetermined, though it would seem most probabl. that it is due to the "ionising" or dissociating power of water Ostwald asserts that chemical reactions are only possible between the electrolytic units of matter, or "ions," into which a substance is dissociated on solution. The liquid or solvent which *par excellence* possesses this power of ionising or dissociating substances dissolved is admittedly water, though of course other liquids do exert this power on specified substances to a certain exent. For the present, however, we will leave the theory aside. It is endeavoured here to summarise in a brief space the more important of these investigations, putting aside all details of manipulation.

It will, however, suffice to state that in many cases the substance investigated have been dried by slowly passing along an extended series of drying tubes, the quantity of gas passing being carefully regulated. In the more complete investigations of Baker and others this method has been superseded. The substance to be dried is allowed to stand in a closed vessel, with the drying substance, for a prolonged period, varying from three days to three months. If the substance is a solid the containing vessel is vacuated before sealing and at intervals heated so as to distil off the last traces of moisture from the solid. The substances thus separately dried are brough into contact with each other by diffusion through an opened stop-cock. The substances used for drying purposes are those generally enumerated in text-books, such as concentrated sulphuric acid calcium chloride, pentoxide of phosphorus, etc. It was by suc means that Baker, and also others, simultaneously showed tha ammonia and hydrochloric acid gas do not combine when dried and Hughes and Soddy that dried ammonia and dried carbon dioxide gas do not react to form the white solid ammonium carbonate. Wanklyn first demonstrated the influence of water on chemical reactions many years ago, when he showed that dry sodium and dry chlorine do not combine. Cowper, in 1876, proved that dried chlorine has no action on Dutch metal, on zinc, or on magnesium. With silver the chlorine reacted only slightly, with

* Reprinted from the *Technical World*.

bismuth the combination was slow, whereas with arsenic, antimony, and tin the combination took place rapidly. It is interesting to note that the last three form volatile chlorides. Mercury combined equally fast with dried, as with moist chlorine. With potassium the chlorine combined slightly, but this may have been due to some caustic potash adhering to the potassium. When proper precautions were taken against the presence of moisture, the potassium and chlorine combined only very slowly indeed. Cowper dried his chlorine by allowing it to stand over calcium chloride for some days.

In 1884 Dixon's well-known investigations on the combination of carbonic oxide and oxygen, besides proving that the laws of mass were followed by the reactions of a mixture of gases, showed also that dried CO and dried oxygen do not react when the electric spark is passed. It was demonstrated that the explosion of moist CO and O, which was practically instantaneous, became slowed down as the dryness of the reacting gases increased, until when almost dry the explosive disc of flame travels only very slowly down the explosion tube; and he proved, in contradistinction to Dr. Botsch, that this slowing down and ultimate extinction of the combination was not a function of the pressure, but depended only on the increase in dryness of the two gases. Beketoff showed that CO and O dried by sulphuric acid only exploded so slowly that the flame could be followed down the tube by the eye; he also proved that cyanogen gas above 10 per cent. exerted the same influence on the combination as steam. These important researches of Dixon brought the whole matter prominently before chemists.

In 1887 Shenstone and Cundall showed that the ozonisation of oxygen was quite independent of the presence or absence of moisture, and this has since been confirmed by Baker. (It is interesting here to recall the fact that Schönbein considered ozone to be a peroxide of hydrogen.) In 1888 Baker published a paper of very great importance, of which the results were that:—

(*a*) Pure charcoal heated in oxygen dried by P_2O_5 does not burn with a flame. Partial combustion, however, goes on, both CO and CO_2 being formed.

(*b*) If the charcoal is mixed with platinum black, and heated in the same way in oxygen, about the same amount of charcoal is burnt. CO_2 is, however, the only product.

(*c*) Sulphur, boron, amorphous and ordinary phosphorus do not burn in dried oxygen. Ordinary phosphorus does not even show luminosity at any pressure in dried oxygen.

(*d*) The changes of amorphous to yellow phosphorus by heat, and of yellow to amorphous phosphorus by light, are both absolutely unaffected by the presence or absence of moisture.

(*e*) Selenium, tellurium, arsenic, and antimony show no difference in their combustion, whether the oxygen be moist or dry.

Dixon and Harker have shown that the combination of hydrogen and chlorine is very much retarded by drying the gases. Askenasy and V. Meyer state that pure and dried electrolytic gas (*i.e.*, a mixture of 2 vols. of H with 1 vol. of O) undergoes no change when exposed to sunlight for some months in sealed glass tubes, and on opening these bulbs under water no change in the original volume of the gas was seen. Hughes proved that sulphuretted hydrogen dried by passing over calcium chloride and P_2O_5 had no action on magnesia, baryta, ferric oxide, or on salts of silver, copper, mercury, lead, bismuth, arsenic, antimony, cadmium, tin, or cobalt, nor does it redden blue litmus paper. Thorpe has mentioned the fact that dry thiophosphoryl fluoride and dry oxygen may exist together in presence of a certain quantity of oxidation products, but on adding a drop of water an explosion at once occurs. Dried HCl gas has been shown by Hughes and Wilson to have no acid reaction, and no action on the carbonates of barium or calcium. HCl gas dried has no action on dried nitrate of silver, although it at once attacks peroxide of manganese, however carefully dried. Silver chloride prepared and dried perfectly in the dark does not darken in a vacuum when exposed to sunlight, nor is paper moistened with iodide of potassium solution and dried in the dark affected by sunlight if moisture is absent. Veley has shown that neither H_2S, CO_2, nor SO_2, are absorbed by quicklime; and still more recently Holt and Sims have stated that potassium, sodium, and possibly lithium, are not attacked by dry oxygen, and may be distilled in it without oxidation. But in our opinion by far the most interesting results hitherto are those published in Baker's last paper. We cannot go into the many details of manipulation, etc., here; it will serve our purpose equally well if we give the conclusions he arrived at, without going into the various modifications of the principal or general process above given which he had to adopt. He proved that—

1. Sulphur trioxide does not combine with dry lime or with dry black copper oxide, though a trace of water produces combination, with vivid incandescence.

2. Dried ammonium chloride may be sublimed from a mixture of the salt with dried lime without ammonia heing liberated. (It is a matter of laboratory experience how much the yield of ammonia in this reaction is increased by wetting the substances.)

3. Dried oxygen and chlorine may be exposed to sunlight for two days without anything like complete interaction taking place.

4. Purified and dried nitric oxide and dried oxygen do not interact. This result is of considerable importance, as the contrary had been maintained by various chemists, this being probably explained by the fact, which Baker noticed, that unless the nitric oxide is purified by absorption in ferrous sulphate drying the gases has no effect on the combination.

5. Hydrochloric acid gas and ammonia when dry do not combine.

6. Dried ammonium chloride does not dissociate when heated to 350° C.

7. Lead nitrate decomposes when dried, and the red fumes produced (chiefly N_2O_4) darken on heating, so that the dissociation of N_2O_4 into NO_2 is unaffected by absence of moisture.

8. The combustion of carbon disulphide in dried oxygen is probably due to the previous splitting up of the substance when heated.

9. Dried potassium chlorate and oxide of silver decompose on heating, giving off ordinary oxygen.

We have now summarised very briefly the work done. If the water acts simply as an "ionising" agent, *i.e.*, to produce electrolytic dissociation, then the substitution of some other liquid as a solvent in a simple reaction should suffice to hinder, or at least modify, that change. For example, Raoult, by investigations on the depression of vapour pressure, has shown that mercuric cyanide dissolved in absolute alcohol is not dissociated. Moreover, since dried H_2S is a non-electrolyte (shown by its incapacity of reacting with metallic salts), then on passing this gas through an alcoholic solution of cyanide of mercury, moisture, of course, being rigorously excluded, we should on this hypothesis expect no reaction to take place. As a matter of fact, no reaction does take place until after the lapse of a considerable time, when a greenish yellow precipitate is formed. The introduction of moist air quickly modified the the character of this precipitate. Similarly, dried hydrochloric acid gas produces only a slight turbidity, and that after a considerable time, when passed through an alcoholic solution of dried nitrate of silver. It seems to the writer probable that investigations on the influence of the solvent may throw some light on the process of the above changes in which water appears to act as a catalyst.

THE THERAPEUTIC EMPLOYMENT OF THE SUPRARENAL GLANDS.

An important contribution to the proceedings of the pharmacological section of the British Medical Association was given under the above heading, by Dr. George Oliver (Harrogate). It forms a practical corollary to Professor Schäfer's paper on Internal Secretion noticed in the *Pharmaceutical Journal*, of August 31, 1895. The physiological examination of the properties of the internal secretion of the suprarenal bodies gave four definite results:—First, the physiological action of the secretion was ascertained, and thus suggestions for its therapeutic use were obtained; secondly, large doses given to dogs and cats produced no serious symptoms, and thus the safety of the use of the secretion for human beings was made probable; thirdly, the physiological properties of the secretion were found to be unaltered by digestion with pepsin and hydrochloric acid, and thus it was clear that the best mode of administration of the drug would be by the mouth; fourthly, it was found that the powdered gland dried *in vacuo* was equally efficacious with the fresh gland. In testing the drug on persons suffering from various diseases, the author used chiefly 3-grain tablets given three times a day within an hour after meals, or 5-grain tablets given twice a day. In a marked case of Addison's disease, the nausea and muscular debility were greatly diminished, the improvement being kept up as long as the drug was administered, and when the treatment was left off for a week the patient noticed that the pigmentation of the skin, one of the symptoms, became more pronounced. Dr. Oliver points out that such marked improvement is not to be looked for in cases where the suprarenal glands are all but destroyed by the tubercular process, which is at the bottom of the malady.

In certain conditions marked by loss of vasomotor tone, the remedy was found of use. "Guided by the means of observation I have employed, I therefore conclude that suprarenal treatment is of considerable value when the tone of the vasomotor system is reduced; as at the menopause, in neurasthenia, and in anæmia. Inasmuch as the administration of the suprarenal gland raises the arterial tension, I have naturally avoided it in all the conditions in which plus arterial tension is present."

In cases of simple anæmia improvement was noticed during the treatment, and there is some hope that it may prove a useful auxiliary in the treatment of the graver forms of anæmia. In cases marked by the cyclic appearance of albumin, the albumin disappeared and the general health improved.

In two out of three cases of diabetes mellitus the remedy also appeared to have a good effect, the amount of sugar being lessened, and the tone of the circulation improved.

In exophthalmic goitre, an affection in which the thyroid gland becomes enlarged and its function appears to be over-active, improvement followed the treatment in the only case tested.

The similarity of the physiological properties of digitalis and suprarenal extract suggests that the latter might with advantage be tried in some cases of heart disease.

Dr. Oliver concluded by saying: "My observations have shown that the therapeutic effects of suprarenal treatment are induced but slowly and gradually; and, moreover, that as a rule they are not so apparent at first to the ordinary modes of observation as to enable the observer definitely to recognise them. Gradually, however, the arterial tension increases until the finger can clearly appreciate it; but I have observed that from the first the suprarenal effect on the arteries may be definitely traced by the pulse instruments, especially the arteriometer, which initiated this inquiry and have enabled me to study the clinical side of it with much greater precision and satisfaction than would have been possible without their aid."

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

DONATIONS.

At a meeting of the Library, Museum, School, and House Committee, held on Wednesday, the 10th inst., the Librarian and Curator presented the following reports of donations to the Society's Library, Museum, and Herbarium:—

To the Library (London).

University of Glasgow:
Calendar, 1895.

University of Durham College of Medicine:
Calendar, 1895.

University College, Bristol:
Calendar, 1895.

University College, Dundee:
Calendar, 1895.

Yorkshire College, Leeds:
Calendar, 1895.

Owens College, Manchester:
Calendar, 1895.

Geological Survey of Canada:
Annual report, new series, vol. 6, 1892-93.

Institute of Chemistry:
Regulations and Register, 1895.

Royal Society of New South Wales:
Journal and Proceedings, vol. 28, 1894.

Institution of Civil Engineers:
Charter, By-laws, etc., 1895.

Professor Attfield, London:
The Nine Annual Reports, from 1886 to 1894, on the Progress of Pharmacy in its relation to the revision of the British Pharmacopœia, 1885.

Professor Reynolds Green, London:
Manual of Botany, vol. 1, 1895.

Mr. W. A. Shenston, Clifton:
Justus von Liebig, his Life and Work, 1895.

Dr. G. L. Mullins, Sydney, N.S.W.:
Epidemic Diseases in the Eastern Suburbs of Sydney, 1895.

Professor G. Planchon, Paris:
Le Jardin des Apothicaires de Paris, 1895.

Dr. F. Eschbaum, Berlin:
Ueber des Tropfengewicht flüssiger Arzneimittel, 1895.
Ueber destilliertes Wasser, 1895.

Dr. A. De Wèvre:
Les caoutchoucs africains, 1895.

Superintendent of Government Printing, Calcutta:
Agricultural Ledger, No. 15, 1893; Nos. 3, 18–20, 1894; Nos. 1–4, 1895. 2 copies.

Direkteur van 'sLands Plantentuin te Buitenzorg:
Mededeelingen uit 'sLands Plantentuin, No. 14.

Prof. emer. Dr. G. Dragendorff, Rostock:
Berichte über die Thatigkeit im pharm. Institut der Kaiserl. Univ. Dorpat, 1885-94.

Professor Dr. Lagerheim, Tromsoe:
Uredineæ Herbarii Eliæ Fries, 1895.
Monographie der ecuadorianischen Arten der Gattung Brugmansia Pers., 1895.
Ueber das Phycoporphyrin, einen Conjugatenfarbstoff, 1895.

Dr. R. A. Philippi, Santiago:
Plantas nuevas chilenas, 1895.

To the Museum (London).

Mr. Ernest Hart, London:
Two boxes of medicinal products from Fiji.

Messrs. J. Bell and Co.:
Specimen of an essential oil used for asthma in Australia.

Mr. H. N. Ridley, M.A., Singapore:
Specimen of the fruits of "Brangan gajah," *Castanopsis javanica*, King, n. sp.

To the Herbarium (London).

Dr. Geo. King, C.I.E., F.R.S., etc, Calcutta:
Three specimens of *Cephaelis ipecacuanha* cultivated at Mungpo, in the Sikhim Himalaya.

Mr. Thos. Hanbury, F.L.S., Ventimiglia:
Specimen of *Phellodendron amurense.*

Mr. R. J. Lynch, F.L.S., Cambridge:
Specimen of *Siler trilobum.*

Mr. W. G. Wells, New Romney:
Abnormal growth of buttercup.

The Curator:
Abnormal form of *Carex paniculata.*
Specimen of *Hypericum linariifolium* from the valley of the Teign.

Mr. J. J. Quelch, British Guiana:
Leaves of the plants used by the Makusi Indians in the preparation of curare.

To the Library (Edinburgh).

Mr. Duncan McGlashan, Edinburgh:
Pharmaceutical Journal, January–June, 1895.

Ontario College of Pharmacy:
Annual Announcement, 1895.

Mr. James Mackenzie, Edinburgh;
Manuscript of the Society of Druggist Apothecaries, and Manuscript of an Apprentice's Indenture.

To the Museum (Edinburgh).

Mr. James Selkirk, Cork:
Microscopic slides.

Mr. J. J. Quelch, Curator of the Museum, British Guiana:
Specimens of the roots, barks, and stems used in the preparation of curare poison used by the Makusi Indians.

EXAMINATIONS IN LONDON.

October, 1895.

MAJOR EXAMINATION—PASS LIST.

Candidates examined	15
,, failed	6
,, passed	9

Ellington, Chas. Sampson.
Leslie, Robert.
Male, Elliott Wm. Graves.
Minet, Noël Joseph Alphonse.
Morris, Ernest William.
Skinner, Herbert.
Stoddart, Jas. Geo. Young.
Thompson, Thomas.
Wright, Charles George.

MINOR EXAMINATION—PASS LIST.

Candidates examined	116
,, failed	69
,, passed	47

Allen, George Wm.
Armitage, Nathl. Newborn.
Bloomfield, Frank Harrison.
Bourdas, Isaiah.
Bowen, Edgar Cecil.
Brigham, Edwin Beal.
Brigham, John George.
Cornhill, Geo. Fredk.
Dobie, James Turner.
Duncan, James.
Ellul, Lawrence.
Fox, Frederick Harry.
Gee, Alfred Charles.
Gerhold, Hy. Archer.
Goodwin, Ernest Hy.
Gregory, Wm. Joseph.
Hall, John Gilbert.
Harry, Benjamin.
Harry, Elias Hamilton.
Hicks, Fredk. Joel.
Ireland, Alfred Coltman.
Johnson, Geo. Percy.
Jones, Henry Rees.
Jones, Herbert.
Law, Harry Arthur.
Lewis, Moritz Aron.
Marshall, Arthur Austen.
Marshall, Phillipson.
Martin, Walter Edwin.
Masterman, Henry.
Oakes, Edwin York.
Oldham, Geo. Wm. Newitt.
Palmer, Frank Elijah.
Payton, Alfred Brewerton.
Pratt, Chas. Andrews.
Pretty, Clement John Robt.
Punch, James.
Reed, John.
Rogers, Alford.
Scotchburn, Alfred.
Slinn, Fredk. Harry.
Speechly, Guy Ascelinus.
Thomas, John Aubrey.
Whittle, William Wilford.
Wilkinson, John Horsley.
Wilson, Wm. Brownrigg.
Wood, Ernest James.

MODIFIED EXAMINATION—PASS LIST.

Felix, David Lewis.

FIRST EXAMINATION.

Certificates by approved examining bodies were received from the undermentioned in lieu of the Society's Examination:—

Bowes, Arnold John	Middlesborough.
Bramley, William Miles	Birmingham.
Brawn, Wilfred Percival	Walsall.
Burgin, Mark Frederick	Kennington.
De Morgan, Frederick Filmer	Newport, Mon.
Dimmock, Charles Woollman	Bristol.
Doran, Robert Sydney	Liverpool.
Fearis, Walter Hart	Colchester.
Foster, Charles Ekins	Brixton.
Hughes, John Richard	Chichester.
James, Henry Palmer	Peckham.
Leak, Frederick Thomas	Edinburgh.
Moss, William	London.
Penistan, Arthur H.	New Cross.
Sanderson, John Sandells	London.
Shakerley, William Arthur	Clapham.
Thomas, Frank	Burry Port.
Thomas, William Hopkins	Cardiff.
Turner, John Scriven	London.
Wallwork, Herbert Augustus	Tyldesley.
Weiss, Richard	London.
White, Walter	Newport, I.W.
Widdowson, Richard Jephson	Cardiff.
Wilkinson, Ernest Munkman	London.

EXAMINATIONS IN EDINBURGH.

October, 1895.

MAJOR EXAMINATION—PASS LIST.

Candidates examined	7
,, failed	5
,, passed	2

Dean, Arthur Shiers.
Glass, William Stephen.

MINOR EXAMINATION—PASS LIST.

Candidates examined	113
,, failed	74
,, passed	39

Aitken, William.
Allan, Alexander.
Bagshaw, Robert Reece.
Birnie, Alexander Stephen.
Close, Thomas.
Daubeny, George.
Fairley, Charles Ernest.
Gemmell, John.
Gibson, George Pittendrigh.
Gibson, John.
Greenhalgh, Clifton.
Griffin, William John.
Hall, George.
Harries, Benjamin.
Hendry, Simon.
Hutton, John.
Hyslop, Thomas.
Jackson, William Kendall.
Keeley, James Philip.
Keeton, William Henry.
Kennedy, Alexander Anderson.
Kent, Arthur Edwin.
Lockwood, Harold S.
Longmire, Frederick.
MacGregor, John.
Metcalfe, John Thomas.
Morrison, Andrew.
Munro, Neil George.
Parkinson, Thomas Gott.
Pigott, William Edmund.
Priest, Alexander.
Richards, Marmaduke.
Ruston, Percy Wilfred.
Sharp, Charles Armstrong.
Spinks, Louis Leopold.
Taylor, John.
Thomson, Gavin Ralston.
Volans, John Russell.
Wilkes, Harry Smith.

FIRST EXAMINATION QUESTIONS.

October 8, 1895.

LATIN.

Time allowed—from 11 *a.m. to* 12.30 *p.m.*

I. For all candidates. Translate into Latin :—

1. Let us give this table to your father.
2. The third legion has been sent to Gaul.
3. I will exhort the citizens who will be with me.
4. Read many books, that you may become wise.
5. Do you know when he will come?

II. Translate into English either A (Caesar) or B (Virgil).
(Candidates must not attempt both authors.)

A.—Caesar.

1. Itaque prius, quam quicquam conaretur, Divitiacum ad se vocari jubet, et, quotidianis interpretibus remotis, per C. Valerium Procillum, principem Galliae provinciae, familiarem suum, cui summam omnium rerum fidem habebat, cum eo colloquitur; simul commonefacit, quae ipso praesente in concilio Gallorum de Dumnorige sint dicta, et ostendit, quae separatim quisque de eo apud se dixerit. Petit atque hortatur, ut sine ejus offensione animi vel ipse de eo, causa cognita, statuat, vel civitatem statuere jubeat.

2. Ei legationi Ariovistus respondit: Si quid ipsi a Caesare opus esset, sese ad eum venturum fuisse; si quid ille se velit, illum ad se venire oportere. Praeterea se neque sine exercitu in eas partes Galliae venire audere, quas Caesar possideret; neque exercitum sine magno commeatu atque emolimento in unum locum contrahere posse.

Grammatical Questions.
(For those only who take Caesar.)

1. Decline throughout in the singular *magno commeatu*, and in the plural *eas partes* (Par. 2).
2. Give the principal parts of *audior, nolo, eo, tollo, gigno, haurio.*
3. What are (*a*) Defective, (*b*) Impersonal, (*c*) Anomalous Verbs? Give *two* examples of each.
4. State and illustrate the constructions used with *credo, oportet, coram.*

B.—Virgil.

1. Cui mater media sese tulit obvia silva,
Virginis os habitumque gerens et virginis arma
Spartanae vel qualis equos Threïssa fatigat
Harpalyce, volucremque fuga praevertitur Eurum.
Namque humeris de more habilem suspenderat arcum
Venatrix, dederatque comam diffundere ventis,
Nuda genu, nodoque sinus collecta fluentes.
Ac prior, Heus, inquit, juvenes, monstrate mearum
Vidistis, si quam hic errantem forte sororum,
Succinctam pharetra et maculosae tegmine lyncis,
Aut spumantis apri cursum clamore prementem.
2. Urit atrox Juno, et sub noctem cura recursat.
Ergo his aligerum dictis affatur Amorem.
Nate, meae vires, mea magna potentia, solus,
Nate, patris summi, qui tela Typhoïa temnis;
Ad te confugio, et supplex tua numina posco.
Frater ut Aeneas pelago tuis omnia circum
Litora jactetur, odiis Junonis iniquae,
Nota tibi; et nostro doluisti saepe dolore.

Grammatical Questions.
(For those only who take Virgil.)

1. Decline throughout in the singular *atrox Juno*, and in the plural *patris summi* (Par. 2).
2. Qive the principal parts of *audior, nolo, eo, tollo, gigno, haurio.*
3. What are (*a*) Defective, (*b*) Impersonal, (*c*) Anomalous Verbs? Give *two* examples of each.
4. State and illustrate the constructions used with *credo, oportet, coram.*

ENGLISH.

Time allowed—from 3 *p.m. to* 4.30 *p.m.*

1. Analyse :—
"This England never did, nor never shall,
Lie at the proud foot of a conqueror,
But when it first did help to wound itself."
2. In what different ways is gender in nouns indicated? Give *one* example of each.
3. Correct the following sentences, giving your reasons :—
(i.) Send me him whom you think will read best.
(ii.) He thought if he were to go into the open air he would breathe freer.
(iii.) It is a fact that all women cannot be married owing to their outnumbering men.
4. In the following passage supply the necessary capital letters, and put in the stops and inverted commas where necessary :—mr griggs she began at last without looking up did you know he was going out last night to kill that horrid thing i had expected the question for some time yes he told me about midnight when he started then why did you let him go she asked looking suddenly at me and knitting her dark eyebrows rather fiercely
5. Write a short composition on *one* of the following subjects :—
(*This must be attempted by every candidate.*)
(i.) Our Hospitals.
(ii.) The General Election (June, 1895).
(iii.) "Unstable as water, thou shalt not excel."
(iv.) "Good counsel is above all price."

ARITHMETIC.

Time allowed—from 12.30 *p.m. to* 2 *p.m.*

[The working of these questions, as well as the answers, must be written out *in full.*]

1. How often is 6 tons 1 qr. 27 lbs. 10 oz. contained in 457 tons 17 cwt. 2 qr. 27 lbs. 8 oz.?
2. Simplify $\frac{2}{3}$ of $\frac{\frac{1}{7}-\frac{1}{2}\text{ of }\frac{1}{11}}{\frac{1}{9}-\frac{1}{5}\text{ of }\frac{1}{7}}$ of $\frac{1}{2}$ of $\frac{\frac{7}{8}-\frac{3}{5}\text{ of }\frac{17}{28}}{\frac{3}{8}\text{ of }\frac{3}{7}-\frac{15}{14}}$.
3. Express $\cdot 00\dot{4}7\dot{2}$ of an acre as a decimal of a square yard.
4. If oxygen is 15·96 times as heavy as hydrogen, and 1 litre of hydrogen weighs ·0896 gramme, what would be the volume of 4·75 grammes of oxygen?
5. How many hours a day must 42 boys work, to do in 45 days what 27 men can do in 28 days of 10 hours each; the work of a boy being half that of a man?
6. A wine merchant buys two sorts of spirit, one at 16*s.* 6*d.* per gallon, the other at 10*s.* 6*d.* per gallon. He mixes them in the proportion of 5 parts of the cheaper to 7 of the dearer. At what rate per gallon must he sell the mixture so as to gain 25 per cent.?
7. The income derived from investing a certain sum in a $3\frac{1}{2}$ per cent. stock at $106\frac{3}{4}$ is £120 12*s.* Find the sum invested.

Perchloride of Iron in solution is found by M. Roeser (*Journ. de Pharm.* [6], xv., 250), to be very markedly affected by light, in the presence of ferrous chloride, an oxychloride, $Fe_2Cl_6 \cdot 6Fe_2O_3 + 9H_2O$, being formed. The official solution of the French Codex, prepared from anhydrous ferric chloride free from ferrous salt, was found to keep unaltered under similar conditions.

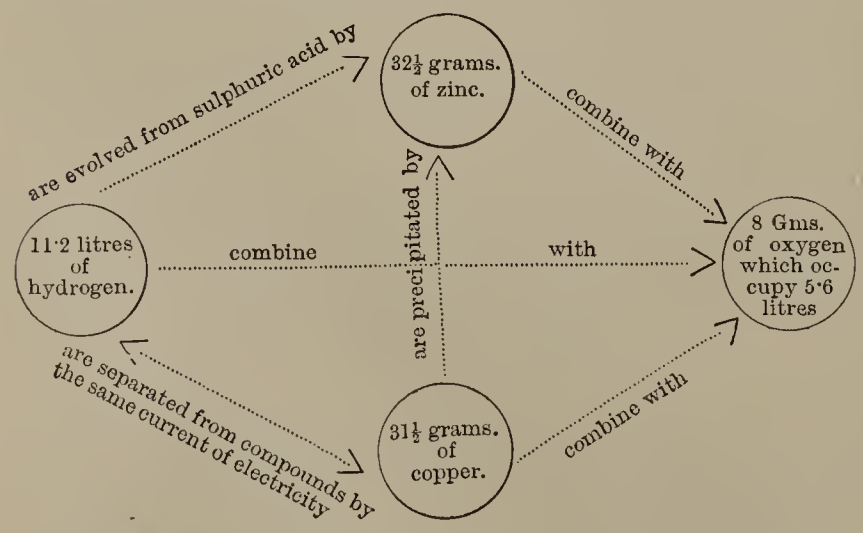
REVIEWS AND NOTICES OF BOOKS.

Dental Materia Medica and Therapeutics. By James Stocken, L.D.S., Eng. Revised by L. M. Stocken, L.R.C.P., M.R.C.S., L.D.S., and J. O. Butcher, L.D.S. Fourth edition. Pp. 155, Fcap. 8vo. Price 4*s*. (London: H. K. Lewis, 136, Gower Street, W.C. 1895.)

That this little book should have reached its fourth edition is sufficient evidence of the need for its separate existence. The opening section, treating generally of materia medica, pharmacology, and therapeutics, has been almost entirely re-written and rearranged by the editors, and the second part, containing the descriptions, etc., of drugs, has been brought up to date. The latter is, of course, the most important part of the book, and the information given covers approved new remedies. It is practical, concise, and has special reference to dentistry. There is also a therapeutic index, which is followed by a chapter on artificial respiration, hints on prescribing, and a list of abbreviations. The book should continue to prove very useful to those for whom it is written.

Practical Proofs of Chemical Laws. By Vaughan Cornish, M.Sc. Pp. 92. Price 2*s*. (Longmans, Green, and Co., London. 1895.)

A course of experiments upon the combining proportions of the chemical elements is described in this book, the idea being that the experiments should be undertaken by pupils after the qualitative composition of the principal substances employed has been dealt with in an accompanying lecture course. A statement of Dalton's atomic theory and of the laws of combining proportions serves as an introduction, and the practical study of the law of conservation of mass is then proceeded with, the use of the balance being first explained, whilst instructions are next given for verifying the law by making a complete synthesis of silver sulphide. In similar fashion are treated the laws of definite and of constant proportions, of equivalent and of multiple proportions. Then follows a chapter upon the law of simple volumetric proportions in the chemical reaction of gases, and the work is concluded by exercises supplementary to the course, illustrating the scope of the term equivalence in chemistry. The set of experiments is shown in the accompanying diagram, and it is suggested that students may with advantage practise themselves in setting out similar diagrams to illustrate the connection between different reactions with which they become acquainted in the course of their studies:—



The learner determines (1) the volume of hydrogen evolved during the solution of a known weight of zinc in dilute sulphuric acid; (2) the weight of copper deposited, and the volume of hydrogen evolved, during the passage of an electric current through a solution of copper sulphate, and through dilute sulphuric acid; (3) the proportion by weight in which zinc and oxygen combine; (4) the proportion by weight in which copper and oxygen combine; (5) the proportion by weight between the zinc dissolved and the copper deposited, when pure metallic zinc is placed in a solution of a copper salt, the latter being in excess; and (6) the proportion in which hydrogen and oxygen combine. The course of work described in the book cannot fail, if carefully followed, to give students a thorough grasp of the important hypotheses considered. It is too much the custom nowadays to take chemical laws for granted, and Mr. Cornish's book should be cordially welcomed by all teachers desirous of firmly basing the chemical knowledge of their pupils upon first principles.

Monograph on Fluid Extracts, Solid Extracts, and Oleo-resins. By Joseph Harrop, Ph.G. Edited by H. B. Harrop. Pp. 230, interleaved. (Harrop and Company, Columbus, Ohio, U.S.A.; and Snow Hill Buildings, London, E.C. 1895.)

In this book medicinal extracts are dealt with in their entirety, the manufacture and preservation of this class of preparations being clearly and concisely explained. The solvents, etc., used in the operation of extraction are first briefly referred to, the processes employed are next treated with equal brevity, and then—after remarks on the history, quality, assay, etc., of fluid extracts—each preparation is separately dealt with. Some six hundred different fluid extracts and about one hundred and fifty solid extracts receive attention, the former being classed for convenience under three heads, according as the menstruum is alcohol, diluted alcohol (equal parts of alcohol and water by volume), or varying proportions of alcohol and water. The necessary data are given in each case and reference to the typical formula gives all the information necessary to complete the operation. Many useful hints are given in connection with the preparation of solid extracts and oleo-resins, whilst in the appendix are notes on repercolation, abstracts, inspissated juices, and appliances, the last being illustrated. Though specially addressed to American pharmacists, their British colleagues will find the book well worth attention.

The Natural History of Plants. By Anton Kerner von Marilaun. Translated and edited by F. W. Oliver, M.A., D.Sc. Two vols. (London: Blackie and Son, Limited. 1895.)

With the issue of the sixteenth monthly part of this noble work, containing the glossary, index, etc., the second volume is completed, and it becomes possible to speak of the book as a whole. From what has been said respecting the separate parts as they appeared, readers will have gathered that the contents have been considered worthy of unmixed approval. Sir John Lubbock has suggested that a man must be dull indeed who can read such a work without deep interest, and this in spite of the fact that botany is generally regarded as a dry science made up of long names and technical terms. Professor Kerner has effectually exploded the latter idea, and, whilst the English version of his book is sure to receive a very warm welcome from all lovers of plants, those who have not formerly been interested in botanical science cannot fail to be attracted by it as here presented. The two volumes contain sixteen beautifully executed plates in colours, and about a thousand original woodcut illustrations. As for the text, that is clear and bright throughout, being as satisfactorily rendered in the English tongue as in the original German. The publishers are to be congratulated on the completion of a magnificent enterprise.

PHARMACEUTICAL JOURNAL.

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ACCURACY IN DISPENSING MEDICINE.

In a note on this subject, the *Lancet* expresses the opinion that "the quantitative analysis of medicines made up from physicians' prescriptions is not yet carried out on a scale in any degree proportionate to the importance of the subject," seeing that accuracy in dispensing is one of the most important factors connected with the treatment of disease. This remark is made in reference to some data contained in a report of the Leicestershire county analyst, who has in the course of his official work examined thirty-nine samples of medicine obtained by submitting to druggists in the county prescriptions for a tonic mixture containing iron and quinine. It appears that the analyst found the medicine to have been "accurately dispensed and properly labelled" in thirty-six instances: in one of the other three instances the mixture was also dispensed in accordance with the prescription, but it was inaccurately labelled. In one of the remaining two instances the mixture is stated to have been "slightly too strong," while in the other "the amount of quinine was two and a half times in excess of that prescribed."

Our contemporary candidly remarks that in none of these cases does there seem to have been any attempt to defraud the public in the sense of depriving the patient of the full benefit anticipated by the prescription." So far, therefore, as the evidence furnished by these cases is concerned, no ground can be found for suspicion of "undue parsimony in the execution of prescriptions" ordering the more expensive drugs. So far it does not in any degree support the opinion expressed by the *Lancet* as to the existence of a need for more extended inquiry into the manner in which physicians' prescriptions are dispensed. There is, indeed, on the whole, but little reason for supposing that pharmacists do not act as they profess to do in the customary announcement "physicians' prescriptions accurately dispensed." That inference is not invalidated by the single instance in which it is stated that there was considerable inaccuracy in the dispensing of the medicine. Though the dictum of the *Lancet*, that "in the making up of prescriptions, absolute accuracy alone is allowable," cannot be questioned in the least degree, that single instance of apparent deviation from this rule should not be taken as just ground for general suspicion without inquiry into the circumstances under which it took place.

Our contemporary's remarks on this subject appear to indicate too great a leaning towards suspicion that the dispensing of medicines by pharmacists is not carried out with sufficient regard for accuracy, or even for honesty. That may be gathered also from the mention of the circumstance that the Leicestershire analyst "reports with pleasure" that of the thirty-nine samples analysed thirty-seven were accurately dispensed. The statement is suggestive of an expectation that a contrary result might have been arrived at, and that view of the matter finds an echo in the hope expressed by the *Lancet* that the Leicestershire analyst will continue his investigations in this direction. We do not hesitate to protest against these implied doubts of the integrity with which pharmacists perform the most important duties of their calling, and the same feeling will, no doubt, be shared by the readers of this Journal.

"LESSONS IN GERMAN."

Under this title the *Daily Telegraph* published an article on Saturday last, in which the evils arising from persisting in rule-of-thumb methods, instead of applying scientific methods fully in practice, are forcibly delineated. British manufacturing supremacy, it is pointed out, was won in pre-scientific days, and has been preserved mainly by the rich endowments of Nature—abundance of coal and iron of high quality, in close proximity to each other. Other factors of importance have been the possession by Britain of a world-wide Empire, of an equable climate, and of Free Trade, which makes England the market of all the world. Finally, the supremacy has been maintained "by the indomitable 'go' of our national character." But the times are altered, and in the words of Professor Armstrong, "the intolerant individuality which has enabled us to conquer and to govern where other nations have failed is of little use in an industrial war against the most systematically-instructed people in the world." Whilst English and French chemists have made great discoveries, and argued concerning the claims of their respective countries to be regarded as the birth-place of modern chemistry, their German *confrères* have been foremost in realising the lessons of theory, and reaped the fruits of those discoveries made outside the Fatherland. "Every hint from England, France, America, or Italy is tried; every new material tested; every hopeful process patented." According to Dr. Armstrong this industrial victory has been gained by Germany "wholly and solely through the agency of the universities—here we are dominated by influences that had their origin in the monkish cell, and our ancient universities do nothing to help us." The German manufacturer, whilst a university student, learns chiefly that branch of law, medicine, or physical science which will concern his future, and the result is that he is always more or less a specialist and believes that research pays. He does not trust in trade secrets but even publishes the results of his experiments in trade reports, thus carrying out George Stephenson's idea of defying the mere copyist. The hope of England, so far as industrial science is concerned, lies in the University of London that is to be, according to the *Daily Telegraph* writer. He is of opinion that when the teaching London University is created, and all the existing centres of education are at work, together with others in the provinces that shall be conducted on the lines of the modern Continental universities, then will the same spirit be infused into both employers and workers that has made industrial Germany what it is.

A FIRE-PROOF TREE.

In a Foreign Office report from Bogota, Colombia (No. 370 of 1895), Mr. Robert Thomson, Corresponding Member of the Pharmaceutical Society, is quoted with respect to the Chaparro tree. He says the persistent burning of the savannahs and hills for crops of renewed pasturage destroys most of the trees and brushwood in Tolima. Isolated palm trees, with their hard trunks and endogenous structure, and groups of brushwood in sheltered or humid spots, sometimes withstand the fury of the flames, but the one phenomenal exception to this subversive power of fire is the Chaparro (*Rhopala obovata*). This tree not only resists the fury of the flames, but fire is said to be actually congenial and subservient to its existence, for the tree, instigated by the conflagrations, forms itself into great plantations. It is indigenous to Colombia and other South American countries, attains a height of 15 to 20 feet, and its distorted trunks measure from 9 to 12 inches in diameter. It is widely distributed in Colombia, and in Tolima it abounds on the slopes and ridges of the hills at elevations from 1000 to 3500 feet. "In this department alone hundreds of square miles of the lower hills which have been reduced to sterility by incessant burnings are occupied by this diminutive tree, and it assumes the aspect of vast systematically formed and well-kept plantations. This is more than a triumph of the 'survival of the fittest.' It is very remarkable that these fire-begotten plantations are nowhere crowded to excess; on the contrary, the trees are so regularly placed that their aspect vies with that of the most carefully formed plantations." The bark of the tree is peculiarly constituted, consisting of a congeries of integuments or semi-detached layers. The outer portion, about half an inch thick, performs no organic function, and this portion of the bark, in conjunction with its peculiar composition, is described as protecting the inner vital integuments from injury by fire. The form and structure of the tree, it is suggested, may have originated from the severe ordeal which it has survived, just as, according to the theory of natural selection, some animals become covered with thicker fur when they migrate into a colder climate. A specimen of the bark of this curious tree may be seen in the Museum of the Pharmaceutical Society at Bloomsbury Square.

ALOE AFRICANA.

Amongst the plants credited with producing Cape aloes of commerce are *Aloë africana*, Mill., and its varieties. Pappe, in his 'Floræ Capensis Medicæ Prodromus,' says that the aloes obtained from *A. africana* is almost equally as good as that procured from *A. ferox*, Lam., though it is probably not so bitter nor so powerfully drastic. It is produced in the eastern districts, whence large quantities are annually exported. A plant of this species some four feet high has recently flowered in the succulent house in the Royal Gardens, Kew. The plant in question has a slender stem about two inches in diameter, crowned with a head of thick fleshy, spiny leaves, and an erect flower spike some fourteen to sixteen inches long, covered for the space of about ten inches with orange yellow buds opening into lighter yellow flowers, from which protrude the orange reddish coloured anthers. When in full flower the plant has an attractive appearance.

THE SPECIES OF LIATRIS IN MEDICINE.

The genus *Liatris* consists of a group of North American herbaceous plants belonging to the tribe Eupatoriaceæ of the natural order Compositæ. They are for the most part showy plants easily cultivated in an ordinary garden. The species best known from a pharmacist's point of view are *L. squarrosa*, Willd., *L. scariosa*, Willd., and *L. spicata*, Willd. The two former are known in Virginia, Kentucky, and the Carolinas under the name of "Rattlesnake's Master," the bruised roots being applied externally as a cure for the bite of the rattlesnake, and a decoction of them in milk taken internally for the same purpose. *L. scariosa* is also employed in gonorrhœa, and as a gargle in sore throat. *L. spicata* is generally known as button root, but also as Gay Feather, and is common in meadows and moist grounds throughout the Middle and Southern States. The tuberous root of this species is described as having a turpentine-like odour and a warm bitterish turpentine taste. It is said to possess stimulant, diuretic, expectorant, and anodyne properties. A tincture or decoction of the root is given in colic; when chewed the root excites the flow of saliva. *L. scariosa* and *L. spicata* are both in flower on the rockery at Kew. Blazing Star is another common name by which the species of *Liatris* are frequently known in America.

ESSENTIAL OILS.

The notes on essential oils at p. 307 are taken from the October issue of the very excellent report published half-yearly by Messrs. Schimmel, of Leipsig. In this publication much interesting and useful information is given, not only in regard to the trade in essential oils, but also in elucidation of the results arrived at by the scientific investigation of various essential oils. In this latter direction so much has recently been achieved, that the chemical nature and relations of essential oils have acquired a special interest, and a better knowledge of their constitution has in some instances furnished useful means of detecting falsification.

THE EFFICIENCY OF PEPSIN.

In a paper recently published by Mr. H. W. Snow, of Omaha, U.S.A., in the *Pharmaceutical Era*, he gives an account of the results obtained in the examination of a considerable number of samples of pepsin as it is supplied by various makers. He finds that in many instances the claims put forward by the makers as to the digestive power of their particular articles does not bear the test of experiment. Out of ten different makes all claiming a digestive power equal to 3000 times the weight of egg albumin, there were only two samples which came up to that standard according to the test of the U.S.P., while in some instances the digestive action was not more than one-sixth as much as that claimed. In regard to the influence of the method of testing upon the numerical statement and comparison of results in such experiments, Mr. Snow's observations are confirmatory of the account given by Mr. Moffat as to the relation between the tests of the British and U.S. Pharmacopœias. This great difference in the digestive power of different samples of pepsin seems to raise the further and even more important question how far this difference may be due to the effects of keeping, and thus be likely to obtain at different times, even with the best makes.

NOTES AND NEWS.

Pharmaceutical Meeting at Plymouth.—On Wednesday next, October 16, a meeting will be held in the Forester's Hall, Plymouth, under the auspices of the Plymouth, Devonport, Stonehouse, and District Chemists' Association. All chemists in business in Devon and Cornwall have been invited to attend. Amongst others who have promised to be present are the President of the Pharmaceutical Society, Mr. Michael Carteighe, and Mr. C. B. Allen, member of the Pharmaceutical Council. The proceedings will commence at 1.30 p.m., under the presidency of Mr. C. J. Park, and the subjects to be considered are: (1) Territorial representation; (2) a new pharmacy bill; and (3) parliamentary legislation for the good of chemists. At 7 p.m. the same day there will be a dinner, open to chemists and their friends, at the Freemasons' Hall, Plymouth, tickets for which (5*s.* 6*d.* each) may be obtained of Mr. A. D. Breeze, honorary secretary, Station Road, Union St., Plymouth.

The Late Professor Pasteur.—The funeral of the late Professor Pasteur took place at Paris on Saturday last (see p. 322), in the presence of President Faure and other distinguished persons. At the conclusion of the ceremony the coffin was temporarily placed in a vault in the cathedral of Notre Dame, but it is intended that the final interment shall take place in the Institut Pasteur on October 23, when the centenary of the foundation of the Institut de France will be celebrated.

Chinese Cancer Cure.—The following is the formula of a Chinese cancer cure which, strange to say, observes *Modern Medicine*, has a sale in the United States among the credulous. Take of dragon's heart blood, 1 oz.; pickled lizards, 2 ozs.; Korea ginseng root, ½ oz.; willow cricket skins, 12 ozs.; rattlesnake's tail, 3 ozs.; sweet potato vine, 6 drs.; black dates, 2 ozs.; red bark, 1 oz.; devilfish suckers, 3 ozs.; reindeer's horn (ground), 3½ drs.; birds' claws, 1½ oz.; lotus leaves, 6 ozs.; white nuts, 5 ozs.; coffin nails (old ones), 8 drs. Boil the whole in two quarts of water. Dose: A tablespoonful every three hours.

The Use of Nitro-glycerin Pastilles.—In reference to the case reported this week (see p. 319), in which it was suggested that the death of a man suffering from cardiac affection was due to the excessive use of nitro-glycerin pastilles, Mr. William Martindale has written to several of the leading London papers to deny that the pastilles are poisonous in the ordinary sense. He infers this from a statement in Dr. Ringer's 'Handbook of Therapeutics,' to the effect that one patient "took a hundred of these tablets a day, with great benefit."

The Liquefying Point of Helium.—Professor Ramsay sends to *Nature* the substance of a letter received by him from Professor Olszewski, of Krakau, in which the latter states that the treatment which was successful in liquefying hydrogen has so far failed in the case of helium. The treatment consisted in compressing with a pressure of 140 atmospheres, cooling to the temperature of air boiling at low pressure, and then expanding suddenly.

Priest and Doctor.—The *Contemporary Review* for October contains a sixth paper on "Professional Institutions," in which Mr. Herbert Spencer deals with the man of science and philosopher, and shows how close has been the connection between the priesthood "and the professions which have enlightenment as their function." Antagonistic as the offspring now are to the parent, it is shown that they were originally nurtured by it.

Crystallised Bromine.—By cooling a very concentrated solution of bromine in carbon disulphide to −90°, Henryk Arctowski (*Zeits. fur Anorg. Chem.*) has obtained the halogen in fine dark carmine needles several millimetres long. In the mass bromine has a crystalline fracture without any well-defined metallic lustre.

Pasteur and Microbes.—An amusing story about Pasteur is related in the French papers. While dining at his son-in-law's one evening, it was noticed that he dipped some cherries in a glass of water and then carefully wiped them before eating them. This causing some amusement, he held forth at length on the dangers of the microbes with which the cherries were covered. Later, however, falling into one of his fits of abstraction, he unconsciously picked up the glass and drank off the contents, microbes and all.

Borax as a Poison.—In treating a number of cases of intractable epilepsy with large doses of borax, Dr. Ch. Féré, of Paris, has met with several persons who appeared peculiarly susceptible to borax. According to the *British Medical Journal* loss of appetite was succeeded by burning pain in the pit of the stomach, dryness of the mouth, nausea and vomiting; a dryness of the skin also induced, favoured, and may have caused, eczema and other skin diseases. The hair may also become dry and fall out, complete baldness ensuing, but the most dangerous result of the use of borax is its power of producing kidney disease, or of converting a slight disorder of the kidneys into a fatal malady.

The Antiseptic Value of Ointment Bases.—A communication on this subject by Dr. Breslauer, is quoted by the *Lancet*. Experiments have proved that the *Staphylococcus pyogenes aureus* can survive immersion in carbolised oil (5 p.c.) for three days, in carbolised vaselin one day only, in fat four hours, in lanolin thirty minutes, and in cold cream twenty minutes. Zinc ointment exerted no germicidal action whatever, and it would appear that the only trustworthy ointment bases for antiseptic purposes are such as contain or will absorb water, as does wool fat or cold cream. In addition, the oil or fat employed should be free from any tendency to become rancid.

Apprenticeship in Pharmacy.—Recent pharmaceutical legislation in America has given emphatic recognition of the importance of apprenticeship, training, and registration as a condition precedent to a higher grade of registered pharmacists, observes the *Western Druggist*. It is also pointed out that more careful discrimination in the selection of apprentices, and greater care that their studies may be properly chosen and directed, will do much to avert grievous personal disappointments, and to render the labours of examining boards fruitful of the best results, both to pharmacy and to the general public. British pharmacists should take these remarks to heart and act accordingly.

Recent New Books.—Publishers are again busy with the opening of the new season, and many important works are just out or ready for early publication. Amongst the former are translations of Menschutkin's 'Analytical Chemistry,' by James Locke; Lassar-Cohn's 'Laboratory Manual of Organic Chemistry,' by Alexander Smith; and Ostwald's 'Scientific Foundation of Analytical Chemistry,' by George McGowan, all published by Macmillan and Co. Blyth's 'Poisons: Their Effects and Detections' (Griffin and Co.) has reached a third edition, and Maisch's 'Manual of Materia Medica' (Kimpton) presents itself anew for the sixth time, being now edited by the son of the deceased author.

Promotion of Scientific Work in Germany. — It is announced that the Berlin Academy of Science has recently put aside £1000 for the promotion of scientific work and research. Of this amount an appropriation of £100 has been made to Professor Fuchs, of Berlin, to be devoted to the continuation of the publication of Dirichlet's works; £100 to Professor Weierstrass, of Berlin, for the publication of his collected works; £75 to Professor Gerhardt for the publication of the mathematical correspondence of Leibnitz; and £100 to Dr. Schauinsland for researches on the fauna of the Pacific Islands.

"The Death of Sequah."—Referring to the decision arrived at last week to wind up the affairs of "Sequah, Limited," the *Financial Truth* points out that in June, 1890, British investors were tempted by a glowing prospectus which asked for the sum of £200,000 towards acquiring the business of this company. The profits during the previous year were stated to amount to £44,500, and it was stated that this amount would suffice to provide 10 per cent. on the 100,000 preference shares, and about 20 per cent. on the 200,000 ordinary shares. During the first year of the company's existence, however, 14 per cent. only was received by the ordinary shareholders, and the second year they got nothing, whilst the preference shareholders received six months' dividend only. In 1892 the capital was written down by one half, for eight months of 1893 the net profits were but £534, and for the year ending 1894 only 2½ per cent. was paid to preference shareholders. The net profit for the year ending May 31 last was £1407. "Thus, in five short years, the profits have withered away from over £44,000 to less than £1500. Other attempts have been made to restore Sequah's health; and although he—like many other doctors—could cure everyone else, he could not cure himself. But, in justice to Sequah, we ought to say, it did not pretend to cure consumption—from which it has died. Now, it only remains to call in the undertaker, so well known by the name of Mr. Liquidator, who will no doubt perform his last sad offices and lay at rest forever—Sequah."

The Late Professor Babington's Herbarium.—The Vice-Chancellor of Cambridge University has received a letter from Mrs. A. M. Babington, of Brookside, Cambridge, in which she informs him that her husband, the late Professor Charles Cardale Babington, has bequeathed the entire valuable collection of plants belonging to himself to the University. This is in addition to the whole of his botanical library, which is at the University Museum, and was presented by the deceased Professor in June, 1888.

Another Flying Machine.—A correspondent of the *Daily News* states that Mr. William Frost, of Saundersfoot, Pembrokeshire, has nearly completed a flying machine which has engaged his attention for more than fifteen years. The inventor confidently predicts that it will travel at the rate of 100 miles per hour at the outset. He has obtained provisional protection, and is taking the necessary steps to patent it. Two motive powers are employed—gas and a horizontal fan.

Japanese Dressing for Wounds.—During the late war Japanese surgeons are said to have employed as a dressing for wounds the ash of rice straw. This was freely applied after the wound had been cleaned, and sublimate gauze or linen was then superposed and held in position by a bandage. The ash is said to act as a perfect antiseptic, its properties in that respect being attributed to the presence of potassium carbonate, and it is certainly the cheapest dressing on record.

ENGLISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Liverpool Pharmaceutical Students' Society.—The annual meeting of the above Society was held in the University College, Ashton Street, on Thursday evening, October 3, at 8.30, under the presidency of Mr. R. H. Mitchell. There was a fair attendance of members, and after the reading of the minutes, the annual report of the Society, drawn up by the hon. sec., Mr. G. M. McLoughlin, was read by the President, owing to the secretary's unavoidable absence. Some of the statistics relative to the progress of the Society were of a very interesting character, showing, as they did, the satisfactory and steady progress still being made by this vigorous and self-reliant group of the junior Liverpool pharmacists. The roll of membership showed a total of 114 members, as against 93 in the session 1893-4; the average attendance at the meetings was 21, against 19 for 1893-4; but the very important item of "Miscellaneous Communications," to which the Society had always paid great attention, had diminished in number to 14 as against 21 for the previous session. Of the fifteen meetings appearing in syllabus, all had duly taken place except one, a paper by Miss E. M. Wood, on "Forest Trees," which, by some combination of unfortuitous circumstances, had fallen through. The Society had received great assistance and no little edification from Drs. Logan, Larkin, and Bark's lectures, and the President acknowledged his indebtedness to his medical friends and others who had done so much to make the session what it undoubtedly was—one of the best in the Society's history. Special mention was made of a well-delivered lecture by C. T. Sharpe, F.L.S., on the "Land of Green Ginger," which was honoured by the largest attendance during the session.

The report was passed on the proposition of Mr. J. G. Jackson, seconded by Mr. T. S. Wokes, and the treasurer's report was then put before the meeting, and proved itself as satisfactory as that of the secretary, stating as it did that the Society was in the possession of the largest balance in hand it had so far had, viz., £4 11*s.* 1*d.* as against 15*s.* 7*d.* from the session 1893-4. Mr. H. Wyatt, jun., moved the adoption of the treasurer's report, and on the support of Mr. P. H. Marsden it was confirmed, and a vote of thanks was passed to both the secretary and treasurer for the efficient manner in which they had performed their duties, special mention being made of the clear and lucid way in which Mr. McLoughlin had drawn up the annual report.

The next business—the election of President—was soon concluded for the members present unanimously and with acclamation elected Mr. T. S. Wokes, Ph. Ch., as their head for the coming year, on the motion of Mr. R. C. Cowley, seconded by Mr. J. G. Jackson and supported by Messrs. Mitchell and Wyatt. The new President was, Mr. Mitchell said he need hardly remind the members, one of the oldest members and original founders of the L.P.S.S., and by the way in which he had all along worked for it and its well-being, coupled with the many evidences they had had afforded them by his papers, notes, and communications of his being a thoroughly well up and practical pharmacist, they might rest assured that Mr. Wokes would still lead the Society on in its upward progress, and that during this next year, which promised to be so important to Liverpool pharmacy, as one in which they would again see the Pharmaceutical Conference meetings held in the city, the Society would be enabled by his guidance to maintain that position it had after so many hard fights at last attained. On Mr. Wokes taking the chair, Mr. J. G. Jackson and Mr. Edward Williams, Ph. Ch., were appointed vice-presidents, Mr. G. M. McLoughlin was elected treasurer, and Mr. H. B. Morgan, Ph. Ch., honorary secretary. The new Council consists of the following:—R. C. Cowley, Ph. Ch.; J. Jones, G. V. C. Last, P. H. Marsden, Ph. Ch.; R. H. Mitchell, J. Park, F. Walker, T. H. Wardleworth, and H. Wyatt, jun., Ph. Ch.

The President then gave a sketch of what would appear in the new syllabus, shortly to be sent to each member. Lectures had been promised by Dr. Larkin, by Dr. Logan on "Albumin and its Allies," C. Sharpe, F.L.S., on "Pleasant Memories of Bygone Chemists"; by R. C. Cowley, Ph. Ch., on "Solutions"; Miss E. M. Wood had, with her usual kindness, consented to read a paper called a "Sylvan Sketch"; Mr. Welch would come forward with another on "Fermentation," whilst

Messrs. Williams, F. Walker, Cockshott, and others had all consented to give notes or demonstrations. Two smoking concerts had been arranged, one for the 17th inst., and another towards the end of the session, at both of which a large gathering of members was hoped for, as it was found these social functions greatly helped the Society to obtain members and so to extend its usefulness considerably. A conversazione and exhibition of lantern slides, followed by a dance, was also on the *tapis*, so that one could see every taste had been catered for, and it only now rested with the members individually to make the session go off with that success the preliminary preparations would seem to warrant. This finished the business, and the meeting concluded.

The new members of the committee and the executive ought to be men to warrant the remarks of the President, trusting to a session of increased activity and usefulness, for with such men as Mr. G. V. C. Last, the Herbarium silver medallist of the Pharmaceutical Society, Mr. Prosper H. Marsden, an old Bloomsbury man, now dispenser and teacher of pharmacy to the Liverpool Royal Infirmary, and Mr. H. B. Morgan, Ph. Ch., whose paper on Italian pharmacy last session will be remembered, the Society does not run any danger of becoming fossilised, nor of dying from old age and inanition for many sessions to come.

Alleged Deficient Spirit of Nitre.—At the Southampton County Bench on Friday, before Sir O'Bryen Hoare, Bart. (chairman), and a full Bench of magistrates, George Frederick Tuck, of Eastleigh, described as a chemist but not on the Register for 1895, was summoned under the Food and Drugs Act for selling sweet spirit of nitre which was not of the nature, substance, and quality demanded.—Mr. C. Lamport appeared for the defendant, and at the outset stated that the defendant had sold the business a month before, and had no interest in it.—The Bench thought, however, they must hear the evidence.—Agnes Healy, wife of a pensioner living at Winchester, deposed to buying six ounces of sweet spirit of nitre. She saw a Mr. Wedge in the shop, who said the business was about to be sold, but the matter was not quite complete.—To a policeman who was called in, Mr. Wedge stated that he was about to buy the business, and he hoped the spirit of nitre was genuine.—The county analyst, Dr. A. Angell, produced a certificate which set forth that the sample contained an excess of water to the extent of 6·9 per cent., and, allowing for evaporation, he declared there was an excess of water of 5 per cent.—At this stage the case was adjourned for the production of further evidence.

Royal Photographic Society.—This Society held its annual meeting on October 8, in its Rooms, 5, Pall Mall East, the President, Sir H. Trueman Wood, in the chair. His address dealt mainly with the circumstances of the Society and its regulations. In connection with the subject of photogravure, he referred to the effort by the Society of Arts to encourage the art in this country. Artists complained that, to get their pictures reproduced, they had to send them to Berlin or Paris. To test this statement, the Society of Arts offered prizes for the best reproduction in photogravure of Mulready's well-known picture, "Choosing the Wedding Gown." As to its artistic merits there might be various opinions, but there could be no question as to its suitability for testing the process. It included a great variety of colours and shades, the translation of which into gradations of black and white was a task of the highest difficulty. How difficult might be estimated from a comparison with a good steel engraving of the picture, which showed that in many instances the photographs were much more correct than the result which satisfied the eye of the engraver. By far the larger proportion of the competing plates showed high merit, and, after the successful results of this competition, it was to be hoped we should hear less of the superiority of foreign work. The prize medals gained in the present Exhibition were handed to Messrs. L. C. Bennett, G. F. Roderick, F. P. Canham, jun., J. A. Sinclair, S. B. Bolas, A. Steilgritz, E. G. Lee, C. B. Keene, W. Bush, R. B. Lodge, E. Marriage, and Messrs. Taylor and Hobson.—The meeting concluded with the reading and a discussion of a paper on "Process Blocks," by Professor Brerton, of Tokio, Japan.

Alleged Overdose of Nitro-Glycerin.—On October 2, Mr. W. E. Baxter held an inquest at Poplar Town Hall, on the body of Water Falconer, aged forty-eight, late superintendent of the Grain Department, Millwall Docks.—The widow said that about two years ago her husband broke his ankle. The shock appeared to affect his heart, and he was ordered to take nitro-glycerin pastilles. Unless he took these he could not walk or eat, but he was told not to take more than three a day.—Charles Henry Falconer, of Ludwick Road, New Cross, said that the deceased man (his uncle) was in the habit of taking ten nitro-glycerin pastilles a day, and he had said that he took four or five as he walked to work in the morning.—Frederick C. Anderson, also a grain superintendent, said that on Monday last, about noon, Falconer was found dead with his head on a table, as though asleep on board the steamer "Lesreauz" in the Millwall Docks.—Dr. R. H. Olliver, of Manchester Road, said that nitro-glycerin pastilles were used to check spasms of the heart or arteries. If the man had been taking such large quantities as stated it would have accelerated his death, which was due to heart failure.—The Coroner: That is the worst of all these medicines. Persons find relief, and then think they can go on taking more and more with impunity.—The jury returned a verdict of death by misadventure.

Sheffield Pharmaceutical and Chemical Society.—This Society has held its annual meeting for the election of officers and the transaction of formal business. Mr. J. F. Eardley was re-elected President; Mr. G. Owen, and Mr. S. T. Rhodes, Vice-presidents; Mr. G. T. W. Newsholme, Treasurer, and Mr. G. Squire, Secretary. These gentlemen, with the following, will form the council for next year: Messrs. H. E. Ibbitt, C. H. Hewitt, C. O. Morrison, Job Preston, A. R. Fox, and W. Ward.

Science Teaching in Somerset.—The annual report of the Somerset County Education Committee, which has just been issued, states that several of the laboratories and science classrooms erected at public secondary schools have been completed, and more public secondary schools have been placed in receipt of annual grants for the provision of better scientific and technical teaching. The course of science lectures under the University Extension system will be suspended during the session 1895-96, and it is proposed that the work shall be partly taken up by staff teachers in agricultural subjects. A statement of the number of courses of instruction in each subject during the past year, and the total number who had received instruction, showed that at the science lectures (University Extension) the average total attendance was 991, whilst in the various science classes there were twenty-two courses with an average attendance of 299.

Grocers and the Sale of Poisons.—The following note on the sale of poisons appeared in last week's *Grocer*:—"This subject was so warmly debated two years ago in our pages that we had hoped that every grocer understood its true position, and had arranged his patent medicine department accordingly. Several manufacturers, who appreciated the extent of the trade done in these goods by grocers, met the difficulty which the technical interpretation put upon the Pharmacy Act by the judges created: they took the proscribed poisons out of their compounds, and, as they claimed, without in any way affecting their efficacy, made the goods such that grocers could legally retail them. We published a list of those proprietary articles which, so far as we were able to ascertain, could not be safely sold by our readers, and that led to their being withdrawn by those who were careful as to the conduct of their business. A few did not take this precaution, and have had to pay the penalty. We have recently, however, received complaints of attacks made upon grocers for the sale of fly-papers, and have been appealed to for advice on the subject. Undoubtedly where fly-papers contain any scheduled poison they should be sold by no one not a registered chemist; any grocer who has them in stock should withdraw them from sale. There is, we believe a test case pending in connection with one well-known manufacturer, and when the decision is given in that case the trade may have, a more definite idea as to the judge's view of the fly-paper question. At present, however, the safe course is not to sell the poisonous ones. We notice that at a recent meeting of the Bolton Grocers' Association a complaint was made that the Pharmaceutical Society had demanded the payment of a penalty without the complaint being heard before a legal tribunal. Those who read the various articles which appeared in our pages when this subject was previously under discussion will remember that under the Pharmacy Act this Society has the power to demand such penalties for breaches of the Act, and can take legal means for recovering them if the person who has broken the law declines to pay on application. The chemists are making a rod for their own backs in trying to stop fair competition by means of a technical interpretation of a section of the Pharmacy Act, and will recognise their mistake presently."

The New School of Art at Dover.—The new building which has just been opened in Dover without, as yet, any formal ceremony, adds greatly to the facilities for teaching science as well as art. It has been designed by the architect, Mr. J. S. Chapple, to harmonise with the new Town Hall which it adjoins, and the style of both is founded upon that of the ancient Maison Dieu of Hubert de Burgh. Any incongruity between the mediæval architecture of the building and the modern science which it is intended to further, is perhaps atoned for by thus linking it with the historic past, from which our present state of enlightenment has sprung.

On a site 105 feet in depth, with a frontage of 51 feet to Ladywell, the new school, three storeys high, presents a commanding elevation. The materials used are Kentish Rag for the first and second storeys, and flint for the third, with Portland stone dressings throughout. In every part, solidity of construction, and excellence of detail are conspicuous, and in these respects as well as in adaptation of design to its intended purpose, the Dover school may well vie with any in the county. A handsome entrance hall paved with mosaic, leads to the attendants' room and class rooms on the ground floor; and access is gained to the upper floors by a noble stone staircase. The height of the rooms on the top floor is 21 ft., on the others 15 ft. Each storey contains five rooms, of which the largest in each case measures 40 ft. by 34 ft., and from the first floor a passage leads into the municipal buildings.

Ample space and a north light meet admirably the wants of the art students, who have made steady progress for the past eight years under the present head master, Mr. W. H. East.

Since the arrangements for science teaching have been cared for by Alderman Peake, pharmaceutical chemist, who has been the guiding spirit of the Technical Instruction Committee of the Corporation, it goes without saying that they have not been neglected. On the second floor is a laboratory containing fourteen benches, each fitted with a sink, which can be used as a pneumatic trough, gas, and water supply, and the necessary drawers and shelving. The bench tops are of teak, paraffined, and there are two fume chambers which have been planned with due regard to ventilation. One of these is fixed in the wall parting the laboratory from the adjoining lecture theatre, and fitted with glazed sashes on both sides, so that any experiment conducted in it is seen from either room.

The theatre has a well-equipped bench for the demonstrator, and three rising tiers of seats for the students, with a balance-room at the back of the auditorium. Both gas and electricity are laid on, the latter being lavishly used for illumination; the building is warmed throughout by hot water pipes, the ceilings are all panelled, and the general effect is dignified and handsome.

The total cost, about £11,000, is met by a grant of £673 from the Science and Art Department, a grant, not yet fixed in amount, from the County Council, and, as to the greater part, by loans raised by the Town Council on the security of the annual grant towards technical education.

Although a School of Art was founded by private enterprise in 1870, it was only taken over by the Corporation in 1892, and its forward progress has been greatly helped by the appropriation of the extra duty on spirits to the furtherance of technical education.

It is to be hoped that students in pharmacy will reap their full share of benefit from the facilities now offered them.

University College, London, Session 1895-96.—Medical Entrance Exhibitions have been awarded as follows:—131 guineas, Thomas C. Savage; 55 guineas, H. W. Reynolds; 55 guineas, William Reith Scroggie.

Guy's Hospital Entrance Scholarships.—An Entrance Scholarship in Arts, of the value of £100, has been awarded to Mr. G. Lewin, who was educated at the City of London School; and the Second Entrance Scholarship in Arts, of the value of £50, to Mr. F. G. Gibson, who was educated at Canterbury College, New Zealand. Certificates of honour have been obtained by the following:—Mr. M. Feldman, Jews' College; Mr. F. S. S. George, Dulwich College; Mr. H. F. Hatfield, Dulwich College; and Mr. H. D. Kempthorne, St. John's Foundation School, Leatherhead. The Entrance Scholarship in Arts, of the value of £30, for Dental Students, has been awarded to Mr. H. A. G. Butler, Douglas School, Cheltenham, the Entrance Scholarship in Science, of the value of £150, to Mr. P. W. L. Camps, and the Second Entrance Scholarship in Science, of the value of £60, to Mr. S. Hodgson. Certificates have been awarded to Mr. E. A. Miller and Mr. D. Forsyth.

Report of a Yorkshire Analyst.—The report for the quarter ending June 30 of Mr. A. H. Allen, analyst to the West Riding County Council recently came before that body for confirmation. He reported that he had received and duly analysed and reported on a total number of 539 samples, of which seventy-six were submitted by independent sanitary authorities. The samples were of ordinary character and required little special comment. Mr. Allen received one sample under the title of "composition powder." As this description was not special nor indicative of the nature of the article, it was impossible for him to state whether it was of the "natural substance and quality" demanded by the purchaser. Two samples of medicine proved to be dispensed substantially in accordance with the directions of the prescriptions. This result was satisfactory; but it would be necessary to examine a much larger number of samples in order to decide fully the accuracy with which prescriptions are dispensed within the Riding.

Drug Stores and their Management.—James Harrison Carter, of the firm of Carter Bros., druggists and drysalters, 23, Baker's Hill, Sheffield, appeared before the Sheffield Bankruptcy Court on the 3rd inst. and applied for his discharge from bankruptcy. The act of bankruptcy was committed in 1889, but the Official Receiver showed in examination that a similar business was still carried on by Carter's wife, of which the applicant was designated "manager." A short report of the case having been presented, the Official Receiver proceeded to put a few questions to the debtor. The latter said he was at present traveller for Carter's Drug Company, which carried on business in Charles Street, Sheffield. That company was composed of his wife and father-in-law, and his wife lived on the premises, and the business was carried on by them, and his wife took part in it and looked after the business when he was out travelling. He was not carrying on business in this form because he was not able to carry on in his own name, but because his father-in-law and brother-in-law found the money to commence the business.—His Honour did not think it was very material what suspension he put on previous to the debtor's discharge, because his wife was carrying on the business and he acted as "manager."—Debtor's discharge was suspended for six months.

The Necessity of a Manx Pharmacy Act.—A correspondent of the *Isle of Man Times* writes as follows:—"In many things we can justly claim that the Isle of Man is in advance of England, but our Legislature has surely overlooked the fact that the public have no protection in the matter of so great importance as that of dispensing medicine and handling poisons. The responsibility of the chemist is an onerous one, and the risk of inexperienced persons dispensing medicine is one which by most countries is recognised, nor do we think anyone will say it is asking too much to give us in this island an Act that will prevent any but competent and experienced men holding so important a position. When we consider the responsibility of the dispenser and recognise the risk of inexperience, we can only wonder why the matter has been delayed for so long. It is gratifying to find that many of the chemists in business on the island are gentlemen who have passed the English pharmaceutical examinations, and we would here say it is not to give these a monopoly that we draw attention to this omission on the part of our law-makers, but to protect the public. Many cases are on record where, owing to inexperienced men filling so important a position, fatal mistakes have occurred. When we bear in mind the numbers of people who visit our shores, it behoves us to give them, if in need of a chemist's services, the same guarantee of security as they enjoy at home. We trust that, having called attention to this matter, some member of the House of Keys will see the urgent need of a Manx Pharmacy Act, and, without delay, frame a Bill on the lines of the English Act, and get it passed into law. The question of whether a Manx Pharmaceutical Society, with similar powers to the English Society, should be formed, or that the examination of the latter should be accepted, is one to be considered when a Bill is before the House."

St. Bartholomew's Hospital and College.—The competition just held has resulted in the following awards:—1. Scholarship of £75 in biology and physiology for students under twenty-five years of age, C. S. Myers, B.A., Caius College, Cambridge. 2. Scholarship of £75 in chemistry and physics, for students under twenty years of

age, J. S. Williamson, Preliminary Scientific University of London. 3. Scholarship of £150 in biology, chemistry, and physics, for students under twenty-five years of age, R. C. Bowden and R. H. Paramore, æquales. 4. Preliminnary Scientific Exhibition of £50 in biology, chemistry, and physics, for students under twenty years of age, J. C. M. Bailey, Preliminary Scientific University of London. 5. The Jeaffreson Exhibition of £20 in classics and mathematics, H. A. Kellond-Knight, Matriculation University of London.

Chemists' Assistants' Association.—The nineteenth session was inaugurated in a thoroughly successful fashion at the meeting held at 103, Great Russell Street, on the 3rd inst., when there was a satisfactory attendance to hear the new President, Mr. E. W. Hill, give his presidential address. The usual routine business having been duly disposed of the following gentlemen were elected members of the Association:—Messrs. Alder, Daily, Reads, Yeo, Smith, Scampton, Parkyn, Wallis, Bonner, Spark, James, and Davis.

The President having drawn attention to the Sunday excursion and smoking concert arranged for the following week then read his inaugural address. After briefly thanking the members of the Association for the honour done him in electing him to the chair, and soliciting their co-operation in making his year of office as successful as any of his predecessors', he reminded his hearers that the purpose of a presidential address should not only be to arouse enthusiasm in the old members but also to attract others to join the Association, and to that end everything depended on each member throwing himself heart and soul into the work, and using every effort for the welfare of the Association. As President, he had to note eighteen examples of good work done by his predecessors in the chair, and he relied upon the members to ensure no abatement of their energies. He therefore commended to their notice the axiom, that chronic discontent is the only road to future progress. Proceeding, allusion was made to the fact that only a comparatively small proportion of chemists' assistants in London had joined the Association, and that here, again, the good offices of the old members must be relied on to bring in the newcomers. The programme of the new session was briefly alluded to, attention being drawn to the fact that its varied nature was likely to suit the tastes of all the members, both from the scientific and social side, as not only had they been fortunate in securing papers which would do credit to the Association in every way, but it would be noted that the plan advocated by their former President, Mr. R. H. Jones, of having additional cinderella dances, had also been carried into effect. The objects of the Association were not only to keep up interest in chemistry and pharmacology, but to bring men into touch with one another, promote debate, and unearth latent talent. Reference was made to the fact that the valuable prizes of the Association were not awarded last year, and the hope expressed that this remissness would not have to be chronicled again.

Mr. Hill did not devote much time to airing any platitudes on the ethical advantages of the Association. This was somewhat of a relief, as it is usual on occasions of this nature to inflict upon the audience a peroration of which a considerable proportion has been paraphrased by previous occupants of the presidential chair, with a few quotations from the poets interspersed. The new President, however, steered clear of these evils, and confined himself to impressing in a succinct and forcible manner upon his audience the claims and advantages of the Association. The duty of proposing a vote of thanks to Mr. Hill fell upon the late President, Mr. R. H. Jones, who in a few happy remarks complimented the Association upon its President, and the President upon his address and qualifications for the post, and went on to say that although it had been stated that local associations were of no value, yet the work done by their Association was in itself quite sufficient to refute such a charge. Mr. H. H. Robbins, who has always taken a prominent part in promoting the success of the social gatherings, seconded the motion, and this having been carried with acclamation, the President briefly responded, and the meeting then terminated.

Composition for Cleaning Wall Paper.—Mix together 1 pound each of rye flour and wheat flour into a dough, partially cook and remove the crust. To this 1 oz. of common salt and ½ oz. of powdered naphthalin are added, and 1 oz. of corn meal and ⅛ oz. of burnt umber. This composition is formed into a mass of the proper size to be grasped in the hand, and in using it should be drawn in one direction over the surface to be cleaned (*Pharm. Era*, xiv. 174).

IRISH NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Pharmaceutical Society of Ireland.—The monthly meeting of the Council was held on Wednesday, the 2nd inst., at 67, Lower Mount Street, Dublin, at 3 p.m., Mr. William Hayes, the President, in the chair. The other members of the Council present were the Vice-President, Mr. Beggs, and Messrs. Grindley, W. T. Wells, J. J. Bernard, Baxter (Coleraine), Gibson (Belfast), Downes, Charles Evans, and Professor Tichborne.

A discussion took place in reference to an unaccounted-for balance of £19 7*s.* standing to the credit of the Pharmaceutical School of Chemistry. The matter had been referred "for investigation and final settlement" to Mr. Josiah R. Middleton, who stated the conclusions at which he had arrived in two letters, one of August 8, and the other of September 15. He stated that the balance was to the credit of the School on September 30, 1894, that he was unable precisely to trace how it arose, and that he believed a fair solution of the difficulty would be to divide the balance in the proportions already agreed on in working the School, viz., half (£9 13*s.* 6*d.*) to Professor Tichborne, a third (£6 9*s.*) to Professor Kelly, and the balance (£3 4*s.* 6*d.*) to the School fund. That division, as far as he could see, would give the School its fair proportion. He mentioned that in 1890-91 only a part of the fees due to the professors was paid to them.

The proposed allocation was objected to by some members on the ground that it had not been distinctly proved that anything belonged to the professors, and it was therefore contended that the whole should go to the School fund.

On the other side it was urged that no further evidence than had already been submitted to Mr. Middleton could be obtained on the subject, and that the allocation proposed by him was a fair one, there being no proof that the money belonged to the Society any more than to the professors.

The recommendation of Mr. Middleton was adopted by a majority, the Vice-President and Messrs. Evans, Gibson, Conyngham, and Downes voting for it, and Messrs. Grindley, Bernard, and Wells dissenting.

Mr. John McCrea, R.D., applied for a new certificate on the ground that that which had been granted to him was destroyed by a fire at his premises.

It was ordered that a sealed letter should be given to him.

A letter from Messrs. Casey and Clay, solicitors, reported the result of proceedings taken by the Society against Messrs. Alexander Boyd and Co., of Lisburn, and mentioned that the magistrates had agreed to state a case.

The Council decided to go on with appeal proceedings in the matter.

A letter from Sergeant Nelson, R.I.C. Rathfriland, reported the result of a prosecution instituted by him under the Sale of Food and Drugs Act against Mr. Henry Bell, of Rathfriland, for having refused to sell poisons exposed in his shop. Mr. Bell was fined £2 and costs.

On the motion of the President, seconded by Mr. Wells, an alteration was made in the Regulations so as to enable the "Preliminary" examination fees to be divided between two professors.

A report of the House and General Purposes Committee recommended "that no examination in lieu of the Preliminary examination of the Society should in future be accepted which did not contain all the subjects required for the Society's Preliminary examination."

Mr. Conyngham moved that after January 1, 1896, the Council should only accept in lieu of their "Preliminary" those "preliminary" examinations which were accepted by the General Medical Council.

Mr. Downes moved the adoption of an amendment to alter the regulations so that no "Preliminary" examination save that of the Society itself should in future be accepted. He urged that it was not desirable to allow the Society's examinations to be made a stepping stone to other professions.

Mr. Evans seconded Mr. Downes' proposal, remarking that other bodies, whose examinations the Council had accepted, had not reciprocated.

Mr. Conyngham thought Mr. Downes' proposal went quite too far.

Mr. Grindley was not in favour of abolishing the acceptance of the "Preliminaries" of other bodies, provided they were not inferior to those of the Society.

Finally the motions of Messrs. Conyngham and Downes were withdrawn, and the recommendation of the Committee was, on the motion of Mr. Bernard, seconded by Mr. Grindley, adopted, with the addition that it was not to come into force until after April 1, 1896.

Other matters having been disposed of, the Council separated.

The Cork Friendly Societies' quarrel with the local doctors and chemists has entered on a new phase, as it is reported that, consequent on the refusal of the chemists to compound the prescriptions of the recently appointed medical officers of the Societies, the latter purpose opening a medical hall of their own.

Pharmaceutical Society of Ireland. — At a registered druggist examination at Dublin, on the 8th inst., Mr. Timothy Murphy, of Charleville, Co. Cork, passed.

FOREIGN NEWS.

[*From our Special Correspondents.*]

A New Process for Proving the Purity of Gum Arabic.—This process, described in *El Memorandum*, consists in taking an aqueous solution of the gum of 20 per cent. strength, and adding to it the following mixture:—Solution of ferric chloride, 15 drops; saturated solution of potassium ferrocyanide, 15 drops; hydrochloric acid, 15 drops; sulphuric acid, 60 drops. If the gum be pure, the coloration resulting appears a fine light yellow, and remains unaltered for eight or ten hours. If, on the other hand, the gum be adulterated with dextrin, during the first hour or shortly afterwards the colour passes to a blue, and from the intensity of this tint one may easily deduce the approximate degree of adulteration to which the gum has been submitted.

The Snow Flower.—Señor Guerrero, Professor of the Pharmaceutical Faculty of Manila, says, in an article published in the *Cronica de Ciencias Médicas*, "Among the plants which very often adorn our gardens is one which for the immaculate whiteness of its beautiful flowers, as well as for its abundant and delicious fragrance, attracts the notice of the amateur without it ever occurring to him that the plant might be of the greatest utility in furnishing a remedy with which to combat certain affections which could be treated *ab initio* without medical aid. Snow flowers, or frost flowers, the common names by which the plant is known to the Philippine florists, are produced by the *Tabernamontana coronaria*, natural order Apocynaceæ (a near relative of the cow tree of Demerara, the *Tabernamontana utilis*), which is very plentiful in the Philippine Islands, and is called by the Malays "Bonga manilha," from its existing in large quantities in the immediate neighbourhood of the capital. Its roots which are the parts used by preference, do not exhibit any characters which differentiate it or distinguish it from the other plants of the Apocynaceæ. The root bark, its most important part, is also similar to that of the others. The Malays hold it to be an antidote to certain poisons, and apply the decoction of the root to the cure of lumbago and nephritis. The inhabitants of the Malabar coast believe it to be a refrigerant, useful in fevers, administered in a masticatory containing the "bonga" root bark, or used as a decoction. In India the latex or milk flowing from the plant is applied to wounds to avoid inflammation, and the flowers also are considered of great use in cases of meratitis. In its own habitat, Manila, the milk is used either alone or mixed with oil for cicatrising wounds.

Funeral of M. Pasteur.—The funeral of M. Pasteur took place last Saturday, attended with all the pomp and magnificence that France displays when she accords the honour of a national burial to her illustrious citizens. The whole of the Paris garrison, a veritable *corps d'armée*, was under arms at an early hour, and proceeded in the direction of the Institut Pasteur, in order to line the route taken by the *cortège* in its passage to the Cathedral of Notre Dame; as may be imagined the procession was an exceedingly lengthy one. The order was as follows:—Mounted Garde Républicaine, the Governor of Paris and his staff, and the first division of infantry, then followed delegates from over a hundred French scientific and industrial societies, then appeared five large cars draped in black loaded with exquisite flowers and wreaths, the carriages of the clergy, band of the Municipal Guard, professors and employés of the Institut Pasteur, and then the Char Funèbre magnificently decorated and drawn by six horses caparisoned in black. The pall bearers included M. Poincaré, Minister of Public Instruction, Dr. Brouardel, Dean of the Faculty of Médecine, M. Bertrand, of the Académies des Sciences, and M. Bergeron, of the Academy of Médecine. The family of the deceased then followed in carriages, with the exception of Mme. Pasteur, who had already gone to the Church. After the family came all the Ministers of State and then the Diplomatic Corps, delegates from the Senate, Chamber of Deputies, the representatives of the Bar and Bench, Professors and Academicians, the gorgeous robes of these latter attracting a great deal of attention, the procession being completed by large bodies of all the military services, artillery, cavalry, Republican Guards, and cuirassiers. The special delegates from England who followed the *cortège* were Sir Walter Gilbey, President of the Royal Agricultural Society, Sir Dyce Duckworth, Royal College of Physicians, Sir A. Rollit, M.P., and M. Pitman, F.R.S. The whole line of route was packed by a vast concourse of spectators, whose respectful demeanour testified to their sympathy and reverence for the deceased. The cathedral was reached at noon, where the President of the Republic, accompanied by the Grand Duke Constantine of Russia and Prince Nicolas of Greece, had already arrived. The service conducted within the Church was most impressive, the musical portion being exceptionally beautiful. At the conclusion of the religious ceremony M. Poincaré, in the name of the French Republic, delivered an eloquent oration, describing the life-work of M. Pasteur, and eulogising the modesty, disinterestedness, and philanthropy of the deceased. The troops then marched past the coffin, which was transported to the Chapelle Provisoire, pending the construction of a suitable tomb in the Institut Pasteur. Thus terminated this most imposing ceremony, the last honours that could be rendered to the great savant.

An Ancient Recipe Book.—The editor of the *Journal de Débats* made the discovery last week in his library of a curious old book of recipes in manuscript, bearing the following inscription:—"Le Prince Leopold, premier de Lorraine, roy de Jerusalem, mort à Luneville, le 27 Mars, 1729." Amongst the various remedies the fish tribe play a prominent part; for gravel it recommends that the head of a pike be boiled in a newly-glazed earthen pot, then reduce to powder, and drink in a glass of white wine. An assured means of curing the gout is to wear continually three or four moles' feet tied to one's garters. For nose bleeding the sufferer is advised to blow up the nose the powder of a stone found in the head of a carp, or to plug up the nostrils with the fur of a hare. A certain remedy for curing a drunkard of his evil ways is to give him as many eggs of the screech owl, boiled hard, as he can possibly eat, when, the book assures us, he will ever after remain a staunch abstainer.

POISONING CASES AND INQUESTS.

Caustic Soda.—Margaret Day, age 1 year and 7 months, whose parents reside at 8, Gough Street, Islington, died on September 27 in the Royal Free Hospital, from the effects of drinking a quantity of caustic soda. Verdict: "Death by misadventure."

Vitriol.—Hugh Hays, aged about 3, whose parents reside in Mill Road, Bangor, died on September 29 from the effects of drinking a small quantity of vitriol. Verdict: "Accidental death."

Ammonia.—Matilda Jane Wrigley, aged 10, of Milnrow Road, Shaw, near Leeds, died on September 30 from the effects of drinking ammonia, in mistake for ginger-beer.

Benzine.- Mrs. Finlayson, aged 68, of Burgh Buildings, Falkirk, died on September 22 from the effects of benzine, used in mistake for "Sanitas" as a wash for a sore throat.

Laudanum.—Alfred Wolfgang, aged 26, was found dead in bed at the Queen's Hotel, Llandudno, on September 27, having died from the effects of an overdose of laudanum, taken to induce sleep. Verdict: "Deceased took the laudanum to induce sleep, and on this occasion unfortunately took an overdose."

NOTES AND QUERIES.

[The information given in this column includes both notes of practical interest to pharmacists, and replies to queries which seem to possess sufficient interest to readers generally. Readers requiring working formulæ for special preparations should intimate their wants to the Editor, who will be pleased to assist them to the best of his ability. The word "parts" invariably indicates parts by weight.]

Ol. Chillie.

"D. M." requires information regarding the nature and preparation of "ol. chillie." Possibly some reader can assist him in the matter. Thresh, some years ago (see *Ph. J.* [3], viii., 187) obtained a deep orange-red oil from the marc left after thoroughly exhausting cayenne pepper with spirit, by percolating it with benzine, and then evaporating the latter.

Making an Acetate Bath.

O. C. M. Davis also asks if there is a special way of making an acetate bath? Most decidedly there is. There is a trite old saying that there is a right and a wrong way of doing everything. The requirement for toning is the conversion of the auric chloride, $AuCl_3$, into the aurous chloride, AuCl, and this is always effected by an alkali, thus—

$$AuCl_3 + 2NaHO = AuCl + 2HCl + 2NaOCl,$$

and a toning bath in this state replaces one atom of silver with one of gold—

$$AuCl + Ag = AgCl + Au.$$

The proper way to make an acetate toning bath is to dissolve 1 oz. of acetate of soda in 35 ozs. of distilled water. Dissolve 15 grains of gold chloride in 5 ozs. of water, mix the two solutions, shake well, test with litmus paper, and make neutral or distinctly alkaline by adding sodium bicarbonate, allow to stand for twelve hours, and dilute with sufficient water to make the strength 1 grain of gold in every 5 ozs. of bath. The most satisfactory bath for gelatino-chloride paper, so the Ilford Company say, and it certainly works well, is—

Chloride of gold	2 grains.
Potassium sulphocyanide	30 ,,
Sodium sulphite	2 ,,
Distilled water	16 ozs.

Tones on Gelatino-Chloride Paper.

O. C. M. Davis enquires why, having obtained satisfactory tones on gelatino-chloride paper with an acetate bath, the tones entirely disappear in fixing, and turn to a disagreeable brown. The cause of this trouble is fairly easy to locate. If you consider the image to be formed of minute particles of silver subsalt of a decided purplish tinge embedded in gelatin, it is obvious that any solution will act primarily on the surfaces of the particles, the gold being deposited there gives the "satisfactory" tone; you then fix, and the hypo. decomposes the silver subsalt, forming the well-known yellowish or foxy-red silver deposit. The hypo. acts not only on the surface but right in the middle of the "conglomerate molecule," as it has been called, forming the image, the result being that the tone formed by the gold deposited on a purplish image is destroyed, because the purple is turned into yellow. When toning, always examine your print by transmitted, not reflected, light, and continue toning till the print, when looked through, appears decidedly more blue than the finished print should; then fix, and your trouble is got over.

Lantern Slides from Process Blocks.

An ingenious method of preparing lantern slides from process blocks used for book illustrations is described in an American contemporary, and referred to approvingly by the *Amateur Photographer*, the editor of which observes that the process commends itself to a large class of lecturers who use slides made from black and white work, and still more to those who supply the slides. The block is inked by a simple hand roller, the ink being a fine one tempered to the proper consistency with Calcutta boiled oil and japan drier, and then placed in a mount face upwards on the table, a piece of plain glass being set at a proper distance and on a level with it. A composition roller, made rather hard, is then run forward on two guides. As it passes over the block it takes the impression. On reaching the glass, after one complete revolution, it transfers the ink directly to it, the result being a print on the glass in the same way as on paper, but of superior quality.

Remedy for Neuralgia.

The following formula by M. Sabbatani for neuralgic pains gives excellent results:—Menthol and guaiacol, of each 1 part; absolute alcohol, 18 parts. Mix. To be painted on the painful part with slight friction by means of a camel's-hair brush, then covered with cotton wool. To be repeated not more than two or three times during twenty-four hours.

Vin. Ferrugineux Amère.

Sutherland Hudson asks for the formula of a Belgian preparation supplied under this name. Perhaps some Belgian or French correspondent can oblige. An American formula for "bitter wine of iron" is as follows:—Citrate of iron and quinine, 256 grains; sugar, 4 troy ounces; distilled water, 1 fl. oz.; sherry wine, 11 fl. ozs.; tincture of fresh orange peel, 2 fl. ozs. Dissolve the scale compound and sugar in the water, mix with the wine and tincture, and filter. The dose is from one to four fluid drachms.

Curry Powder.

A modification of a much esteemed formula for curry powder is as follows (*Amer. Drug.*):—Coriander, 2 ozs.; ginger, 2 ozs.; capsicum, 1½ oz.; cardamom, ½ oz.; black pepper, 3 ozs.; cummin, 2 ozs.; cloves, 1 oz.; turmeric, 12 ozs. The different ingredients should be reduced to a very fine powder, and thoroughly mixed together and bottled immediately.

Solder for Glass.

A compound of tin (95 parts) and zinc (5 parts) melts at only 200° C., and can then be firmly united to glass. An alloy of 90 parts of tin and 10 parts of aluminium melts at 390° C., adheres, like the preceding, to glass, and is equally brilliant. With either of these alloys glass may be soldered as easily as metal, in two ways. In one, heat the pieces of glass in a furnace and rub a stick of soldering alloy over their surfaces. The alloy will melt, and can be easily spread by means of roll of paper or a slip of aluminium. Press the pieces firmly together, and keep so until cool. In the other method a common soldering iron, or a rod of aluminium, is heated over a coal fire, a gas jet, or a flame supplied by petroleum. The hot iron is passed over the alloy, and then over the pieces to be soldered, without the use of a dissolvant. Care should be taken that neither the soldering iron nor the glass be brought to a temperature about melting point of the alloy, lest the latter should be oxidised, which would prevent it from adhering (*Pop. Sci.*, xxix., 132).

Treatment for Chapped Hands.

The following formula is in use in Germany (*Med. Chron.*, iii., 460):—Menthol, 75 centigrammes; olive oil and salol, aa 1·5 gramme; lanolin, 45 grammes. To be applied twice a day.

To Remove Rust from Steel, Etc.

E. C. Cripps desires to know what is used by bicycle makers, etc, to remove the oxide formed on heating steel. Commercial spirit of salt is freely used for this purpose. The *Era Formulary* recommends a solution of stannic chloride, 100 Gms. in water, 1 litre, to which is added a solution of tartaric acid, 2·5 Gms. in water, 1 litre Next, dilute indigo solution, 20 C.c., with water, 2 litres, and add to the former mixture. This solution is allowed to act for a few seconds, and the metal then rubbed clean with a moist cloth.

Non-Resinous Extract of Grindelia Robusta.

This preparation, used for fever, asthma, inflammation of the mucous membranes, etc., is made as follows (*Pac. Drugg.*):—Pour boiling water over 100 Gm. of grindelia herb in No. 20 powder packed in a percolator, and allow to macerate for twenty-four hours. Then percolate until the drug is exhausted. Reserve the first 60 Gm. of the percolate; evaporate the remainder to the consistence of a soft extract; dissolve this in the 60 Gm. of reserved percolate, add 25 Gm. of alcohol, and sufficient distilled water to make the finished product weigh 100 Gm.

Antiphthisin.

This is a derivative of tuberculin, resembling Kleb's tuberculocidin but differing from it in being made directly from the ten times concentrated culture fluid of tubercle bacilli. The toxic principles found in tuberculin are supposed to be thus excluded from antiphthisin, and a larger dose of the latter can be administered without the injurious toxic effects produced when large doses of tuberculin are employed. Dr. Charles Denison, of Denver, Col. (*Med. Record*, July 20, 1895), considers that this new preparation is a valuable remedy in consumption.

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

Communications for the Current Week's Journal should reach the Office not Later than Wednesday Morning. Telegrams can be Received on Thursday Morning. All Communications respecting Editorial matters must be Addressed "Editor, 17, Bloomsbury Square, London," and not in any case to individuals supposed to be connected with the Editorial Staff of the Journal.

All Instructions from Members, Associates, and Students of the Pharmaceutical Society, respecting the transmission of the Journal, must be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London, W.C.

Business communications—including advertisements, orders for copies of the Journal, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Cheques and money orders should be made payable to "Street Brothers."

Correspondents who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for illustrations should be done with pen and Chinese ink, and consist of clean, sharp lines, without shading by washes. They should also be prepared twice the desired size, so as to allow for reduction.

Names and Formulæ should be written with extra care, all systematic names plants and animals being underlined, and capital letters used to commence generic but not specific names.

Queries addressed to the "Editor" will be replied to in the Journal as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries." The Editor cannot undertake to reply to queries through the post.

Reprints of articles cannot be supplied unless authors communicate with the Editor before publication.

LETTERS.

Substitution in Pharmacy.

Lin. Camph. says:—"A few days ago, when on a visit to a friend in a country town, who is the proprietor of an oil shop, combined with the usual trade in tinned provisions, etc., I was speaking to his manager respecting prices and qualities of various oils, and amongst others was shown a sample of cotton seed oil, which I was told was very largely used for frying fish. 'But,' the manager went on to say, 'I also find it very good for making camphorated oil, for which we have a considerable demand.' A few questions elicited the fact that the camphorated oil so made was of a strength of 1 oz. of camphor to the pint, and of course could then be very profitably retailed at a penny per ounce. There is no doubt that this practice of supplying Pharmacopœia preparations of inferior quality, in many cases in ignorance of the fact that a recognised standard exists, is very prevalent, and accounts for much of the ill-feeling on the part of the public towards chemists on account of their charges for drugs. Such a case as the above seems to point to the necessity, either for a much more stringent application of the Sale of Food and Drugs Act, or for confining the sale of Pharmacopœia preparations to those qualified to deal in them."

Benevolent Fund—A Suggestion.

Mr. W. R. Badman, of 88, Westow Hill, Norwood, writes as follows:—"As a small, indeed the smallest, contributor to the Benevolent Fund, I can scarcely claim possession of a right to discuss either its means or its application, yet if the 10,000 who pay nothing to the afore-mentioned Fund were each to add half a crown, the most mediocre student in Colenso would hardly bring out a total of less than £1250. There is a canvasser going the rounds (in very unparliamentary fashion) for votes on behalf of the widow of a gentleman, who, though a registered chemist and druggist, appears never to have contributed to the Fund his widow now seeks to enjoy, at least no intimation to the contrary is offered on the card left, and would such a recommendation be omitted? I have been informed by this canvasser that a gentleman possessed of 300 votes had promised the whole to this widow lady. It seems almost incredible that such a dearth of perspicuity should be associated with one of such magnificent magnitude. That the lady is deserving of sympathy every one will freely admit (as she is deaf, etc.), but that she is deserving of pharmaceutical help will be recognised by few, and least of all by me. Now for the suggestion, with which is inferred no originality, but is brought forward by a revival of the desultory apathy so generally associated with the chemist where his own interests are concerned; it is this, that every person who possesses a vote or votes, will please accord it or them to the candidate who has supported the Benevolent Fund for the longest space of time, for this person is spiritually, if not lawfully, entitled to 'votes and interest.'"

ANSWERS.

Arthur H. Price.—We understand it is held that a person who becomes twenty-one years of age on June 30 is ineligible. He must be under that age on July 1, which is regarded as the actual day of the competition.

Wm. Lawson.—We do not know where the preparation is to be obtained. Why not make it yourself or ask your chemist to make it for you?

Henry G. W. Dawson.—We hope to publish shortly an illustrated description of an apparatus that may serve your purpose.

CORRECTIONS.

Dose of Arsenium Iodide.—By an error in transcribing Mr. Brown's letter the quantity (*ante*, p. 280) present in 10 minims of Donovan's solution was represented to be ·94 grain instead of ·094 grain.

Phosph-Ergot.—The formula for the hypodermic injection of this preparation (*ante*, p. 279) should read "sodium phosphate, 1 gramme," not "10 grammes."

PUBLICATIONS RECEIVED.

Monograph on Fluid Extracts, Solid Extracts, and Oleo-resins. By Joseph Harrop, Ph.G. Pp. 230. (Columbus, Ohio, U.S.A.: Harrop and Company, 1895.) From the Publishers.

Practical Proofs of Chemical Laws. By Vaughan Cornish, M.Sc. Pp. 92. Price 2*s*. (London: Longmans, Green and Co., 1895.) From the Publishers.

Third Annual Report of the Tennessee Board of Pharmacy, with the Pharmacy Act of the State. Pp. 24. (Tennessee Board of Pharmacy, Nashville, Tenn., U.S.A.) From the Board.

Dental Materia Medica and Therapeutics. By James Stocken, L.D.S., Eng. Fourth Edition. Revised by Leslie M. Stocken, L.R.C.P., M.R.C.S., L.D.S., and J. O. Butcher, L.D.S., Eng. Pp. 155. Price 4*s*. (London: H. K. Lewis, 1895.) From the Publisher.

Tests and Assay Processes for Surgical Dressings and Belladonna Plasters. Pp. 20. Reprinted from the *Druggists' Circular*. From the Seabury Pharmacal Laboratories, New York.

OBITUARY.

Dudgeon.—On September 9, at his residence, Draycott, George Dudgeon, pharmaceutical chemist. Mr. Dudgeon served his apprenticeship with Mr. G. Chapman, of Friar Lane, Nottingham, and succeeded to the business, which he carried on until a few years ago. Of late years he has been a stockbroker, and by his will he leaves a legacy of £500 to the Benevolent Fund.

Hoy.—On September 27, Henry Hoy, Chemist and Druggist, Newbiggin. (Aged 58.)

Arrandale.—On October 2, William Arrandale, Chemist and Druggist, Denton. (Aged 58.) Mr. Arrandale was a member of the Council, and Treasurer, of the Manchester Pharmaceutical Association.

Communications, Letters, etc., have been received from Messrs. Allen, Badman, Breeze, Brown, Carter, Chitty, Clarke, Cocks, Cracknell, Crouch, Davis, Dawson, Dickenson, Dott, Dudderidge, Ferrier, Goldby, Henry, Hill, Hornby, Howie, Ince, Jackson, Johnson, Kemp, Kendall, Kermath, Lawson, Lloyd, Marchant, Moon, Morgan, Newsholme, O'Connor, Price, Ridgley, Ridlington, Rogers, Rushton, Squire, Winkfield.

THE CHEMISTRY OF RHUBARB.

BY DR. OSWALD HESSE.

According to the investigations of Schlossberger and Döpping,[1] rhubarb contains, in addition to three resins—aporetin phaoretin and erythroretin—as an essential constituent, chryosphanic acid, which was, on the basis of its properties and analysis, declared by them to be identical with the chrysophanic acid which had previously been obtained by Rochleder and Heldt from the yellow lichen, *Physcia parietina*.[2] This chrysophanic acid of rhubarb was subsequently observed by Warren de la Rue and Hugo Müller in a sediment from rhubarb tincture which had been kept for a long time, and they showed how this substance could be prepared from rhubarb by means of benzene.[3] They adopted the name of chrysophan, as the substance has not the character of an acid, but their proposal has not been generally followed. These observers also obtained another constituent of rhubarb, viz., emodin, to which they gave the formula $C_{40}H_{30}O_{13}$, representing chrysophan or chrysophanic acid by the formula $C_{10}H_8O_3$, which had been adopted by Rochleder and Heldt for the chrysophanic acid of *Physcia*.

Meanwhile Gerhardt had suggested that the formula of chrysophanic acid should be $C_{14}H_{10}O_4$, and that it was in some way related to alizarin. At the instigation of Rochleder, the chrysophanic acid of rhubarb was then further investigated by Pilz,[4] who confirmed the results obtained by Schlossberger and Döpping, and concluded that the formula suggested by Gerhardt was incorrect. In a subsequent investigation, however, Rochleder[5] obtained results perfectly in accordance with Gerhardt's formula, and he explained this difference as being due to the circumstance that the substance cannot be dried at 100° C., but is rendered anhydrous only when heated to 115° C. in a current of carbonic anhydride. Still later this formula was found to be incorrect, when Liebermann and O. Fischer[6] showed that the sublimed substance has the formula $C_{15}H_{10}O_4$, and that it is closely related to emodin, for which the formula $C_{15}H_{10}O_5$ was deduced by Liebermann[7] from his own analyses, as well as from those of De la Rue and Müller.

According to Kubly[8] chrysophanic acid exists only in very small amount in fresh rhubarb, but is produced by the alteration of a glucoside, to which he gave the name of chrysophan. Proctor[9] has also observed a formation of chrysophanic acid in rhubarb under the influence of exposure to air in contact with water and caustic alkali.

Schroff[10] considers that chrysophanic acid is the active principle of rhubarb. However, the substance with which Schroff operated was not the chrysophanic acid of rhubarb, but that of *Physcia*, and moreover it was not pure. On the other hand v. Auer[11] experimented with the chrysophanic acid of rhubarb, and found that it had no action upon the intestinal canal. According to his results the purgative constituent of rhubarb is still unknown.

In prefacing the account of my investigation with these remarks, I must also state that it was undertaken in consequence of the observation[12] that the composition of chrysophanic acid obtained from *Physcia parietina* is not represented by the formula $C_{15}H_{10}O_4$, which has been found by Liebermann and Fischer to represent the sublimed chrysophanic acid of rhubarb. Rochleder's statement that the chrysophanic acid of rhubarb loses some water at 115° C. suggested the possibility that at the temperature of sublimation there might be a further elimination of water, and that the sublimed substance might be a product of condensation. It appears, however, from my investigation of the subject, that neither the statements of Rochleder and Heldt relating to the composition of chrysophanic acid from *Physcia*, nor those of Schlossberger and Döpping, De la Rue and Müller, or Pilz and Rochleder in reference to the chrysophanic acid of rhubarb are correct, but I have been able to confirm the results of Liebermann and Fischer. Moreover, the chrysophanic acid of *Physcia* is not identical with that of rhubarb, and the opinion expressed by Schlossberger and Döpping that these substances were identical may be ascribed to impurity of the material in their hands.

In a previous paper I have described the chrysophanic acid of *Physcia* under the name of physcion, and as having a composition represented by the formula—

$$C_{16}H_{12}O_5 = C_{15}H_7O_2(OH)_2\cdot(OCH_3).$$

The composition of the chrysophanic acid of rhubarb is represented by the formula—

$$C_{15}H_{10}O_4 = C_{15}H_8O_2(OH)_2,$$

and I propose retaining for it the name chrysophanic acid, although the term is incorrect because this substance does not possess the characters of an acid, as has been already pointed out by De la Rue and Müller.

The material operated upon in this investigation was Chinese rhubarb: one pound in a state of fine powder was digested with five times its weight of ether in a glass flask, and frequently shaken during ten days. The ether solution was then poured off, filtered, and distilled, the distillate being returned to the partially exhausted rhubarb. By repeating this treatment several times until, in the course of three months, ten successive portions of extract had been obtained, the rhubarb powder was still only imperfectly extracted; it had a greyish yellow colour and became red upon the addition of caustic potash solution, probably owing to the presence of some rhein.

The somewhat considerable quantities of ether extract obtained as residues assumed a crystalline condition on cooling. When treated with cold 80 per cent. alcohol a dark brown solution was formed, and a pulverulent crystalline substance remained undissolved. On spontaneous evaporation the solution left an amorphous residue containing paler coloured crystalline particles consisting of crystals of a colourless substance and a residue of chrysophanic acid. These crystals could be separated by further treatment of the residue with weak alcohol, and in that way a solution was obtained which left on evaporation a perfectly amorphous dark brown residue, possessing in a high degree the

[1] *Annalen der Chem. Pharm.*, 50, 213.
[2] *Ibid.*, 48, 12.
[3] *Chem. Soc. Quart. Journ.*, 10, 300.
[4] *Chem. Centralbl.*, 1862, p. 6.
[5] *Berichte*, 2, 374.
[6] *Ibid.*, 8, 1102.
[7] *Ibid.*, 8, 970.
[8] *Neuer Rep. für Pharm.*, 17, 216.
[9] *Pharm. Journ.* [3], 25, 233.
[10] *Vierteljahr Sch. of Pharm.*, 5, 269.
[11] *De Ead. Rhei.* Dorpat, 1859.
[12] *Liebig's Annalen*, 284 177.

purgative property of rhubarb. The alcoholic solution of this substance has a bitter and somewhat acrid taste: when boiled with hydrochloric acid it did not yield either chrysophanic acid or sugar. This extract contained almost the whole of the active constituent of the drug, and consequently that does not appear to be of the nature of a glucoside. The resinous character of this substance, however, deterred me from undertaking any further investigation of it, and I proceeded to examine the above-mentioned crystalline powder, which consisted essentially of chrysophanic acid, emodin, and a new substance, rheïn.

1. Chrysophanic Acid.

The crystalline residue separated from the extract was repeatedly treated with a dilute solution of potassium carbonate at a temperature of about 40° C., in a vessel from which air was excluded, until a solution was eventually obtained which did not become sensibly red-coloured within twenty-four hours. The undissolved portion of the powder was then dissolved in alcohol or glacial acetic acid and recrystallised until the melting point of the crystals was 178° C.

Pure chrysophanic acid does not dissolve at the normal temperature in a water solution of potassium or sodium carbonate. On boiling, a little is dissolved, forming a red solution, from which the greater part of the chrysophanic acid is again deposited on cooling. But the solution still remains coloured red, probably indicating that some part of the chrysophanic acid has, under the influence of exposure to the air, been converted into emodin, the substance most nearly related to it, with which it is associated in rhubarb. Chrysophanic acid is quite insoluble in a water solution of potassium or sodium bicarbonate. When crystallised from alcohol or glacial acetic acid it forms golden-yellow laminæ, resembling moss in their arrangement: these crystals melt at 178° C.; they are not hygroscopic, neither do they lose water when heated to 115° C., or at higher temperatures. The composition of chrysophanic acid is represented by the formula $C_{15}H_{10}O_4$.

	Calculated	Found
Carbon	70·86	70·81
Hydrogen	3·93	3·87

When chrysophanic acid is treated with hydriodic acid (1·7 sp. gr.) no alkyl iodide is formed, but the substance is converted by reduction into chrysophan-hydro-anthron, $C_{15}H_{12}O_3$, which dissolves in the alkaline liquid with a wine-red colour, but apparently is not again converted into chrysophanic acid on shaking the solution with air. In this particular there is a difference between this substance and the chrysophan-hydro-anthron prepared in a different way by Liebermann;[13] but I am disposed to think that the difference is due to some accidental circumstance.

2. Emodin.

This substance is dissolved, together with rheïn, by the solution of potassium carbonate, with which the pulverulent residue is treated in separating chrysophanic acid. The solution acidified with hydrochloric acid was shaken with ether, and, on evaporating the ether, a residue was left consisting essentially of emodin and rheïn. By treatment with boiling toluene, emodin is extracted from the residue, and most of it is deposited again as the solution cools; on evaporating the toluene, a further small portion of emodin is obtainable, which may be conveniently put aside for further treatment with toluene. The crystals first deposited were then dissolved in hot glacial acetic acid, and the solution mixed with boiling water until crystallisation commenced, the emodin then separated in well-defined, orange-coloured prisms containing one molecule of water, which is given off at 120° C., the crystals then becoming dull.

	Calculated for $C_{15}H_{10}O_5+H_2O$.	Found
H_2O	6·25	6·30
	Calculated for $C_{15}H_{10}O_5$.	
Carbon	66·67	66·35
Hydrogen	3·70	3·93

Anhydrous emodin melts about 250° C. It dissolves readily in a cold water solution of potassium or sodium carbonate with purple-red colour; very readily in caustic potash or soda. It also dissolves readily in ammonia solution, and, on addition of lead acetate, a flocculent, amorphous, purple-coloured precipitate is formed. Emodin is freely soluble in alcohol, especially with the aid of heat, and the solution has an acid reaction. When treated with hydriodic acid (1·7 sp. gr.) in Zeisel's apparatus there is not any formation of methyl iodide, as might be expected; but, on the contrary, emodin is reduced in the same manner as chrysophanic acid, chrysophan-oxyhydro-anthron, $C_{15}H_{12}O_4$, being produced. On recrystallising this product from hot glacial acetic acid, it forms pale yellow shining laminæ, which melt between 230° and 240° C., and become dark coloured.

	Calculated for $C_{15}H_{12}O_4$.	Found
Carbon	70·36	69·59
Hydrogen	4·68	4·94

The formation of this product from emodin is represented by the equation—

$$\left.\begin{matrix} C_{15}H_{10}O_5 \\ 4HI \end{matrix}\right\} = \left\{\begin{matrix} C_{15}H_{12}O_4 \\ H_2O + 4I \end{matrix}\right.$$

3. Rheïn.

In treating the mixture of emodin and rheïn with hot toluene, the rheïn remains undissolved, and may then be purified by recrystallisation from hot glacial acetic acid. It forms microscopic yellowish brown scales, is only sparingly soluble in hot or cold alcohol, almost insoluble in toluene, benzene, ether, or cold glacial acetic acid, and is but slightly soluble in the boiling acid. When heated to 280° C. it does not undergo any alteration; considerably above that temperature it melts and is decomposed, forming a black liquid. Rheïn is quite insoluble in water; its alcoholic solution is distinctly acid. At the normal temperature it dissolves readily in caustic potash or soda, also in solution of potassium or sodium carbonate with a deep purple-red colour. When a solution of rheïn in potassium carbonate is mixed with solid potassium carbonate a compound of rheïn with potassium is separated as an amorphous purple mass. Rheïn also dissolves in a solution of potassium or sodium bicarbonate, but not so rapidly as in a solution of neutral carbonate. It dissolves also with purple colour in ammonia, and the solution forms flocculent amorphous precipitates of a purple colour on addition of lead acetate, agentic nitrate, or barium chloride.

When a solution of rheïn in caustic alkali or in other basic solvents is mixed with hydrochloric acid the rheïn is separated in a colloid condition, and from very concentrated solution it presents the appearance of a translucent slimy mass. When these solutions are boiled with excess of

[13] *Berichte*, 21, 436.

hydrochloric acid the rheïn soon assumes the sparingly soluble crystalline condition above described. In the colloid condition rheïn is much more soluble in ether than the crystalline substance. It has a sweetish acid taste, and does not appear to possess any purgative property. The composition of rhein is represented by the formula $C_{15}H_{10}O_6$.

	Calculated	Found
Carbon	62·93	62·95
Hydrogen	3·49	3 54

By treatment with hydriodic acid (1·7 sp. gr.) rheïn does not yield any alkyl iodide, but it appears to undergo alteration in the same manner as chrysophanic acid and emodin. The immediate product thus obtained was very probably chrysophan-dioxy-hydro-anthron : it was a pale yellow crystalline product, but I was unable to obtain it in a condition fit for analysis by recrystallisation from glacial acetic acid, as the solution gradually became dark coloured, and deposited an unpromising semi-crystalline powder.

When rheïn is heated to 85° C. with a large excess of acetic anhydride for several days it is gradually converted into a pale yellow crystalline powder consisting of minute scales, which melt between 262° and 265° C., after previously softening. This derivative of rheïn is very sparingly soluble in hot glacial acetic acid or in hot alcohol, but it dissolves readily in water solutions of potassium carbonate or caustic potash. These solutions have an intense purple colour. When the potash solution is heated for some time the product of acetylation is reconverted into rhein and acetic acid according to the equation—

$$\left.\begin{matrix} C_{15}H_9(C_2H_3O)O_6 \\ H_2O \end{matrix}\right\} = \left\{\begin{matrix} C_{15}H_{10}O_6 \\ C_2H_4O_2 \end{matrix}\right.$$

A determination of the acetic acid so produced gave the following results :—

	Found	Calculated
Acetic acid	14·1 p. c.	13·1 p. c.

Analysis of the acetylated substance gave :—

	Found	Calculated for $C_{15}H_9(C_2H_3O)O_6$
Carbon	61 88	62·19
Hydrogen	3 94	3·65

When this product or rheïn is heated to 190° C. for five hours with acetic anhydride in a sealed tube, further acetylation takes place, and diacetyl rheïn, $C_{15}H_8(C_2H_3O)_2O_6$, is produced. This compound was obtained in the form of small greenish-yellow needles, it dissolved more readily in glacial acetic acid or in acetic anhydride than the mono-acetyl derivative, especially on heating, and was to some extent soluble in dilute acetic acid. It was readily soluble also in potassium carbonate solution, caustic potash, or ammonia, and with purple colour. On heating in potash solution, rheïn and acetic acid are reproduced according to the equation—

$$\left.\begin{matrix} C_{15}H_8(C_2H_3O)_2O_6 \\ 2H_2O \end{matrix}\right\} = \left\{\begin{matrix} C_{15}H_{10}O_6 \\ 2C_2H_4O_2 \end{matrix}\right.$$

Diacetyl-rheïn melts at 236° C. Analysis gave the following results :—

	Calculated for $C_{15}H_8(C_2H_3O)_2O_6$.	Found.
Carbon	61·62	61·75
Hydrogen	3·78	3·60

It may be assumed that by longer continued heating, or by some other modification of the treatment, rheïn would take up two more acetyl groups with formation of tetracetyl rheïn.[14] Taking that assumption as well founded it would appear that rhubarb contains a series of substances the relations of which to each other may be represented by the following formulæ :—

Chrysophanic acid	$C_{15}H_8O_2(OH)_2$.
Emodin	$C_{15}H_7O_2(OH)_3$.
Rhein	$C_{15}H_6O_2(OH)_4$.

It may probably also be inferred that these substances originate from a still unknown constituent of rhubarb by oxidation, and, in fact, Proctor considers there is reason for believing that after extracting rhubarb by means of benzene, chrysophanic acid is again formed on exposing the exhausted residue to the action of the air. The entire process of change would then be

$$\times O, \text{ unknown constituent,} \rangle \text{ chrysophanic acid,} \rangle \text{ emodin,} \rangle \text{ rheïn.}$$

It must be noted, however, that Proctor does not say that he has actually obtained chrysophanic acid in the way suggested. As for Kubly's opinion in respect to the origin of chrysophanic acid, I consider that it is open to considerable doubt, and that his chrysophan was probably nothing else than impure rheïn.

It is well known that rhubarb frequently presents a streaked appearance, and it is stated that at one time red rhubarb was brought into the market from China. I am of opinion that the red coloration in such instances may be due to emodin, and if that be the case an explanation might be found of the circumstance that Grothe[15] appears to have obtained only emodin in his examination of rhubarb, though he incorrectly took that substance to be chrysophanic acid. This substance does not crystallise in prisms, neither do the crystals contain a molecule of water as stated in regard to the substance described by Grothe.

It still remains to be ascertained whether the roots of different kinds of rheum are alike in containing the same constituents that I have obtained from Chinese rhubarb and described in this paper—also whether there may be further distinctions between them and the constituents of roots of varieties of *Rumex*. In that respect v. Thann[16] was of opinion that he had proved the identity of rumicin and chrysophanic acid, but Rochleder subsequently raised a question as to the purity of the substances referred to. Moreover, at that time pure chrysophanic acid was unknown, and it will now be desirable to renew the investigation of those varieties of *Rumex* in which it is said that chrysophanic acid has been found. In this connection I must not omit to mention that for some months past I have been engaged upon the investigation of the roots of *Rumex nepalensis*,[17] a native of India, and that I have found they contain several substances, giving the characteristic reaction with caustic potash in common with the above-mentioned constituents of rhubarb, though they are certainly, like physcion, quite different substances. I intend in a future communication to deal with these substances more fully.

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[14] Owing to want of material I have been unable to try this experiment.

[15] Wiggers' 'Pharmakognosie' 1864, p. 242, and *Chem. Centralbl.*, 1862, p. 107.

[16] *Annalen Chem. Pharm.*, 107, 324.

[17] For a supply of this material am indebted to the kindness of Mr. D. Hooper, of Ootacamund.

NOTES ON ESSENTIAL OILS.

(*Concluded from p.* 309.)

Patchouli Oil.—The low prices obtained for this oil in recent years have had the effect of entirely stopping the importation, but it is anticipated that the prevailing taste for strong perfumes may ead to a renewal of trade in this article.

Peppermint Oil.—Within the last few years the cultivation of peppermint in America has extended into the States of Michigan and Indiana, the production of oil there exceeding very considerably that of Wayne County, in the State of New York, which falls short of last year. Japanese oil, of all kinds, is likely to be still dearer than at present. The experimental culture of peppermint in Saxony is being continued and the yield of oil this year amounts to some 400 pounds: Messrs. Schimmel hope to succeed in becoming independent of the English market for this important article.

Tansy Oil.—This oil has acquired some special interest since it has been found to be the best source of tanacetone (thujon), $C_{10}H_{16}O$. The question whether the higher boiling portion of the oil associated with thujon contained camphor was also of interest, since the observations of Persoz leave this question undecided, and the camphor obtained by Bruylants was the product of oxidation. Messrs. Schimmel's investigation showed that in the fractional distillation of tansy oil the portion passing over at 205° C. deposited a crystalline mass, which presented the characters of a mixture of camphor and borneol. The camphor was separated by converting the borneol into the sodium salt of acid succinic ester, according to Haller's method, and its identity established by preparing the camphor-oxim melting at 116° C.; it was not, however, ordinary dextro-camphor, but the much more rare lævo modification. The circumstance that Bruylants did not find camphor in tansy oil may, it is suggested, be due to the great differences in oils from different localities. An illustration of that fact is furnished by oil obtained from fresh grown cultivated tansy and supplied to Messrs. Schimmel by Mr. Sawer, of Brighton. This oil had little resemblance to that distilled from the wild plant. The odour was distinctly camphoraceous like that of rosemary oil, and the amount of camphor present in it was so large that on cooling to 0° C., there was considerable deposition. The optical behaviour of this oil was especially different from that of the American oil, and lævo-rotatory almost in the same degree that American oil is dextro-rotatory. Wallach also concludes from his observations that thujon is identical with the ketones found in tansy, sage, and wormwood oils by Semmler. Wallach has further shown that thujon and thujonoxim may be isomerised like some of the terpenes. On boiling thujon (b.p. 200°–201° C.) with dilute sulphuric acid it is converted into isothujon (b.p. 230°–231° C.), the oxim of which melts at 119°–120° C. When isothujon is reduced with sodium it is converted into an alcohol, $C_{10}H_{20}O$, bihydroisothujon, which yields on oxidation thujamenthone, a ketone, $C_{10}H_{18}O$, isomeric with menthone. Thujonoxim (m.p. 54°–55° C.) treated with phosphorus chloride yields an isomeric oxim (m.p. 90° C.), but when sulphuric acid is used another isomer (m.p. 119°–120° C.) is formed, which is identical with the isothujonoxim already mentioned. By reduction these three oxims yield three different amines. The isothujonamine hydrochloride gives on dry distillation a terpene, $C_{10}H_{16}$, but whether it is identical with thujen obtained in the same way from thujonamine hydrochloride has not been ascertained.

That thujon and carvol are closely related is evident from the circumstance that thujon is convertible into carvacrol almost as easily as carvol. By boiling thujon with ferric chloride solution Wallach obtained from 25 to 30 per cent. carvacrol. Carvacrol is also formed together with carvotanacetone by heating thujol to a high temperature. Thujontribromide, $C_{10}H_{13}Br_3O$, reacts readily with sodium methylate; one atom of bromine is eliminated as hydrobromic acid, another is replaced by OCH_3, while the third remains unaffected. The compound formed, $C_{11}H_{15}BrO_2$, is crystalline, melts at 156°–157° C., has the character of a phenol, forms a crystalline acetate, $C_{10}H_{11}Br\overset{OCH_3}{O(C_2H_3O)}$, and a dimethyl ether, $C_{10}H_{11}Br\overset{OCH_3}{OCH_3}$, and probably is closely related to carvacrol.

Rose Oil.—Notwithstanding the damage caused by the late severe winter, the quantity of oil produced this year from roses grown in Germany amounts to about half of last year's production. The experiments made with the object of growing roses for the production of oil upon sewage irrigated land in the neighbourhood of Berlin have been abandoned, as well as the cultivation of medicinal plants, which has been unsuccessful on account of the difficulty experienced in disposing of the produce.

The production of rose oil in Turkey is reported to be in excess of last year's yield, but speculative operations leave a doubt whether the price will be proportionately reduced. The practice of adulteration is said to have extended, and although the importation of palmarosa oil has been prohibited, the contemplated governmental regulation of the trade in rose oil appears to have been abandoned.

Rose Geraniol.—This product is in part natural and part the result of art. The favourable reception it has met with testifies to its merits in economising and rendering useful the delicate odour of the rose in a convenient form for perfuming purposes. Messrs. Schimmel propose next year to produce a geraniol preparation still more highly charged with rose oil, each pound of which will represent the odoriferous constituent of one thousand pounds of fresh rose leaves.

Mignonette Geraniol.—This is a product analogous to that last mentioned, geraniol being the vehicle for the odour of mignonette. Messrs. Schimmel state that they have, in the preparation of this article, worked up this year sixty thousand pounds of fresh gathered mignonette flowers stripped from the stalks. In some respects the character of the preparation has been improved, and the odour of sulphuretted hydrogen sometimes noticeable has been got rid of.

Rosemary Oil.—The distillation of this oil in Dalmatia has given a poor result, in consequence of the exceptional drought. In the South of France the result has also been only moderate. Pure rosemary oil should be dextrorotary and perfectly miscible with more than half its volume of 90 per cent. alcohol. The specific gravity should not be less than ·900.

Sandal-wood Oil.—The differences in the quality of this oil as met with in commerce are very considerable, and the mere description, "East Indian sandal-wood oil," has very little significance. In reference to the method of testing recommended by Mr. Parry in this Journal, Messrs. Schimmel state that they had long since made experiments in the same direction. They prefer to use acetic anhydride, with addition of some anhydrous sodium acetate, for the purpose of acetylation, and they calculate the results on the assumption that santalol, the alcohol of sandal-wood oil, has the composition of a sesquiterpene alcohol, $C_{15}H_{20}O$. On that basis the amount of santalol in sandal-wood oil appears to amount to about 90 per cent., but they are as yet unable to suggest a minimum limit. Messrs. Schimmel's results are as follows:—

	Amount of sesquiterpene acetate in acetylated oil.	Amount of santalol in acetylated oil.	Amount of santalol in oil.
1. Sandal-wood oil A...	98·	82·4	97·7
2. „ „ „	97·6	82·	97·2
3. „ „ „ B...	77·5	81·9	97·
4. „ „ „	98·3	82·6	97·9

5. Cedar-wood oil	17·9	15·	15·5
6. „ „ „	18·4	15·4	15·9
7. Copaiba oil	7·8	6·5	6·6
8. „ „	7·8	6·5	6·6
9. Sandal-wood oil (1) with 20 p. c. copaiba oil (2)	81·2 81·5	68·2 68 5	78·4 78·8

The importation of sandal wood of the right kind from Venezuela has been very unimportant.

Millefoil Oil.—This oil is described as the produce of *Achillea millefolium*, L., and it is suggested that its remarkably aromatic odour should make the collection of material for distillation desirable.

Thyme Oil.—The quality of red as well as white thyme oil being proportionate to the amount of phenols present (thymol and carvacrol), determination of this point is the only safe basis of valuation. The amount of phenol should not be less than 25 per cent. No reason can be given for the occurrence of one or other or both phenols in thyme oil. Similar conditions appear to obtain with the oil of various kinds of *Monarda*, as recently shown by Dr. E. Kremers. The chief constituent of the oil of *Monarda punctata* is supposed to be thymol, but that of *Monarda fistulosa* contains carvacrol, together with cymene and a substance resembling alizarin.

Juniper Berry Oil.—The price of this oil has been so low that no further reduction can be expected notwithstanding the superabundance of berries in Hungary, East Prussia, Silesia, Bavaria, and Italy. A sample of berries recently received from Smyrna, and the produce of Asia Minor, were distinguished by their bright red colour, and were probably obtained from *Juniperus phœnicea*. The berries yielded 1 per cent. of oil having a specific gravity of ·859 and a rotation −4°55′ at 16° C., corresponding, therefore, in these particulars as well as in taste and smell, with the oil from other berries.

The last portion of a distillate from juniper berry oil, after being kept for a long time in a cellar, was found to have deposited a quantity of fine acicular crystals. After separation and re-crystallisation from alcohol these crystals melted at 165°–166°C. Juniper berry camphor or stearoptene is mentioned in some of the older books. Blanchet and Buchner both describe crystalline substances obtained from the oil. Judging from the descriptions they were identical with terpinhydrate, while the melting point of the stearoptene obtained by Messrs. Schimmel was suggestive of a sesquiterpene hydrate.

Wintergreen Oil.—The natural oil appears to have been superseded by that produced synthetically, since pure methyl salicylate may be regarded as a perfect substitute for the natural product. In Messrs. Schimmel's New York laboratory, a thorough examination of the oil of *Gaultheria procumbens*, and that of the sweet birch, *Betula lenta*, has been carried out. The chief object was to ascertain what constituents were present besides methyl salicylate. Ether solutions of the oils were shaken with caustic potash solution, and the ether residues obtained were as follow:—

Gaultheria oil ..... 1·05 per cent.
Oil of sweet birch bark ..... ·20 „ „

The examination showed that gaultheria oil contains 99 per cent. methyl salicylate, together with some paraffin, probably triacontane, $C_{30}H_{62}$, an aldehyde or ketone, a secondary alcohol $C_8H_{16}O$, and an ester, $C_{14}H_{24}O_2$. The optical activity of the oil is probably due to these latter ingredients, and it may be assumed that they are decomposed or altered during the preparation of birch oil by the fermentation which gives rise to the oil. Pure fresh gaultheria oil should give a left rotation of not less than 0°25′. Birch oil contains about 99·8 per cent. of methyl salicylate, and when unrectified also minute quantities of the paraffin, $C_{30}H_{62}$, and the ester, $C_{14}H_{24}O_2$, while the alcohol, $C_8H_{16}O$, characteristic of gaultheria oil is wanting. Birch oil is always optically inactive.

The specific gravity of both oils is between 1·180 and 1·187 at 15° C. Like synthetic methyl salicylate they form, with 5 parts of 70 per cent. alcohol, a perfectly clear solution at about 20° C. Neither gaultheria oil nor birch oil contains any trace of benzoic acid or its esters, neither do they contain terpene or sesquiterpene.

Methyl salicylate has lately been found by van Romburgh in the roots of *Polygala variabilis*, H.B.K., *β. albiflora*, D.C., *P. oleifera*, Heckel, and *P. javana*. According to the same observer it exists naturally also in the leaves of *Erythoxylon coca*, Lam., and in very small quantity in those of *E. bolivianum*. The distillate from coca leaves is also stated to contain a minute quantity of acetone, recognisable by the iodoform test, and, probably, some methyl alcohol.

Cinnamon Oil.—The fact that the oil obtained from cinnamon bark contains from 60 to 85 per cent. of cinnamic aldehyde, and from 4 to 8 per cent. eugenol, while the cinnamon leaf oil contains a large amount of eugenol, and only about 1 per cent. of cinnamic aldehyde, affords a satisfactory basis for testing cinnamon oil and detecting the admixture of leaf oil which is so frequently practised. In reference to the testing of cassia oil by J. C. Umney, mention is made of the fact that the bisulphite method was introduced by Messrs. Schimmel. Objection is taken to the use of strong caustic potash in the determination of eugenol because a considerable quantity of non-phenolic oil is then dissolved, and the indication of eugenol is thus rendered too high. Experiments undertaken by Messrs. Schimmel to test the quality of cinnamon oil in the London market have given the following results:—

	Sp. gr.	Rotation at 25° C.	Amount of aldehyde.	Eugenol in original sample.	
				Thoms.	Umney.
1.....	1·039	0° 55′	29	41·9	59
2.....	1·040	0° 28′	28	39·1	61·2
3.....	1·041	0° 57′	29	47·7	56·8
4.....	1·049	0° 22′	24	45·7	63·0

In all these samples there was at least 50 per cent. of leaf oil, not perhaps added as an adulterant of the bark oil, but as a result of distilling leaves and bark together. In reference to Umney's suggestions as to the specific gravity, etc., of cinnamon oil, Messrs. Schimmel consider that 1·024–1·030 at 15° C. is too narrow a range, as they have found oil distilled by themselves from cinnamon bark to have a specific gravity of 1·038. Moreover, the oil is seldom quite inactive, but for the most part slightly lævo-rotatory.

Star Anise Oil.—Parcels of this oil recently imported from China have been found to have a solidifying point at the extreme limit allowable, and anticipating the possibility that the occurences in connection with cassia oil might be repeated, Messrs. Schimmel have impressed upon their correspondents in Hong Kong the desirability of controlling the quality of the oil by the solidification test, which affords very trustworthy indications. The higher the point of solidification the larger the amount of anethol present. As the result of numerous observations during several years Messrs. Schimmel have found that on the average the solidifying point of star anise oil is 16° C, the highest limit 17°·5, and the lowest 14° C. They recommend that purchasers of the oil should always be guided by the results of this test, and though their advice has not hitherto met with much approval, they desire to record the suggestion as having originated from them.

PHOTOGRAPHY FOR CHEMISTS.

Exposure and Development.

After exposing a plate, the all-important operation of development has to be undertaken, and to successfully develop a properly exposed negative is at once a science and an art. To attempt to give a practical lesson in development on paper is a task from which we shrink, but we can lay down certain fundamental methods, following which, error will not be so frequent, nor failure so depressing, but we may at once state that one hour's practical lesson is worth a hundred articles, provided of course you see a good operator at work.

We must first of all suppose a simple subject, such as the view over some gardens from our back windows. If we have one dark slide, then both sides should be filled with slow or landscape plates. If we have more slides, then fill them all, and having set up the camera, let us consider for a moment what exposure we intend to give. We will stop our lens down to F/32, and assume that we have chosen between 12 and 2 as the time for exposing.

Having focussed and stopped the lens down, put on the cap, turn back the focussing glass and insert the dark slide, taking care not to shift the camera, if the dark slide goes in too stiffly rub the edges with ordinary black lead and polish with a dirty duster. Now cover the camera and dark slide with the focussing cloth, insert the hand under the cloth, take hold of the projecting tongue of dark slide shutter, and gently withdraw. Be careful always to work in one particular way, first focus, stop down the lens, cap it, insert slide, withdraw shutter ; by doing this failure is avoided.

We know nothing of the exposure required, so intend to make some experiments and determine, having four plates to give exposures in geometrical progression, starting with half second ; therefore we shall give half, one, two, and four seconds.

Now for timing exposures. The simplest way is to start with the fingers on the cap, gently ease it to the edge of the hood and smartly, yet without force, remove the cap and start instantly 0 1 2 3 4, 2 2 3 4, 3 2 3 4, 4 2 3 4, thus counting four to each second, and always starting a fresh second with the number which, when the second is complete, will be the number counted. A little practice against a watch with a seconds hand, or against a pendulum clock, or even a bunch of keys hung to the end of a stout string about 9 inches long, which, of course, beats half seconds, will soon make this very simple and easy, and from considerable practice our error in seconds counting does not reach 2 per cent.

We expose our plates then for the above-stated times and enter the dark room ready to develop. We determine to use pyrogallol with the fixed alkalies, not ammonia, and for preference decide on soda ; the recrystallised sodium carbonate should be used in 10 per cent. solution. We also want a 10 per cent. solution of potassium bromide and pyro., formulæ for these have already been given.

A normal developer, that is, one which may be used for all plates without fear of fog, assuming them to be rightly exposed, is as follows :—

Pyro.	2 grains
Potassium bromide	½ ,,
Sodium carbonate	12 ,,
Water to make	1 ounce

Mix this in a measure, allowing 1 oz. for quarter plate, 2 ozs. for half plate, and 4 ozs. for whole plate. This is to old workers rather too much, but for beginners it is better to waste a little developer than waste a plate. Open the dark slide, not right in front of the light, but in the shadow. Remember that the side which faced the lens was, or should have been, the film. Place the plate this side up in the dish, take the dish in the left hand, slope it with one side and end awa from you, slightly, not too much ; then take the measure, lower it at the higher end on to the dish edge, and with a sudden sweep, drawing the measure down the side of the dish away from you, pour the developer over the plate, and immediately rock the dish backwards and forwards, and put down the measure. Now raise the dish a little, lower the head and hold the dish up towards the light and examine for air bells, which will be seen by the shadow they cast, or by the little waves they cause when the dish is gently rocked. If any are visible they may be removed by using a very soft, long-haired, flat camel's-hair brush, this being gently passed over the surface of the plate backwards and forwards. Some careful operators always use a brush, others quite as careful use their fingers. If a brush be used it must be kept for this work only, have a special nail to hang on and a very stout india-rubber ring, such as are used for soda-water bottles, slipped up the handle to prevent the hairs touching any wall or surface.

It is always advisable to note the time of pouring on the developer, and for this purpose a watch or clock with seconds hands may be used, or Watkin's eikronometer, a specially-devised clock, to be obtained wholesale from R. Field and Co., Suffolk Street, Birmingham, can be bought, price 10*s.* 6*d.* The idea in noting the time of pouring on the developer is that we may determine the duration of development, for upon this depends the quality of the negative.

We will first of all take the plate exposed for half second and having poured on the developer, eagerly watch for any signs of an image, carefully rocking the dish meanwhile. Time passes, and after seventy-five seconds there is a faint trace of the sky just showing a delicate tinge of grey on the creamy ground ; and now we see signs of one or two more bright objects, or as we call them "high lights," the bulk of the image ; however, all the trees, the parts in shadow, remain unaltered. After two and a half minutes us the sky is getting darker and darker, and here and there a few scattered points show up, the question arises, have we under-exposed ? Probably so, therefore, we measure out 6 grains of sodium carbonate (=1 drachm 10 per cent. solution) in the measure, pour the developer from the dish into the measure, and return the mixture to the plate and rock ; a little more appears, and after about thirty seconds more we add still another 6 grains and rock for another thirty seconds. We now look at our clock and find we have been developing just four minutes. We therefore conclude that we can get no more out of the plate ; it is under-exposed. Pour off the developer, wash the plate thoroughly under the tap for about five minutes, and place it in the fixing bath, preferably the acid fixing bath, the formula for which has been given in previous notes, and wait ten minutes, employing the time in washing the dish, measure, etc.

We now remove the plate from the fixing bath, wash it for about two minutes under the tap, see that we have not left our dark slide open, and walk into daylight and examine the negative. There appears a dense sky, scattered traces of objects here and there, but the greater part is bare glass—conclusion, grossly under-exposed. Treating the second plate in like manner we find that the image appears much quicker, and after about three minutes' development it looks fairly well ; we can distinguish most of the objects, and this with only the normal developer. Not knowing any better we place it in the fixing bath after washing, and again take out to examine. We now find a better-looking negative, nearly everything is visible, and only here and there patches of bare glass, still in those parts in shadow the deposit is not very great—conclusion, plate under-exposed, but not so much as No. 1. So we start again with No. 3 ; with this the sky appears in thirty seconds, and

the next highest light, it may be a bright house wall, a patch of grass or something of that kind, appears in forty-five seconds. Noting this time we continue development for three minutes, and then wash, fix, and examine and see a pretty-looking negative dense in the high lights and showing detail strong everywhere, and practically no bare glass; conclusion to be drawn, correct exposure, correct development—result, a perfect negative.

If this be the result with two seconds' exposure, the last plate which received four seconds must be over-exposed, still we use the normal developer. The image flashes out in about fifteen seconds, shows rapidly everywhere, and then a dirty veil begins all over the plate. Alarmed at this, we wash and place in the hypo., and then examine, and find a thin sky, thin or not much deposit anywhere, no bare glass and a deposit, veil or fog over the whole plate—conclusion to be drawn, plate much over-exposed. From these four little experiments a good deal may be learnt. We should have learnt the normal appearance of a correctly-timed negative, what an under-exposed one looks like, and the appearance of over-exposure, and if we bear these results in mind and judge subsequent work by them we shall not have wasted our four plates.

The correct duration of development is an all-important factor, therefore we must treat of it at greater length. Upon the correct duration of development depends the correct printing density, for with a negative under-developed we obtain in printing a false and unsatisfactory result, one without shadows and white or brilliant high lights, whereas with over-development we may not only lose an enormous amount of time in consequence of the increased insolation we have to give for printing, but also the results as regards gradation are frequently wrong.

The best guide as to the duration of development is that suggested by Mr. Alfred Watkins, of Hereford. It is not flawless, theoretically, but it is the best, practically. Mr. Watkins has formulated a table and method of working which is briefly as follows:—The time of the appearance of a high light, such as the grass in a landscape, or the face in a portrait should be noted, and the multiplication of this time, that is the time which elapses from the pouring on of the developer till the first sign of this particular high light is seen, is then multiplied by the factor belonging to the particular developer used, and the result will be the complete time of development counting from the moment of pouring on the developer.

Watkins' Table.

	Multiplying Factor.
Pyro. soda, 1 gr. pyro. to oz.	7½
„ 2 „ „	4
„ 3 „ „	3½
„ 4 „ „	3
„ 8 „ „	2½
Pyro. potash, quarter less than above.	
Hydroquinone (caustic soda, ½ gr. bromide)	3
Eikonogen (with carbonate of potash)	5
Metol (carbonate of soda)	16
Glycin	8
Amidol, 2 gr. to the oz.	10
„ 4 „ „	6

When a negative flashes up the instant the normal developer is applied, over-exposure must be expected, and then some solution of citrate of soda should be added instantly, and development proceeded with. In developing plates which have been exposed at the same time as the first one, over-exposure may also be expected, and then the normal developer may be altered as follows: Pyro., 5 grs.; bromide, 2½ grs.; carbonate of soda, 5 grs.; water, 1 oz.; and more soda added as found necessary. In the case of under-exposure it is advisable to add three times the quantity of water, and give it time, but no variation of the strength of developer will compensate for under-exposure.

ELECTRICAL MEASUREMENTS.*

BY F. H. BOWMAN, D.SC.

When a boy goes to school, as soon as he is able to master the first principles of reading, writing, and arithmetic, he is taught weights and measures and tables of quantity and capacity. It is indeed absolutely impossible to have any distinct notion or apprehension of the relations of any two materials to each other, or indeed of any magnitude whatever without some standard to which the various dimensions are referred. Thus dimensions of length are usually computed in miles, yards, feet, or inches, and those of capacity in cubes of these quantities, so that we speak of so many cubic yards of earth, or cubic feet of stone. We require quite different measures when we speak of weights and compute in tons, pounds, or ounces, and when we speak of liquids and use gallons or quarts. Each particular standard can only be used for its own class of measure—thus we could not speak of distance in gallons or weight in acres. There is, however, a relation between many of them. A gallon of pure water at the standard temperature and pressure weighs exactly ten pounds, and we can, therefore, when no gallon measure is available, weigh the water and obtain the number of gallons just as well as by measuring it. What is called the metric system of weights and measures, which originated in France and is used there and in many other countries and in almost all chemical laboratories, is supposed to have for its foundation a natural unit the metre, which was intended to represent a definite portion of the distance from the pole of the earth to the equator, but most of the measures used in this country are founded on arbitrary standards. Such is the yard, which was the length of the arm of one of the English kings, and the foot and inch which are fractions of it. As a matter of fact, the standard yard and its derivatives are represented now by a number of graduated bars which are enclosed in a box and built into the wall of the staircase leading to the upper rooms of the House of Commons at Westminster.

Wherever the measures are derived, and whatever they represent, they now convey to the mind of even a boy a certain definite length or quantity, and this is so persistently fixed in the experience of every educated person that anyone can give a very fair guess at the length of a yard or foot, or the weight of a pound by balancing any substance on the hand, almost as well as if they had a standard yard or pound to compare with.

In addition to these units of length, mass, and capacity, we have the hour with its sub-divisions of minutes and seconds as a unit of time, and the sovereign or dollar, if in America, as a unit of coinage. All these units have long been in use, the tables of weights and measures in which their relations are recorded are found in every arithmetic, and up to the present century were thought sufficient to express all the requirements of everyday life. Even such different measurements as the quantity and intensity of light and heat could be recorded in candles and degrees, although in the latter case the different value of the degrees used in different countries, such as Fahrenheit in England, centigrade in France and other countries, and Reamur in Austria, made it, unless the scale was specially named, difficult to understand. Within recent years a new difficulty has arisen by the introduction of the domestic and commercial use of another form of energy, turned to the use of man, which is called electricity. None of the ordinary measures or standards are applicable to this useful agent, and therefore an entirely new set of units of measurement have been devised to meet this necessity, and their determination has been the subject of many international conferences. Gas, which until recent years was the principal illuminant of our towns and cities, could be measured

* From the *Popular Science News*.

in cubic feet and charged for accordingly, but neither pounds, quarts, cubic feet, or any known unit could measure the new imponderable agent, which now makes night in our cities as light as day, or drives our tram-cars or machinery, or carries our messages along thousands of miles of wire, even under the beds of oceans, unites like the nerves of the human body in the bonds of living sympathy the widely different and far scattered children of men. Electricity is not matter, but only a condition of matter, and its real nature is not yet understood, so that it is impossible to measure it directly. We can only measure it by its effect upon material substances, and although, as we shall shortly see, we have now many delicate instruments which record directly the various quantities and qualities of this wonderful force, still it is essential that everyone should know the nature and meaning of the units which are so determined, so that they may represent to the mind ideas as definite as pounds, gallons, or degrees Fahrenheit. To avoid complications, labour, and sources of error, the scientific men who have decided what these units should be, have adopted the decimal or metric system as it is termed, in which the second is taken as the unit of time, the centimetre, which is equal to 0·3937 inch, or almost 2/5ths of an inch, as the unit of length, and the gramme, representing abo ut 15·432 grains, which is rather more than 1/453rd of a pound avoirdupois as the unit of weight. From these units all other units which are necessary to express the requirements of electrical measurements are derived. This system is called the "Centimetre-gramme-second system," and is usually abbreviated to the C. S. G. system.

For the practical purposes of commercial work many of the units may be neglected, and we propose to deal with a few of those which are as necessary to be understood as any ordinary standards. These are four in number, viz., the unit of quantity, which is called the Ampere, the unit of pressure or intensity, or electro-motive force (E. M. F.) which is called the Volt, the commercial or unit of work which is called the Watt, and the unit of resistance which is called the Ohm. All these units, and many others used in electrical measurements, are named after celebrated electricians or engineers,

The Ampere.—Nothing is more necessary in electrical science than that a correct statement of the quantity of electrical energy which is supplied from any source of electrical generation may be determined, and to do this advantage is taken of the fact that there is always an exact relation between the quantity of electricity supplied and the amount of chemical work which it will do, either in breaking up a chemical compound, such as salt into chlorine and sodium, or in depositing a metal, such as, say, silver, into a metallic surface. The former is the basis of all electrolysis and the latter of all electro-metallurgy or electro-plating. Based on this property of an electric current we may define the ampere to be such a quantity of electricity as will deposit from a solution of silver 0·001118 gramme of silver per second—this is equal to almost exactly 1 grain per minute. The ampere is therefore as definite a quantity as a gallon, which we may define as the quantity of pure water which will exactly weigh ten pounds. If any vessel will just hold 20 pounds, or 100 pounds of water, we say the one holds 2 gallons and the other 10 gallons, and in the same way if an electric current deposited 2 grains or 10 grains per minute, we should say it represented a quantity equal to 2 or 10 amperes. Just as we do not need to weigh the water, but can purchase a standard gallon measure, or a water meter, which enables us to obtain the exact quantity by actual measurement, so we can also purchase an instrument called an am-meter or ampere meter, and if any current of electricity is passed through this meter a finger or pointer indicates on a dial the number of amperes of current passing, just as the dial of a gas meter record the number of cubic feet which are being consumed, or a water meter the number of gallons. The analogy between the current of water in a pipe and the current of electricity passing along a wire is very useful as a means of illustration, because we all know that the quantity of water which flows from a pipe, in a given time, largely depends on the pressure of the water, and unless there is more pressure at one end of the pipe than the other no water will flow. In the same way, unless there is more pressure or what corresponds to pressure, at one end of a conductiag wire than at the other, no electric current will flow. Electrical pressure is measured by our second unit the volt.

The Volt is more difficult to define, so as to present a definite idea, than the ampere. We measure water pressure in pounds per square inch, but we cannot use this unit for electricity. We may, however, weigh a pound in two different ways—either by balancing it against a standard lump of iron or brass, called a pound weight or on a spring balance where the pound is measured by a certain resistance which the spring offers to being drawn out or uncoiled or, bent. Now we measure the volt practically in a similar manner by the power which it possesses of forcing a given quantity of electricity along a wire against so much resistance, for all conductors of electricity oppose a certain amount of resistance to the current, and each substance, such as silver, copper, or iron, has its own quantity of resistance.

We have already a definite idea of an ampere, and this being our unit of quantity, we have only to obtain some standard of resistance which is known and which may correspond to the resistance of a coil of steel wire in a spring balance, and we can then have a definite idea of what a volt pressure means. One unit of resistance is the Ohm.

The Ohm for all practical purposes may be defined as the resistance which is offered to the passage of a current by a column of mercury about 1/25th of an inch square (0·03037) and rather less than 41$\frac{3}{4}$ inches long (41·7322) when the temperature is at freezing point and the barometer at 30 in. This unit of resistance is known as the legal ohm, because there is another ohm which is called the British Association unit, which is smaller than this in the proportion of 0·986 to 1·000. The legal ohm may be roughly represented by the resistance of 100 yards of ordinary iron telegraph wire, which can be used when no other standard is available. Taking this unit of resistance we may define the volt as that pressure which will, in one second of time, drive or force a quantity of electric energy equal to one ampere against the resistance of one ohm.

We can now see that there is a very easy and close relationship between these three fundamental units which is of the greatest value to the electrician, because if we know any two of them we can always find the other. This relationship may be expressed as $A = \frac{V}{O}$, that is, the current passing through any wires in amperes is equal to the volts or pressure divided by the ohms or resistance. The same way we have $O = \frac{V}{A}$, so that if we know the pressure of a current in volts and the number of amperes which are passing, we have only to divide the volts by the amperes and we have the resistance in ohms. So also $V = A \times O$, and if we multiply the amperes by the resistance in ohms we get the pressure in volts.

We now see that these units are quite definite quantities and can be used in the estimation of electrical pressures, quantities and resistances as accurately as we measure the pressure of water in pounds per square inch, the quantity of water in gallons, the friction of a train through the air, or ships through water. For all these

electrical units meters can now be obtained which, when a current is passed through them, register the volts or amperes, or both; so that now we have not to think how these units are derived, or why they have been chosen, any more than we think of the origin of a yard or a pound when we use a yard measure or a pound weight, but everyone ought now to know what these units mean.

There is one other unit, the Watt, and its derivative the Board of Trade unit, which is 1000 watts, still to be explained. We know that if we come to determine the value of a supply of water based upon the amount of work it will do, either with a water-wheel, a turbine or any other motor, we must not only take into account the quantity of water flowing in a given time, say in gallons or cubic feet, but also the pressure at which it is supplied, because this is a most important element in the calculation, since a small amount of water at a high pressure will do as much work as a much larger quantity at a low pressure. It is one of the first principles of hydraulics that, say 1000 gallons of water at 10 pounds pressure will only do the same work as 500 gallons at 20 pounds pressure, or 50 gallons at 200 pounds pressure. In the same way an electric current measured by the work it will do, either in lighting glow lamps, driving motors, or decomposing chemical compounds, depends on the pressure as well as the quantity; and a current of 1000 amperes at 10 volts pressure will only be equal to 500 amperes at 20 volts, or 50 amperes at 200 volts, or 100 amperes at 100 volts. To meet this requirement a compound unit, the ampere-volt, which is one ampere of current at one volt of pressure has been decided upon and is termed a Watt.

The Watt is, therefore, the commercial unit by which electricity is bought and sold, just the same as if it was a commodity which can be supplied like water by the gallon at a pound pressure per square inch. The watt is, however, a very small unit, and so 1000 watts is, therefore, taken as the standard and called a Board of Trade unit, which corresponds with the sale of gas at so much per 1000 cubic feet, and the price of both differs in different places. Of course, when a current of electricity is supplied at a given pressure, either continuously or intermittently, the time has also to be considered and the Board of Trade unit is, therefore, the product of the amperes, volts, and hours of supply divided by 1000. Thus a current of 500 amperes at 100 volts for one hour is equal to $\frac{500 \times 100 \times 1}{1000} = 50$ Board of Trade units and a current of 250 amperes at 100 volts for two hours is only just the same, because $\frac{250 \times 100 \times 2}{1000} = 50$. Many attempts have been made to produce a good watt meter which should register the watts or the product of the amperes and the volts, but so far without much success, but as currents are usually supplied for central stations and other sources at a constant pressure it is really only necessary to measure the quantity of the current in amperes, which is easily done, and the calculation at the constant pressure is readily done. This unit, the watt, also gives a ready means of determining the relative amount of work which can be accomplished by a current of electricity and the energy of steam, because 746 watts will just do as much work in a motor as one indicated horse power in a steam engine, and conversely, one indicated horse power, if expended entirely in producing an electrical current, will generate 746 watts and no more. It is thus easy to calculate beforehand the horse power which will be necessary to supply any current of electricity whatever, or with a given current to decide what mechanical or other work it will do, always, of course, taking the resistance of the wires and the friction of the engine and dynamo into account. There are other electrical units, but most of them are of interest only to the scientific electrician.

REVIEWS AND NOTICES OF BOOKS.

Exercises in the Preparation of Organic Compounds. By Professor Emil Fischer, Berlin. Translated from the fourth German edition by Archibald Kling, F.C.S. Pp. 80. (Glasgow: Wm. Hodge and Co., 26, Bothwell Street. 1895.)

Though not the first English translation of Professor Emil Fischer's 'Anleitung zur Darstellung organischer Präparate,' this is virtually a new work, for it has been fully revised and considerably enlarged. The origin of the subject-matter, according to the author, was a collection of exercises used at Erlangen in the practical teaching of organic chemistry. Practical considerations, such as the price of materials and apparatus, and the facility, quickness, and freedom from danger in the making of the preparations, influenced the selection and arrangement of the exercises by the author and Dr. Wilhelm Wislicenus. As a result, almost all chemical operations and the most important methods are illustrated in some sixty exercises, which can be gone through in one session, whilst the outlay on materials need not exceed forty shillings. Moreover, all the directions given have been frequently tested in the laboratory. Teachers and students may therefore depend upon the book with the utmost confidence.

It would be occupying space to no advantage to enumerate the subjects of all the exercises, and it must therefore suffice to state that the list includes nitrobenzol, aniline, acetanilide, ethyl iodide and nitrate, glycol, benzyl chloride and alcohol, cinnamic acid, β-naphthol, quinoline, benzaldehyde green, anthraquinone, alizarine, and anhydrous grape sugar. In each case carefully detailed instructions are given for the preparation of the substance from definite quantities of other substances. The precautions to be adopted are also given at length, and, where necessary, illustrations show the arrangement of the apparatus employed. The matter is practical throughout, theoretical considerations being omitted of set purpose. In cases where text-books may prove insufficient to explain the reactions, etc., full reference is made to the original memoirs. The book should prove of the greatest possible value to all chemical students, since they can by its aid practically study the more important compounds of carbon from the synthetic point of view, as thoroughly as it is customary to do ordinary analytical work

A Handbook of Systematic Botany. By Dr. E. Warming. Translated and Edited by Mr. C. Potter, M.A., F.L.S. (London: Swan Sonnenschein and Co., 1895.)

Systematic botany may be regarded as being at present in a transition stage. The theory of evolution has been applied to it, and in modern text-books on systematic botany plants are now classified in the order of their supposed development, and each new work on the subject, written for teaching purposes, introduces new names, and so adds to the already long list of synonyms. The works published in another country labour under a distinct disadvantage, from the point of view of the English student, inasmuch as the mode of classification will have to be unlearned when the student works in a British or colonial herbarium. Perhaps to obviate this disadvantage, Professor Potter has given, in the form of an appendix, a bird's-eye view of the modes of classification adopted since the time of John Ray in 1703, in which appendix especial prominence is given to the system of Bentham and Hooker, all the cohorts having their characters added and the list of the natural orders being complete. It is not possible, however, without going through Dr. Warming's book, to find out wherein the cohorts of Bentham and Hooker differ from the "families" of Warming, for the two terms are synonymous. Thus, the apetalous Curvembryeæ of Bentham and Hooker do not

include the polypetalous Caryophyllaceæ, Portulaccaceæ, and Ficoideæ, the last named of which is called Aizoaceæ by Warming. A student who has learned Warming's classification, looking under Curvembryeæ in Bentham and Hooker's work for Aizoaceæ, would be somewhat puzzled and would waste valuable time in trying to find out where that natural order is placed. Nevertheless, whilst granting that the above-named orders form a tolerably natural group, it must be acknowledged that for practical purposes a method of classification that does not place the structure of the seed first would be more useful, since it is frequently the case that ripe seeds are only obtainable when the characters of the leaf and flower have disappeared.

Unfortunately the synopsis of Warming's classification of the Phanerogams is not given in the appendix, but only that of the Thallophyta, and must be sought for in the table of contents on pp. x., xi., xii., so that the student cannot readily make a comparison between the British and Danish methods of classifying the natural orders of flowering plants. The work has, however, many advantages. It is of a convenient size; the illustrations are chiefly taken from well-known and easily procurable plants; the subject matter shows a thorough acquaintance with plants and their relationships. The explanatory notes throw a great deal of light on the modifications that plants undergo in different genera of the same order, and the economic uses of the principal plants are tersely but sufficiently given. If under each natural order its position in the 'Genera Plantarum' were given by the editor, it is certain that the usefulness of this really excellent work would be greatly increased. No doubt, as Professor Potter says in the preface, "much of the significance of Dr. Warming's valuable and original observations would have been lost if his sequence of the orders had been altered," but a brief footnote, introduced at the end of each of the natural orders whose sequence differs from that adopted in Britain, would not have depreciated the value of Dr. Warming's work. The Thallophytes have been revised and re-arranged from notes supplied by Dr. Knoblauch; the bacteria have been revised by Dr. Migula; the Florideæ arranged after Schmitz, and the Taphrinaceæ after Sadebeck. This portion of the work is therefore quite up to date, and will not be so likely to puzzle students as the phanerogamic part.

Eyesight and School Life. By Simeon Snell, F.R.C.S Edin. Pp. 70. Price 2*s.* 6*d.* (John Wright and Co., Bristol. 1895.)

Few things are more important to the children of the present day suffering as they do under an extremity of schooling which is only too often supposed to be education, than that their eyes should not be so overtaxed as to be permanently injured or weakened. There can be no doubt that much harm was done in this way in Germany before sufficient attention was directed to the matter, and in the United States very decided beginnings of evil in the same direction have been checked only just in time. The little book before us may be useful in calling the attention of teachers and parents to some of the chief facts which have been ascertained in relation to eye work in schools, in showing them the errors which it is most important to avoid, and in pointing out, among other things, the influence of bodily position and of the direction of the light. Mr. Snell would not, we think, claim any originality for his work, which is said to have been put together as a lecture to an elementary teachers' association; but he gives a fair, if somewhat condensed, summary of the conclusions of Cohn, Risley, Weber, and others, and his work cannot fail to be valuable to those who have not access to their writings. An occasional mis-spelling of a name (*i.e.*, Kallman for Kallmann) leads one to doubt whether Mr. Snell does not himself sometimes quote at second hand, but this is perhaps excusable in so slight a compilation.

CORRESPONDENCE.

PHARMACEUTICAL ORGANISATION.

Sir,—The present seems a good time to call attention to the question of pharmaceutical organisation. Winter meetings are just being resumed, and certainly there should be strong efforts made to deal with this question in a practical way. Further, we expect two or three months hence to be called upon by the Council of the Society to get all the influence we can to bear in support of a Pharmacy Amendment Bill to be introduced by that representative body. Times without number has it been shown that defective organisation is chiefly to blame for chemists as a body effecting so little improvement in their position. It follows, therefore, that whatever projects may be put forward to improve the position of our body, our first concern must be effective organisation for working out our purpose. The first ideal of an organisation is that it embrace within it every member of the body it is supposed to represent. Unless it be thoroughly representative its power in combating opposition outside the body is apt to amount to nothing, because it is usual to conclude that members of the body outside of the organisation are directly opposed to it.

Chemists have not an organisation which can be called thoroughly representative so far as numbers go, therefore they lack the first essential. Yet they do possess the basis for that ready to their hands. The Register contains the names of all the chemists in the country, and it is suggested that this be taken as the basis for organisation. I would appeal to chemists carefully to consider this question above all others, and to discuss it at the various meetings about to take place. Several associations have already approved of it, but it is desirable that all of us, even those holding aloof from associations, should carefully consider the matter, and then give an expression of opinion upon it. If we take it that the Minor examination is the standard of development for the "pharmaceutical man," then it is only reasonable to demand that all persons on the Register shall have an equal voice in determining the opinion of the pharmaceutical body.

At the same time we must also contend that it is equally reasonable to demand that the cost of maintaining the Register should fall equally upon all. It is suggested to meet this by levying an annual subscription on registration. Of course it must be borne in mind that money collected on this ground could not be made use of for benevolent or other schemes not bearing directly upon maintenance of the Register. "Maintenance of the rights and privileges of the body," however, may well be included in "maintenance of the Register." The existing organisation of the Pharmaceutical Society should be used for this purpose, and these matters would then be regulated in accordance with the will of the registered body. Voluntary subscriptions for purposes not connected with the Register would be passed to a separate account and controlled separately, as is done at present with the Benevolent Fund.

The two points I wish kept in view are:—1. Let registration be maintained by an equal levy upon all registered persons, either by annual fee or otherwise. 2. Let all registered persons have an equal voice in determining the mind of the pharmaceutical body. Meanwhile, before introducing any measure to Parliament, I would humbly suggest to the Council the advisability, not only of having it discussed beforehand where chemists meet, but also of issuing voting papers to every person on the Register. The result would be an official return showing the opinion of chemists. In face of this any opposing list of names purporting to be those of chemists would be of no value as such. Any matter dealing with ourselves only, such as organisation, could excite little opposition in Parliament once it were shown by such a return that the body desired it.

Glasgow, J. Anderson Russell.

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THE PRESIDENT AT PLYMOUTH.

The chemists and druggists in the West of England met in conference at Plymouth on Wednesday, when the President of the local association, Mr. Charles Park, took the chair. A full report of the proceedings will be published in next week's Journal. Meanwhile, the following brief account, based on a telegraphic report, will give a fair idea of the matters touched upon. Mr. Hunt (Plymouth) opened a discussion on the question of territorial representation, and Messrs. Netting, Breeze, Rendle, Roper, and C. B. Allen (member of the Pharmaceutical Council) took part in the debate. Mr. Allen thought the present system of representation worked very well. Mr. Turney then dealt with suggestions for a new Pharmacy Bill, and in the discussion that followed, Messrs. Kelly, Rawlings, Rendle, Netting, Balkwill, Breeze, Gadd, Shapley, and Shuker took part. There was a consensus of opinion that endeavours should be made to bring chemists within the pale of the Pharmaceutical Society, so that they could go unitedly to Parliament with a new Pharmacy Bill.

Mr. Michael Carteighe, President of the Pharmaceutical Society, said the Law and Parliamentary Committee of the Pharmaceutical Council would shortly be considering the question of a Draft Bill. He thought they ought to seek power to deal with the Preliminary examination, so that there should be an interval between it and the Minor, and no person be allowed to present himself for the latter examination unless he had passed the Preliminary at least three years before. They wanted a curriculum also. Moreover, chemists ought to have the exclusive right of compounding prescriptions, and the Council should have the right to remove a man from the Register in case of need, whilst every person on the Register of Chemists and Druggists, whether because in business before the passing of the Pharmacy Act or by virtue of passing the Minor examination, should be entitled to become a member of the Pharmaceutical Society.

Referring to the recent Board of Trade Report, Mr. Carteighe said it dealt with one-man companies, and the Council hoped to have the assistance of the West of England chemists in getting rid of them. It was scandalous that a man should be able to keep open shop, even with a registered person in charge, by forming a limited company consisting virtually of himself alone, and then calling himself a corporation. The Council also hoped to have clauses imported into the proposed Bill imposing restrictions with regard to other companies. It was suggested that local committees should be formed throughout the country, so that they could be always ready to take action in support of the President and Council on going to Parliament with a new Bill. With such support there was little doubt they would be able to go to Parliament and get such a Bill passed as would meet with general approval. Speeches by Messrs. Kelly, Hunt, Cocks, Rendle, Breeze, Reid, and Netting followed, and the conference then terminated. The annual dinner of the Plymouth and district association was held subsequently.

THE IMPROVEMENT OF EXAMINATIONS.

There can now be little doubt that the system of examination has come to stay, and in all probability it is more likely to be extended than curtailed. It was from this point of view that the subject of examination was selected by Mr. Jonathan Hutchinson as the theme of an inaugural address delivered at the opening of the session of the Liverpool Medical College. Although his remarks were especially adapted to an audience of medical students, they were of sufficiently general application to have a wider interest, and the circumstance that they were intended to suggest possible improvements in the mode of conducting examinations is a sufficient reason for their receiving careful consideration from all who have anything to do with examinations. One point of great importance, referred to by Mr. Hutchinson at the opening of his address, may here be mentioned as furnishing a safe basis to start from in any attempt to improve examinations. It is a fact, which past experience has demonstrated, that the scope of an examination in prospect irresistibly determines the scope and nature of the previous course of study. Such an influence was anticipated at the time when the system of examination was first introduced with so much hope. It was believed by some that, with a compulsory examination, the education requisite to acquire qualification for certain pursuits would be ensured as a preliminary so necessary that it could not be avoided. It is, however, too well known now that this expectation was, to a great extent, fallacious, and it may be gathered from Mr. Hutchinson's remarks that the improvement of examinations is to be effected mainly by making up for this deficiency.

But if examinations have not induced education to the extent that was hoped, their retrospective influence has been exercised very forcibly in tending to retard thorough education. The gauge of examiners demands has been made the measure of study: the question what will and what will not be wanted has been so paramount in the selection of subjects for reading and thought that whatever was deemed not likely to be asked has been ruthlessly put aside, however great its intrinsic interest. Though it may not be very likely that mere pass or pluck examinations can ever be made to do much in fostering a love of knowledge, it is at least desirable that every effort should be made to render examinations influential in securing breadth of study with those preparing for the ordeal. As conducive to that end Mr. Hutchinson expresses a high opinion of the advantages of written

papers over personal examination. He considers that candidates are more likely to do themselves justice—whether to their advantage or otherwise—in a quiet half hour with pen and ink then when required to answer questions *viva voce*. Another suggestion is that in setting papers examiners should not be at liberty to extemporise questions, but should be required to select them from lists of questions approved for the purpose. Such a method is more open to question than the advantage of written papers. But Mr. Hutchinson boldly anticipates the objection that the crammers would thus have a royal road provided for them in the preparation of their pupils, and he meets it by an expression of opinion that the plan he recommends would forestall the evils of cramming, in so far that within narrower limits the crammer must perforce become the teacher of sound knowledge instead of making his pupils range superficially over a wider field to prepare them for any questions they may happen to be asked. In fact, Mr. Hutchinson's only idea is that examinations should be so managed that the element of personality should be eliminated both as regards candidates and examiners, while those presenting themselves for examination should feel as though being placed upon a weighing machine, and that the verdict recorded will be in exact relation to their deserts.

In regard to the question as to divided examinations, Mr. Hutchinson's remarks apply more particularly to the very extended curriculum of the medical student, but in that relation he is decidedly in favour of separate examination upon particular branches of study. He does so, however, more with the view of being thus able to make examinations an integral part of our educational system; to make them of influence in compelling more thorough study. Mr. Hutchinson's view is that the key of the whole situation is in the hands of the examiner, that curricula of study are worthless without his aid, and that certificates of study granted without examination are of no avail whatever. By developing the examinations and by contriving arrangements, extending throughout the whole course of study, which should encourage the industrious and choke off the idle and incompetent, both curricula and certificates might almost be dispensed with, and the student left more free to choose and change his place of study. In offering these suggestions for amendment, a justification of the attitude taken was offered by reference to the great public importance of examinations at the present day, and to the desirability that, in the case of medical examinations, the professional public should take a greater interest in them as being of more account for the safety of the profession than new legislation of any kind.

TECHNICAL EDUCATION.

The writer of the *Daily Telegraph's* "Lessons in German" has not much sympathy with attempts to convert polytechnics and kindred institutions into something resembling the technical colleges found in Germany. In so far as they help to continue elementary school education he thinks they meet an important social want, but too much is nowadays expected of them. For teaching foreign languages he considers them excellent; for freehand and geometrical drawing, most useful; whilst they are also well fitted for providing lessons in English literature, dressmaking, cookery, elementary mathematics, and music. "But when going beyond these they are ambitious enough to organise classes for engineering, electrical engineering, theoretical and practical chemistry, the judicious grieve." Real teaching of a practical nature requires an ample equipment, competent teachers for each department, and practical courses of systematic laboratory practice, extending over a year or two. "Failing to meet these essential postulates, our technical schools, one and all, will be shams. They will fritter away money uselessly; they will impoverish better institutions; they will waste the precious years of youth; they will diffuse superficial knowledge, put a premium on cramming, and hinder real original research." These are serious statements, but everyone who has reflected upon the subject will be fain to admit that the sketch is not overdrawn. "Technical education" has been for some time past the prevailing fad with a large class of presumably intelligent people, and it has been vainly imagined that money, teachers, and students are all that is required to ensure a thorough technical training that will enable its possessor to compete on equal terms with the properly trained foreigner. After much money has been wasted, the truth is being disclosed gradually, and there seems a reasonable probability that in a few years' time we shall have actually made a satisfactory beginning in the organisation of genuine secondary education.

PHARMACY IN NEW ZEALAND.

An attempt is being made in New Zealand, by means of a new Pharmacy Bill, to bring the pharmaceutical legislation of the colony into a line with that of Victoria. It is proposed that the measure shall come into force at the beginning of next year. It is provided in the Bill that the word "person" shall be held to mean any individual, society, company, or corporation. A body corporate, the "Pharmaceutical Society of New Zealand," is to consist of all persons registered under the proposed Act, and its affairs are to be managed and controlled by the Pharmacy Board of New Zealand, which is in future to consist of ten members of the Society. Registration will carry with it the right to use the title "pharmaceutical chemist," and only registered persons are to be permitted to keep open shop for the compounding and dispensing of medicines. "Licensed drug sellers" may, however, be allowed to carry on business as such, if not within a mile of the premises of a registered chemist. Candidates will be permitted to present themselves for the Board's examinations in materia medica, botany, chemistry, pharmacy, and practical pharmacy, at the age of eighteen years. But before being registered they must, in addition, show proof of having served a three years' apprenticeship with a registered chemist keeping open shop, and of having attained the age of twenty-one years. The certificates and diplomas of the Pharmaceutical Societies of Great Britain and Ireland will be accepted by the Board in lieu of examination, and it is proposed to make arrangements for reciprocity with the Australian colonies. On the whole, the provisions of the Bill appear to be well adapted to place pharmacy in New Zealand upon a proper footing, the only important omission being that of a clause to enforce a definite course of study prior to examination. This, however, is an omission of considerable importance, and it might fairly have been anticipated that our colonial friends would have taken a lesson in this respect from the unsatisfactory results caused by the lack of an enforced curriculum in Great Britain.

NOTES AND NEWS.

The Number of Pharmacies in America.—According to the *Pharmaceutical Era*, there are 36,352 retail drug stores in the United States, the ratio of population to each being 1199, taking the figures of the 1890 census as a basis. It is estimated that, in all probability, there are 50,000 registered pharmacists, assistants, etc., employed in these stores.

Midland Pharmaceutical Association.—The opening meeting of this Association for the new session will be held at the Grand Hotel, Birmingham, on Tuesday, October 22, when there will be a reception by the President, Mr. R. D. Gibbs, at 8.30 p.m., followed by music and social intercourse. The Honorary Secretary, Mr. C. F. Jarvis, Handsworth, will be glad to have early intimation from members intending to be present. On November 18 next a meeting of the Association will be held at the same place, to hear an address on "Undue Cutting in the Retail Trade," by Mr. E. J. Smith. This will doubtless prove of considerable interest.

Pharmacist and Electrician.—An Electrical Engineering School has been instituted at Melbourne, Victoria, the principal of which is Mr. A. Henrick Jackson, B.Sc., who distinguished himself in 1878 by taking bronze medals in all subjects at the School of Pharmacy, London, in addition to the Pharmaceutical Society's Silver Medal. He has since acted as director of the Melbourne College of Pharmacy, lecturer on practical pharmacy at Melbourne University, professor of chemistry and botany to the Melbourne Veterinary College, etc., etc. The new school constitutes one department of the Melbourne Science School, and on the council of the institution are Mr. C. R. Blackett, President of the Melbourne Pharmacy Board, Dr. Duncan Turner, President of the Dental Board, Baron Sir F. von Mueller, K.C.M.G., F.R.S., etc., and the Hon. R. D. Reid, member of the Executive Council of Victoria.

'Science Progress' for October.—Recent progress in the study of alloys serves F. H. Neville as the topic for the introductory article in this number of the monthly review of current scientific investigation. Commencing with a brief reference to Matthiessen's work, the writer deals with the results arrived at by Alder Wright, Roberts Austen, and by Heycock and Neville, the main outcome of whose work is summed up in the statement that mixtures of liquid metals obey those general laws of solution which have been so brilliantly developed in the last ten years. In a subsequent communication it is proposed to consider the more purely chemical attempts that have been made by Deville and Debray, and other workers, to isolate alloys of definite formula. The "Galvanotropism of Tadpoles" is the title of an interesting lecture on electro-physiology, privately delivered by Dr. Augustus Waller, F.R.S. A long article on the chromatophores of animals is by Walter Garstang; Arnold Eiloart concludes his paper on the space relations of atoms; and Dr. W. D. Halliburton, F.R.S., writing on the synthesis of proteids, draws attention specially to the researches of Grimaux and Pickering. The former obtained substances resembling proteids some years before Schützenberger succeeded in preparing a compound very like albumin, and by somewhat simpler processes. He produced a colloid substance exhibiting many of the properties hitherto deemed diagnostic of proteids, which might be regarded in fact as a skeleton of a proteid. Pickering has confirmed most of Grimaux's results, and discovered certain important similarities between the proteids and synthesised colloids which were not noted by Grimaux.

Western Chemists' Association of London.—At the opening meeting of this Association, held on Wednesday last, the chair was taken by the President, Mr. Parker, who referred to the meetings held during the past session as having been attended with satisfactory results, as agreeable re-unions, and useful opportunities of discussing matters of interest to the trade generally. There was a large attendance of members, and the business transacted included the election of officers for the new session, the consideration of accounts, etc., etc. There is every reason to believe that the Association is entering upon one of its most prosperous sessions.

Payments to Commercial Travellers.—In the City of London Court on Monday Mr. Commissioner Kerr gave a decision of considerable importance to traders in their relations with travellers representing wholesale firms and manufacturers. An action had been brought to recover payment for goods supplied to the defendant who said he had paid the amount to the plaintiff's traveller, and produced the receipt. Plaintiff's counsel said the traveller had no authority from the plaintiff to collect money, though he had taken, the order. Mr. Commissioner Kerr said, however, that unless traders gave their customers express authority that they were not to pay the traveller he would hold in all such cases that the customers were justified in paying the traveller. He would assume that if the traveller had authority to take the order he had his master's authority to take the money. That was the ordinary inference, and judgment must therefore be given for the defendant.

Analysts' Certificates as Evidence.—An important judgment was given in a case under the Sale of Food and Drugs Act, heard at Glasgow on October 10. The defendant was charged with selling a tin of condensed milk, which was certified by the public analyst to be deficient in its natural fat to the extent of 44 per cent. Sheriff Strachan said the Act provided that the analyst's certificate should be sufficient evidence of the fact stated therein; but in this case the statement in the certificate that the article analysed was not of the nature, substance, or quality of condensed milk was very clearly not one of the facts required to be stated under the Statute, and on which the production of the certificate was held to be sufficient evidence. It was a mere matter of opinion on the part of the analyst, and was of no statutory effect or authority whatever. There was practically no evidence that the article sold to the purchaser was essentially different from that demanded, and the case must therefore be dismissed.

Diphtheria Antitoxin as a Culture Medium.—In last week's *British Medical Journal*, Drs. A. E. Wright and D. Semple describe how blood serum may be conveniently replaced by diphtheria antitoxin as a culture medium for the diphtheria bacillus. In cases where the antitoxin cannot be obtained, hard-boiled white of egg, prepared by the method described for coagulating the antitoxic serum, will serve as a fair substitute. Half a teaspoonful of the fluid is poured into a clean, wide-mouthed bottle, which is then placed horizontally and held over the mouth of a steaming kettle. As soon as coagulation is complete, any water of condensation is poured off, and the culture medium after cooling is inoculated by means of a stout wire or glass rod which has been in contact with the diphtheritic throat. The bottle is then stoppered and kept at the temperature of the blood for twenty-four hours, when the microscopical examination may be undertaken. Failing other means of maintaining the temperature, the bottle may be kept in an inside pocket. Further useful particulars are given in the paper in reference to the employment of the process in the laboratory.

SHEFFIELD PHARMACEUTICAL AND CHEMICAL SOCIETY.

Opening of the School of Pharmacy.

The inaugural meeting in connection with the opening of the winter session of the Sheffield School of Pharmacy was held at the Masonic Hall, Sheffield, on Thursday evening, October 10, when the prizes gained by the students during the last session were distributed. The President of the Society, Mr. J. F. Eardley, occupied the chair, and amongst those present were Mr. Michael Carteighe (President of the Pharmaceutical Society of Great Britain), Mr. A. H. Allen (City Analyst), Mr. G. Ellinor, Mr. J. Preston, Mr. A. Jackson, Mr. W. Ward, Mr. A. R. Fox, Mr. J. Ibbitt, Mr. J. Rymer Young (Warrington), Mr. C. H. Hewitt, Mr. C. O. Morrison, Rev. T. S. King, and Mr. J. C. Platts.

Mr. G. Squire (Secretary) read several letters of apology for unavoidable absence, and

Mr. Morrison (School Secretary) then presented the report for the session 1894–5. The number of entries (18) showed a decrease of eight compared with last session. The result of the examination in botany was that Messrs. E. D. W. Clowes, J. F. Essam, and H. Milne gained an equal number of marks. As this required an extra prize, Mr. G. Ellinor had generously provided one. In the chemistry class, Mr. T. Mordaunt and Mr. W. B. Stather were awarded the first and second prizes respectively, whilst Mr. Mordaunt gained the prize in practical chemistry.

The President congratulated the students who had succeeded in winning prizes, and expressed the hope that they would be stimulated to further work in the hope of attaining to greater distinction. Let not those who had been unsuccessful be discouraged. The very effort they had made to gain prizes must have done them good. Pharmaceutical education had received a large amount of attention in the last few years. As they were aware, the system of examination had been varied from time to time with the object of finding out whether the knowledge possessed by the candidate was sound and solid or superficial. The attempts of students to crowd into a few months the work of several years was the cause of many failures at the examinations. In many towns apprentices had not the opportunity for attending pharmaceutical classes, but such was not the case in Sheffield. For years their Society had done all it could to further education. They had made sacrifices in the past and were prepared to make them in the future for the cause of education. The Council was unanimously of opinion that every facility should be given to the apprentices to attain that knowledge which was so essential to their future, but which they could not acquire in the pharmacy. The arrangements for the new session would include a pharmacopœia class, which Mr. Morrison, their School Secretary, had kindly offered to conduct, and it was hoped that students would take advantage of it and attend regularly. An educated pharmacist would succeed where an uneducated one would fail. The students present had chosen the pharmaceutical calling as their occupation, and as members of a body they had a dignity to preserve and an honour to uphold.

Mr. Michael Carteighe moved a vote of thanks to the President. Most of those present knew that all true educationalists believed in a curriculum. They believed that examinations formed a very imperfect means of arriving at results, but if they could combine with examinations a full curriculum, so that schools like that in Sheffield might be established throughout the country and carried on efficiently, it would be very much better than the present system. The principles under which the Sheffield Society worked were those he had always considered to be the best. Speaking more directly to the students, he pointed out to them the extreme usefulness of the classes which the Society carried on. He reminded them that if they commenced their studies with their apprenticeship they would acquire knowledge which would be sound and lasting. By reading papers and taking part in discussions they would gain confidence, and so would be able to acquit themselves more satisfactorily when they came before the Examiners. He warned them of the danger of neglecting opportunities and then thinking they would be able to make up by cramming just before an examination. The Examiners were able to discover which of these courses a student had taken when he came before them. The course he recommended was followed more by Scotch students than by those in England, and as a consequence a larger percentage of them passed examinations with success.

Mr. A. Jackson seconded the motion, and it was carried with acclamation.

The President briefly acknowledged the compliment, and the proceedings terminated.

The Annual Dinner

of the Sheffield Pharmaceutical and Chemical Society took place in the Masonic Hall later in the evening. Mr. J. F. Eardley presided.

After the usual loyal toast,

Mr. W. Lamond Howie proposed the "Sheffield Pharmaceutical and Chemical Society," remarking that the Society not only helped the members to increase the sum of their knowledge but it helped them to fight the battle of life more successfully, and made life more pleasant.

The President, in responding, expressed the hope that principals would give opportunities for their apprentices to attend the classes at the School of Pharmacy, remarking that in the future they must meet competition with quality, and with that must come education.

The Secretary (Mr. Squire) expressed regret that Mr. G. T. W. Newsholme was not able to be present, through indisposition. That was the first time he had been absent from their gathering for eighteen years. Mr. Newsholme's health was then proposed and drunk with enthusiasm.

Mr. W. Ward, in proposing the "Pharmaceutical Society of Great Britain," said he would like to see some revision of the Poisons Schedule. He hoped the Council would continue to try and get carbolic acid put into the Schedule. He would also like to see an enforced curriculum. He begged the Council to support at the earliest possible moment a compulsory system of education. He was glad to see that the Council had decided to deal with the grave and vital question of limited companies by asking the Board of Trade to introduce a special clause into the Bill which the Department had promised to bring in. If Mr. Carteighe could get a clause inserted in a Bill remedying this grievance he would have performed one of the best acts he had done since he had held the position of President, and it would strengthen the position of the Pharmaceutical Society.

Mr. Michael Carteighe, whose name was coupled with the toast, said in response that both he and the rest of the Council he represented agreed with the remarks Mr. Ward had made, and would do all they could in the directions indicated.

The Scheduling of Carbolic Acid.

He assured them that not only was the question of the scheduling of carbolic acid being considered, but also that of many other drugs of an organic nature, the properties of which were not clearly defined, though they were clearly toxic, and it would be in the interest of the public if these were scheduled. They had the greatest difficulty in the early days of the Pharmaceutical Society in dealing with the question of poisons. The Council hesitated to touch it because they had to deal with the prejudice of the public, who believed in free trade in poisons as in all other things.

The Importance of Personal Responsibility.

He thought the individual pharmacist properly equipped and trained was perhaps the best person to whom should be granted, not only the licence to sell poison, but the power to use discretion as to whom and under what conditions sale should be made. Unfortunately differences of opinion amongst their members some twenty-seven years ago led to their defeat in the House of Commons. They were told that the Poisons Bill was all that was required, and the personal responsibility to which he had referred was not insisted upon. Though defeated, they were not disheartened. They accepted the inevitable, and did their best with the Poisons Bill, and had endeavoured to import into it, by judicial decisions and otherwise, as much of the personal element as it was possible to get with the limited powers conferred.

Fraudulent Dispensing.

He reminded them that it was possible to do business in drugs without touching poisons. They had found, from the purely trade aspect, that the effect of the 1868 Act had not been in any degree satisfactory, either to the public or to themselves. They had been left severely alone while other classes of people professing to know something of physic had gone so far as to pretend to dispense prescriptions, carefully leaving out any poison which should be in the medicine, and telling the patients they were better without it. He mentioned cases of this kind which had come under his notice, and said when a poison within the Statute was sold the law required that it should be labelled "poison," but the law did not provide for the punishment of the person who should label innocuous substances with the word "poison." That might account to them for some of the supposed irregular sales of poisons that were going on, but which were, in fact, frauds under

the Sale of Food and Drugs Act. Some glaring frauds of that description had come under their notice, and they had communicated with the local authorities with the object of getting a prosecution but without effect. It seemed to him that a person who left out from a preparation the most important agent in the prescription was doing that which was akin to picking a man's pocket. That was one form of difficulty which the Council met with in the administration of the Act. It could only take action when the poison found was in the specified article sold.

The Protection of Trade Interests.

He assured them that the members of the Council had not in recent years spared work in order to do what service they could for pharmacy. They had not denied that the duty devolved upon them to protect, as far as the law would permit, the status and trade of the chemist and druggist, and they claimed that they did that in the public interest. He combated the suggestion that they were acting in a trade union spirit, and contended that they had only desired to compel people to conform with the law, and protect the lives of Her Majesty's subjects. Coming to what they proposed to do, he did not wish to encourage the notion that they were capable of controlling Parliament or even Government departments, but he did think they had an illustration of the good work done by the Council in the report of the Committee of the Board of Trade recently published.

One-Man Companies.

They had for the first time the decision of a committee of that Department that the existence of one-man companies—in which a man and his wife and children formed the company—was deserving of the gravest consideration: also that the power to wind up a company which now only exists where the company is unable to pay its debts, should be extended to cases where a company was formed for an unlawful purpose. That was not much to have gained, but it was the first time the point had been conceded. He showed that the grievance affected not only chemists, but every person in the kingdom who had under law a qualification to practise anything as it had been laid down in a certain memorable case that a corporation could not be examined, could not be registered, and was outside the Act. The law laid down by that decision was that seven persons, members of the same family, could constitute themselves into a qualified company or corporation to do what no individual could do in pharmacy or certain other professions without going through certain examinations and conforming to certain rules.

The Attitude of the Departmental Committee.

They had got a committee to recognise that this was inequitable and a danger to the public, and on the basis of that report it was hoped legislation would be brought forward. He admitted that the acts which prompted the late President of the Board of Trade to appoint the committee were not matters which much affected pharmacy; but the Pharmaceutical Society pressed this matter on the attention of the Committee, and it had been recognised that the Companies Act had become what in his opinion Parliament never contemplated it would become. It had become the machinery for practically stopping the education of persons for those personal occupations which involved qualification. The Pharmaceutical Society had met with very considerable success in prosecuting many of these one-man companies, but unfortunately offenders found it cheap enough to pay penalties and go on selling. Here was a prostitution of a good law which no Parliament could have contemplated.

Necessity of Supporting the Society.

There was a prospect in the next Session of Parliament of a Bill being introduced on the recommendation of the Board of Trade Committee, to deal with the financial aspect—the frauds on the public. He asked them if the Bill came before Parliament to back up the Pharmaceutical Society tooth and nail in the endeavour to get something done in this direction. What he had said would show that the Council had been doing quiet work. In conclusion, he expressed the firm belief that if the Society received adequate support it was possible to get rid of at least one monster which he thought ought to be scotched once for all. They might, through lack of support on the part of their colleagues, lose now as they had lost in former days, but it would not be for want of a strenuous effort on the part of the Pharmaceutical Society as represented by its Council.

Mr. J. Rymer Young, member of the Council of the Pharmaceutical Society, also responded.

Mr. C. O. Morrison then proposed "Scientific and Learned Societies," to which Mr. A. H. Allen responded, and the toast of the "Visitors" brought the list to an end. The speeches were interspersed with music and song, and an enjoyable evening was spent.

MISCELLANEOUS NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Manchester Pharmaceutical Association. — The opening meeting of the session was held at the Chemical Club, Victoria Hotel, Manchester, on Wednesday evening, October 9, Mr. G. S. Woolley in the chair. The report was read by the Hon.-Sec., Mr. A. E. Blackburn, and adopted on the motion of the Chairman, who said the work they had done during the past session had in his opinion been of a good character. He regretted the small amount of interest excited by the Herbarium competition, and said it was most probable that the Council would have to consider the advisability of continuing the competition. Another regrettable feature was the lack of competitors for the Manchester Association Scholarship, as it could not be said that it had not been made known. Circulars had been issued very largely, and the Scholarship had often been referred to in the Council chamber in London, and unless the young men of the district evinced more interest in it, it would most likely be thrown open to the whole of the country, though he was far from desiring any such contingency.

The motion was seconded by Mr. Wilkinson, who expressed great surprise at the fact that in the whole of Lancashire and surrounding districts included in the scheme of the donor there could not be found a young man to compete for the Manchester Association Scholarship.

The voting for the election of a new Council then took place, and as the result the following gentlemen were declared elected:—Messrs. G. S. Woolley, H. Kemp, W. Stones, A. E. Blackburn, W. Bowden, W. Kirkby, W. Lane, A. J. Pidd, G. H. Westmacott, W. Wilkinson, J. R. Young, John Blyton, and John Wild.

The consideration of the balance sheet was, on the motion of the Chairman, adjourned till the next meeting of the Association.

Mr. J. R. Young moved "that this meeting of the Association has heard with regret of the death of the hon. treasurer, Mr. W. Arrandale, of Denton, who has for many years been an active member of this Association, and always faithfully attended to the duties entailed by his appointment as a member of the Council, and it hereby desires to place on record its high appreciation of the services which he rendered to the Association, and resolves that the Secretary be requested to forward a letter of condolence to Mrs. Arrandale and family." Mr. Young, in the course of his remarks, said that Mr. Arrandale was liked by all with whom he had come in contact, and he had certainly worked hard for the Association, in which he took the greatest interest. Whilst they all knew the distress the family would be plunged in, he was certain their sympathy would be greatly appreciated.

Mr. Kemp seconded the motion, and other gentlemen spoke in eulogy of the deceased gentleman.

The motion was carried in silence.

After the termination of the ordinary business of the meeting the Chairman said the subject of bogus company trading had at last been taken in hand and was worthy of every support. He heartily endorsed all that had been done so far by the Pharmaceutical Society in the matter. The Society had now a great advantage and if the Council needed any assistance in going to Parliament in the way of influencing members he thought it could rely upon all the associations throughout the country. He did not think the Society had ever been in such a favourable position as at present for pushing forward the crusade, and judging from the remarks of the President the Council was fully aware of that, so it was to be hoped something would now be done in forcing legislation.

Mr. Young said the subject to which the Chairman had drawn their attention was of the utmost importance to the Pharmaceutical world. The matter was at present being considered at headquarters, the work being done chiefly in committee, but he could assure them the Council realised the power which had been placed in its hands and would make every use of it. Numerous suggestions had been made as to how to deal with the question, but they all resolved themselves into the one principle, that it should be illegal for a company to do what a member of the company, as an individual, could not do. The Society would, he considered, greatly strengthen its case by seeking the co-operation of other bodies of a more or less professional nature, for it was quite clear that veterinary surgeons, dentists, and even doctors were all more or less affected.

Mr. Kirkby said there was now every hope that the anomalous state

of affairs which had so long been a disgrace would soon be done away with, and he felt sure all were glad that the Society was now moving in the matter.

Mr. Kemp stated that he had often urged that the Companies Acts were never intended to enable a man to do as a "limited company" what he could not do as an individual, and he was well pleased to know the Council had been moving in the matter in order to obtain a change in this matter. The main object of the Federation was to stimulate action on this great question. The Pharmaceutical Society was, however, now working in the right direction, and he thought no harm could be done by associations in the country showing their approval of its action. He had pleasure, therefore, in proposing: "That this Association heartily approves of the action which is being taken by the Council with a view to the amendment of the Companies Acts, which shall render it illegal for a man trading as a company to do that which is now illegal for him to do as an individual, and the Society may rely upon this Association using its best efforts when occasion arises for influencing Parliament.

Mr. W. Wilkinson seconded the motion, which was carried unanimously.

The Secretary was requested to send a copy of the resolution to the Pharmaceutical Society.

This closed the proceedings.

The Sale of Ammonia by Grocers.—An inquest was held on October 4, by Mr. F. N. Molesworth, county coroner, at the Railway Inn, Milnrow Road, Shaw, into the circumstances attending the death of Matilda Jane Wrigley, who died on Monday evening, after having by misadventure partaken of a quantity of liquid ammonia. It was shown in evidence that the liquid had been supplied in a stone ginger-beer bottle which did not bear a poison label. In addressing the jury, the Coroner said the doctor had certified that death was due to ammonia poisoning, and it was for the jury to satisfy themselves that the child took the ammonia by misadventure. There was no doubt about that, but at the same time the facts disclosed a most dangerous practice. There seemed to be a practice of sending out ammonia in a reckless way by grocers.—The jury returned a verdict of "Death from poisoning by ammonia, taken by misadventure," and recommended that grocers in future should label ammonia "poison," and not supply it in bottles such as had been used in this instance.

Tincture of Rhubarb Devoid of Saffron.—At Wirksworth Sessions, on October 8, Mr. Swann Fearn, grocer, of Brassington, was summoned on a charge under the Food and Drugs Act with selling tincture of rhubarb devoid of saffron and deficient of 20 per cent. solid ingredients.—Captain Sandys prosecuted, and proved buying sixpennyworth of the tincture from the defendant's wife.—The defence was that defendant had taken over his father's business recently, and he had never sold any of this tincture. He proved by letter from Messrs. A. Greaves, of Chesterfield, that it was not bought from them within the last eight years.—The Bench did not believe that defendant was wilfully infringing the law, and he was ordered to pay £1 5*s.* 3*d.*, including costs.

Brighton Junior Association of Pharmacy.—The session was opened on Wednesday evening at Newbury Hall, Cannon Place, when the new President, Mr. J. F. Grindley, gave his address. This had reference to the work of associations, and to the steps the Pharmaceutical Society was taking to amend the Act regarding company chemists. Counter prescribing by chemists was also touched upon. Whilst opposed to its being systematically carried on, it was urged that there are times when a chemist who is known to possess a general knowledge of drugs cannot well refuse advice in minor ailments without incurring the imputation of ignorance and the risk of losing the confidence of his customer. There was a good attendance, and a hearty vote of thanks to the President for his able and interesting address was passed. The other officers of the Association are Messrs. A. T. Jeeves, Vice-President, E. S. Gosling, Hon.-Treasurer, A. E. Colman, and A. H. Cupit, Hon.-Secretaries.

College Fellowship.—Mr. J. H. Stamp, of High Street, Hampstead, son of Mr. E. B. Stamp, Pharmaceutical Chemist, and brother to Mr. F. U. Stamp, who recently won a Bell Scholarship, has been elected to a Classical Fellowship at Trinity College, Cambridge, as the result of examination and a thesis.

Methylated Spirit in Liniment of Iodine.—At the Leicester Borough Police Court, on Monday, Edward Henry Butler, chemist, 93, Humberston Gate, was summoned for having in his possession a preparation of iodine, in the preparation of which methylated spirit had been used contrary to the Statute.—Mr. McCalman, supervisor of the Inland Revenue, in opening the case said that in the preparation in question methylated spirit had been used, instead of a duty-paid spirit.—Mr. H. W. Davis, analyst, of Somerset House, stated that on August 2 he examined, on Mr. Butler's premises, the contents of a small bottle which was labelled "Lin. Iodi. Meth." It was a small bottle of about five ounces capacity, and Mr. Butler's manager explained to witness that it was made for a doctor. Shortly afterwards he saw another bottle of twenty ounces capacity nearly half full of the same liquid, and labelled "Lin. Iodi. Meth." Witness took the bottles to Somerset House and analysed them. He found the spirit present was methylated spirit. The preparation was capable of being used internally as a medicine if properly diluted, though in its present condition it could not.—In defence Mr. Simpson said defendant no doubt had been guilty of a technical breach of the regulations. About eighteen months ago he received an order from a doctor for a particular liniment at the time he was using methylated spirit for one of the liniments in which it was permissible, and in mistake the liniment for the doctor was made with the methylated spirit. The liniment was returned, and another sent in its place, and it was quite an oversight that the discarded preparation was not destroyed at the time. He contended that there was not the least intention of infringing the law, and no injury was caused to a single human being.—Mr. Leake, manager for defendant, gave evidence in support of this statement, and Dr. Meadows said the liniment in question was not capable of being used internally, and to all practical purposes it would be impossible to dilute it sufficiently for internal use.—The Bench considered a technical offence had been proved, but were of opinion that the liniment was made up entirely by mistake, and thought the case would be fairly met by ordering the defendant to pay the costs of the proceedings, without imposing a penalty.

Alleged Deficient Spirit of Nitre.—The Southampton County Bench, on Monday, resumed the hearing of a case against George Frederick Tuck, now of London and formerly of Eastleigh, for selling spirit of nitre which was not of the nature, substance, and quality demanded. When the case was previously before the magistrates it was stated that the defendant had disposed of the business a month before the alleged offence occurred. The purchaser of the business now came forward to prove this statement, and the case was accordingly dismissed, the defendant's costs being allowed.

The Sale of Poisons by Unqualified Persons.—In addressing the Grand Jury at Worcestershire Quarter Sessions, on Monday, the chairman (Mr. Willis Bund) briefly reviewed the legislation of the last session. Referring to the Companies Act, he called attention to the danger of purchasing drugs and poisons from persons not qualified to deal with them. The Pharmacy Act made it penal for any person to compound poisons unless possessed of competent knowledge. But the Act had been interpreted by the Court of Appeal as not applying to a limited company, consequently a number of persons had floated companies in order to act as chemists and druggists and to evade the law. Of eight such companies, two were in Worcestershire. One had been formed by a clerk, not a qualified chemist, and his company carried on the business of a wholesale and retail dealer in drugs. He took the majority of the shares; his wife, who was no better qualified than himself, took some, and the rest were distributed between persons knowing nothing whatever about poisons or medicines, or the danger of dealing with them. Then these persons were able by law to form themselves into a company, and poison Her Majesty's subjects at their leisure. In another case, an unregistered druggist, for carrying on business alone was convicted, but by forming his business into a company he escaped the penalties of the Pharmacy Act.

The Sale of Poisons in the Isle of Man.—Last week reference was made in the Journal (see p. 320) to a letter, the writer of which urged the necessity of a Manx Pharmacy Act. The *Evening Standard* appears to have jumped to the conclusion that matters are more advanced in that direction than they are in reality, for it

asserts that "a Pharmacy Bill dealing with the sale of poisons and other important matters on the lines of the English Act will shortly be before the Manx Legislature." The article proceeds as follows:—"Hitherto the public have had no protection, and it is felt that the risk of inexperienced persons dispensing in a place like the Isle of Man, visited by so many thousands, is so serious that an Act should be passed to prevent any but competent men from acting. The provisions of the Bill will place the dispensing of medicines and the handling of poisons on a more satisfactory basis for the future. There is no pharmaceutical society in the Manx land, and chemists are subject to the examination of the English society. (?)"

Pharmacy and Freemasonry.—At the Installation Meeting of the St. Martin's Grand Lodge, 1538, held at the Holborn Restaurant on Wednesday, October 9, Bro. John Holding, chemist and druggist, Barnsbury, N., was ably installed by the retiring Worshipful Master, Bro. T. H. Roberts, P.M. The brethren and their numerous guests dined together after the Lodge, and the *post prandial* speeches were interspersed by musical talent of the very best, especially provided by the Worshipful Master.

Chemists' Assistants' Association.—A Smoking Concert in connection with this Association was held at the Frascati Restaurant, Oxford Street, London, on Friday, October 11, when the chair was taken by Mr. Charles Umney, of the firm of Wright, Layman, and Umney. There was an attractive programme, and an enjoyable evening was spent.

IRISH NEWS.

Pharmaceutical Society of Ireland.—The annual meeting of this Society was held at 67, Lower Mount Street, on October 7. The President, Mr. William Hayes, was in the chair, and in the course of his annual address said that during the past year the examinations had been on the whole satisfactory. The registered number of pharmaceutical chemists was 306, as against 460 in 1894; of chemists and druggists, 306, against 310 in 1894; of registered druggists 368, against 339 in 1894; and of pharmaceutical assistants 12, against 7 in 1894. With respect to the members of the Society, however, there were only 177, against 202 in 1894; and of associate druggists only 73, against 155 in 1894. The statement of the treasurer, however, showed that there was no cause to take a pessimistic view of the situation. It was gratifying to note that the medical department of the Admiralty had recognised their licentiates as qualified to be dispensers in the Royal Navy. The Society's Museum was now an accomplished fact, and the success of the Society's schools of chemistry had induced the Council to establish a year since a botany and materia medica school. The Law Committee had been keenly alive and active, and a number of prosecutions had been instituted.

Statements of accounts were submitted and adopted, and on the motion of Mr. Downes, seconded by Mr. Grindley, thanks were voted to the honorary treasurer, Mr. Hodgson, with a request that he would continue in office.

A ballot for the election of seven members of the Council to replace outgoing members resulted in the election of Messrs. Wells, Hayes, Conyngham, Montgomery, Grindley, Kelly, and Merrin.

A discussion took place on a motion by Mr. Conyngham to the effect that the Council should be recommended to accept pharmaceutical chemists not in business as associates on a payment of 10*s.* 6*d.* a year, and also that all persons who had passed the "Preliminary" should be elected students of the Society at a similar fee. The first part of the resolution was objected to, and it was passed in a modified form, the Council being called on to inquire what could be done to promote the welfare of the students.

Votes of thanks to the President and Registrar concluded the proceedings.

Pharmaceutical Society of Ireland.—The following have passed the latest Preliminary examination:—Miss Jane Bell, W. J. Busby, T. Bropil, J. C. C. Culbert (S. Bell and F. Dornan, equal), W. Stewart, J. F. Coleman (W. Preston and G. A. Turner, equal), (P. Donnelly and T. J. Edgar, equal), J. Refausse (S. Hooey and R. R. Kinmouth, equal), P. J. T. Cosgrave, R. R. White, and J. J. Sheridan. Six candidates were rejected.

The following have passed the Pharmaceutical Licence Examination:—Messrs. A. Adams, H. R. Warden, H. Hunt, J. Wallace, and G. T. Nagle. Eight candidates were rejected.

At an examination for the Licence to Act as a Registered Druggist, held on the 8th inst., at Belfast, the following passed:—Messrs, Alexr. Bryans, W. A. Davidson, J. Dickson, W. Fullerton, R. J. Groves, J. Guthrie, Wm. J. Keown, J. Louden, A. McMurray, T. Sandford, A. W. Stevenson. Two candidates were rejected.

Carbolic Acid has very nearly caused the death of a constable of the Royal Irish Constabulary, who took it in mistake for medicine, and was in consequence rendered unfit for duty for nearly a fortnight.

The Pharmaceutical Society's School in Lower Mount Street has resumed work for the winter session with a considerable adhesion of new students, so that the number of candidates for the Pharmaceutical Licence during the coming year will probably show little, if any, diminution from the number who presented themselves for it during the past year, which was the largest since the first year of the Society's existence.

"Unlucky Thirteen" has been very much in evidence in pharmaceutical affairs during the past week; thirteen candidates having presented themselves at Queen's College, Belfast, before Professor Whitla, M.D., to be turned into registered druggists; the same number of would-be pharmacists attended at Lower Mount Street, and thirteen students had put themselves under the care of Professors Falkiner and Dixon, to be led through the mysteries of materia medica and botany. Although the Dublin examinees were very unfortunate, there seemed to be "luck in odd numbers," as far as the Belfast examination was concerned, eleven out of the thirteen having been successful.

FOREIGN NEWS.

A Pharmacist's Duty.—Dr. O. Dompè, in commenting in the columns of *Il Farmacista Italiano* upon the recent fatal substitution of strychnine for phenacetine at Birmingham, says: "The Court, besides condemning the negligence of the wholesale house, censured the pharmacist for not proving the correctness of the drug on receiving it into stock, for the fact of selling upon the strength of the guarantee and good reputation of a wholesale firm was very poor consolation for the customer who, having recourse to the chemist for a remedy to relieve a bad headache, found himself suffering the horrible spasms of an awful death. The greatest care should be therefore taken by both wholesale and retail chemists in dealing with potent medicines.

"In fact it is not for nothing that the law demands of those who dispense medicines behind the pharmacy counter that they should have passed examinations guaranteeing their possessing a competent knowledge of the substances they daily manipulate; and this should apply with equal force to wholesale houses which have as a rule in their employ for the packing and distribution of poisonous substances persons not legally qualified, and who thus offer no safeguard to the pharmacist nor to the public generally. This was so with the wholesale firm in the case in point who caused the frightful error by entrusting with the dispatch of poisons an absolutely unqualified man."

The Concession Question in Germany.—In the early part of last year considerable excitement was produced among German pharmacists by the publication of a draft project for controlling proprietorship of pharmacies upon the basis of unsaleable or personal concessions.

This project, originated by the largest and most influential state of Germany, was intended not only to apply in the case of pharmacies opened hereafter, but also to those now in existence in so far that after the lapse of twenty-five years they were to be no longer saleable. Such a system, though providing for any possible compensation for the owners of saleable concessions, would amount to nothing less than the annihilation of several millions of capital, and it would be ruinous to many. The money value of existing German pharmacies, that is to say, the value of the house, the stock and the fittings, to be paid by a purchaser, to the previous owner or his heirs, after the system of personal concession had been established, would not, in most instances, amount to more than one-third or two-thirds of the selling price under

existing conditions. Concessions dating from periods antecedent to 1811 were not to be affected by the projected system, but the number of them is comparatively so small that this exception would have been of little account. Naturally this proposal met with opposition from the entire pharmaceutical body. Before it was submitted to the other states for consideration a Cabinet order was issued for Prussia to the effect that in future only personal concessions would be granted. The issue of this order led many to the conclusion that the question of pharmaceutical reorganisation had been settled, and that the intention of converting saleable concessions into personal ones had been abandoned. That, however, was not really the case, and the project which has now been submitted to the several states still includes general adoption of the personal concession.

Whatever may be the view taken as to this project, the circumstance that the Prussian government is eager to carry out its intentions is enough to cause apprehension. If the general introduction of a system of personal concession were rejected, it would still be possible to adopt other means of reducing the selling price of pharmacies if that was thought to be too high. The Prussian Minister has, in fact, already taken steps with that object by instructing the provincial authorities to counteract the tendency to an increase in the value of saleable concessions by granting concessions for pharmacies in the neighbourhood, and this instruction is opposed to the order of 1811, that pharmacies should only be opened according to actual requirements. Probably, as the result of an interview between the President of the Apotheker Verein and the Prussian Minister, a semi-official minute has been issued stating that there is no intention of damaging the proprietary interests of pharmacists who are owners of concessions, and that permission to open a new business will in all instances be subject to the requirements of the case.

The Berlin Medical Supply Company.—The first notice of the contemplated formation of a company to carry on the business of supplying medicines and other articles of a similar nature appeared about four years ago, and in March, 1893, it was announced that a "Waarenhaus" for physicians and apotheker was about to be established by a company of shareholders with a capital of fifty thousand pounds. The prospectus was signed by fourteen Berlin physicians, and the object of the undertaking was to supply physicians, pharmacists, and others with medicines, instruments, dressings, etc. According to newspaper announcements business was also to be carried on with sick insurance associations, hospitals, etc. From the commencement little sympathy was evinced for the undertaking; the necessity for it was not very evident. Wholesale drug houses, instrument makers, etc., were more disposed to regard the Supply Company as a source of competition, and in some quarters the opposition was very strong, one Berlin trade union deciding not to employ any medical man who was connected with the affair. The owners of pharmacies were equally averse to the Supply Company, and apprehensive that it would interfere with their business. Medical men were, for the most part, indifferent, but the opposition of the pharmaceutical body was sufficiently pronounced to induce an alteration in the title of the Company. Since the commencement of business operations, announcements have appeared that the Company will not only supply all articles required for medical purposes, but will also establish chemical and bacteriological laboratories for conducting investigations, as well as issue a medical journal. The Council of the Berlin Association of Pharmacists has been requested by the Directors of the Company to nominate two members of a Committee on drugs and medicinal preparations, but the Council has declined to do so. Among pharmacists the general feeling is that the Company must become a source of undesirable competition, without offering the public any corresponding advantage.

Physiological Action of Safrol.—According to the observations of A. Hiffter, only a small part of the safrol introduced into the animal organism undergoes oxidation, and appears in the urine as piperonylic acid. The greater part is vaporised through the lungs unaltered. When administered in large doses, and especially when injected as an emulsion into the veins, safrol is poisonous; the brain is first affected, then the reflex centres cease to act; finally there is paralysis of the respiratory centre, and the animal dies. Isosafrol acts less powerfully than safrol, but nervous symptoms are produced which do not occur with safrol.

Druggists in Germany.—Until the year 1870 the term druggist was understood as being applicable either to wholesale dealers who supplied the pharmacists with drugs and chemicals, or to retail traders who sold dye stuffs, varnishes, spices, and other articles used for industrial purposes. Neither class was in any degree a competitor with the pharmacist, and the selling of medicinal articles was confined exclusively to the pharmacy. It was not until the era of so-called liberal ideas that the attempt was made to deprive the pharmacist of his privilege as one step towards the abolition of all kinds of monopolies; but since the establishment of pharmaceutical free trade could not be carried out at once, the pharmacist was for the time being provided with a competitor. By the imperial edict of March, 1872, a large number of medicinal articles which had previously been saleable only in a pharmacy were allowed to be sold without restriction: the number was still further extended by the edict of January, 1875, and it is to these regulations that the present class of druggists owe their existence. From that time retail druggists have grown up like mushrooms, chiefly in the larger towns. The first persons to enter upon this trade were no doubt chiefly pharmacists or unqualified persons engaged in pharmacy as assistants, who supposed that they might thus secure a better and more independent existence than could be expected in the position of assistants, or in country places where the returns from a pharmacist's business are but small.

Retail druggists meet with support not only from the general public, and especially the poorer classes, but also from official and professional circles in regard to the supply of medicines. This tendency was considerably promoted by the edict of January, 1890, which allowed the druggists to sell many more articles belonging to pharmacy. At the present time the druggists have increased in number to such an extent that they almost equal the pharmacists. The whole number of pharmacists in business in Germany is probably about five thousand, and there are not less than some four thousand retail druggists. Pharmacists who have taken up this line of business will probably, in some instances, have perceived that their hopes of improvement were not realised, and thereupon resumed their previous occupation. As a rule the German pharmacist has not sufficient trade experience to succeed as a retail druggist, and it is a fact that at the present time most of the retail druggists are not pharmacists. Moreover, it is but very rarely that a retail druggist's business can be kept up on the proceeds of articles which formerly belonged to pharmacy. More frequently he has to deal in all kinds of goods to secure a profitable return, but since the time that the duties of the pharmacist could be to some extent lawfully carried out by the druggist he has not the less become an important competitor. When that competition is extended beyond the limits allowed by law it becomes a serious danger to the pharmacist, and that such is frequently the case is proved by the official reports of the medical inspectors. As a consequence of remonstrances against the improper trade carried on by retail druggists, the Government has recently instituted a system of inspection of druggists' shops by the local authorities, and with the co-operation of a qualified pharmacist under the direction of the medical officer of health. In regard to legitimate competition on the part of the retail druggist, it is best to be met by pharmacists with moderate charges for all articles included in the druggist's list, and at the present time drugs can be bought as cheaply of the pharmacist as of the druggist. Recognition of this fact by the public will help to do away with the erroneous idea as to the high charges of pharmacists.

Carbide of Glucinium.—M. Moissan, whose contributions to the chemistry of carbon have been so interesting to the scientific world, has now succeeded in making another addition to the list of carbides already known, viz., carbide of glucinium, which he considers to be the richest of any in carbon. At the Académie des Sciences, M. Moissan gave particulars of the experiments conducted by him at the Paris School of Pharmacy, where he has his special laboratory and staff of chemists, who assist him in his research work. Pure glucine obtained from the emerald is intimately mixed with sugar-charcoal and subjected to the enormous heat of his electric furnace. A carbide of glucinium is formed in yellowish-brown, transparent crystals with a density of 1·9, and resembling in properties carbide of aluminium, the chemistry of which has already been published by M. Moissan. Up to the present glucine had been classed among the oxides that resist the reducing action of carbon. M. Moissan arrives at the conclusion that the chemical characters of carbide of glucinium are so similar to those of carbide of aluminium, C_3Al_4, that he has been led to ascribe to the former the formula C_3Gl_4; under these conditions the atomic weight would be a number approximating 14, and glucine would be a sesquioxide, Gl_2O_3.

NEW REMEDIES.

[The notes given under this heading embody recent suggestions in therapeutics. They cover both new drugs and preparations, and old ones under new aspects. The word "parts" is used to represent parts by weight, both for solids and liquids.]

Salophen for the Nerve-Symptoms of Influenza.—Hennig (Königsberg) recommends salophen for the various nervous disorders, headache, neuralgia, rapid heart, rheumatoid pains, etc., which are present in many cases of influenza. It is odourless and tasteless, and thus possesses an advantage over salol to which it is nearly related, and with which it agrees in that it breaks up in the alkaline contents of the small intestine, when salophen gives rise to sodium salicylate and acetyl-paramido-phenol. Hennig considers it far better than substances which dissolve in the gastric juice and impair the functions of the stomach (*Münch. Med. Woch.*, Sept. 3, 1895).

Naphthol in Itch.—Feulard treats this troublesome affection as follows:—Applications to the regions which are generally the seat of the disease with the following pomade:—℞. Prepared lard, ℥vi.; peruvian balsam, ℥v.; naphthol, ℥j. The following day this should be washed off with soap and the parts dusted with almond meal. This treatment is continued for two or three days, the cutaneous irritation being calmed by the following ointment:—Vaselin, ℥j.; zinc oxide, ℥j. (*Therapeut. Gaz.*, xix., 389, after *Rev. Intern. Méd. et Chirurg.*).

Antipyrin in Pruritus.—Arnstein, following Blaschko's recommendation, has tried antipyrin internally (in powder, 1 gramme at bedtime) in two severe cases, one of pruritus nervosus and the other of inveterate pruritus senilis. In both the itching quickly subsided, to disappear altogether in a couple of weeks. Both of the patients had been previously treated by various ordinary methods without obtaining any relief whatever (*Therap. Gaz.*, xix., 397, after *Gaz. Lekaska*).

Hydroxylamine Hydrochlorate as a Substitute for Nitro-glycerin and Amyl Nitrite.—Lauder Brunton has tested the action of hydroxylamine hydrochlorate clinically in cases of angina (1 gr. in an ounce of water), and finds that the physiological action of nitrites, of nitro-glycerin, and of hydroxylamine is alike. Hydroxylamine also possesses a similar power to nitrites and nitro-glycerin of relieving pain in angina pectoris, and may be employed in disease as a substitute for them. Its action appears to last longer than that of nitro-glycerin, and, *à fortiori*, longer than that of the nitrites of amyl, propyl, or butyl, but in some cases it may have a local irritant action on the gastro-intestinal tract. To avoid this it should be diluted (*Quart. Med. Journ.*, iii., 398).

Phytolacca Decandra in Epithelioma.—Dr. Goodman, of El Paso, North Carolina, claims that the green juice expressed from the leaves of the above-named plant and made into a plaster has a specific action on epithelioma. "It has a selective action for the morbid tissue, follows out all the irregularities of the epithelioma, causes, as it were, its liquefaction and removal, and then acts as cicatrisant for the open sore." Dr. Goodman states that under this treatment he has seen large epitheliomatous masses destroyed in a few weeks, and nothing but a faint scar left in the place occupied by the growth. The remedy causes severe pain, but may be used fearlessly, as it does not endanger the patient (*Med. Chron.*, new series, iii., 288, after *North Carolina Med. Journ.*).

Iodic Acid as a Hæmostatic.—In aqueous solution 5 to 10 parts of iodic acid are dissolved in 95 or 90 parts of distilled water for external use. As an ointment, in nasal affections: Iodic acid, 2½ to 5 parts; lanolin, 50 parts. As a vaginal bougie: Iodic acid, 15 centigrammes; boric acid, 50 centigrammes; cacao butter, 2 grammes; for one bougie. One bougie to be used every evening in cases of menorrhagia (*Nouveaux Remèdes*, xi., 218, after *Merck's Bullet.*).

Picrotoxin as an Anti-Sudorific.—Semmola and Grofforedi have found the administration of half a milligramme of picrotoxin twice a day effect a cure in a case of profuse sweating, following an attack of influenza, and probably due to vaso-motor paralysis (*B. M. J. Epit.*, 2, 3, 95).

NOTES AND QUERIES.

[The information given in this column includes both notes of practical interest to pharmacists, and replies to queries which seem to possess sufficient interest to readers generally. Readers requiring working formulæ for special preparations should intimate their wants to the Editor, who will be pleased to assist them to the best of his ability. The word "parts" invariably indicates parts by weight.]

Home-made Fixing Dish.

C. T. Johnson asks what is the best thing to coat or line a vaselin tin with so as to form a fixing bath. The tin should be cleaned with strong soda lye, well washed with water, and then dried in the oven so as to drive off every particle of moisture. Then apply a coat of Aspinall's bath enamel, and when fairly dry place in an oven with the door open or in front of the fire, to thoroughly harden the enamel. Then give it two more coats, drying by heat in between. Details respecting the preparation of ferro-prussiate paper will be given shortly.

Thymol Solution.

Dr. Hermite has succeeded in producing a solution of thymol, which is permanently clear and colourless, by neutralising an alkaline solution with tartaric acid. The proportions and process he recommends are as follows:—Thymol, caustic soda, and tartaric acid, of each 1 part; distilled water, 2000 parts. The soda, acid, and thymol are dissolved together in a little water with a gentle heat, then the rest of the water is added to make up the volume (*Bull. Gén. de Thérap.*, cxxix., 266).

Hardening Plaster Casts.

Six parts of plaster of Paris are mixed with one part of good lime recently burnt and finely sifted. The mixture is employed in the ordinary way. After drying, the model is impregnated with either a saturated solution of zinc sulphate or of ferrous sulphate. In the first case the cast remains white; with the second solution it rapidly assumes a reddish brown tint. The cast may then be treated with a coat of copal or linseed oil varnish. The breakage resistance of casts so prepared is increased twenty times (*Bull. Gén. de Thérap.*, cxxix., after *Rev. Scientif.*).

Mentholated Oil.

This oil is a remedy employed by Dr. Martin to avert broncho-pneumonia in cases of diphtheria under treatment with serum (*Prov. Med. Jour.*, xiv., 551). One cubic centimetre is given once a day. The oil is composed of 4 parts of menthol to 100 parts of the oil of sweet almonds.

Rust Preventive.

The *Canadian Engineer* gives the following recipes for preparations to keep tools from rusting: Dissolve ½ oz. of camphor in 1 lb. of melted lard, take off the scum, and mix in as much black lead (graphite) as will give it an iron colour. Smear the tools with this mixture, and after twenty-four hours rub clean with a soft linen cloth. Another coating is made by mixing slowly 6 ozs. lard with 1 oz. resin and stirring till cool. When semi-fluid it is ready for use.

Green Colour for Glycerin and Cucumber.

A satisfactory formula for glycerin and cucumber cream was published in the Journal for August 3, page 116. A harmless green colour to tint the preparation may be prepared by treating separately a few grains of saffron and indigo carmine with water, and mixing the two solutions at the end of twenty-four hours. The resulting green solution may also be used for colouring confectionery. [*Reply to J. A. H.*]

Lanolin Toilet Milk.

The *American Druggist* gives the following formula for this preparation:—Powdered borax, 150 grs.; powdered Castile soap, 300 grs.; water. 2½ ozs.; coco-nut oil, 1 oz.; lanolin, 2½ ozs.; rose water, 20 ozs.; oil of bergamot, 10 m.; oil of neroli, 10 m.; otto of rose, 5 m.; oil of wintergreen, 1 m.; oil of orris, 1 m. Rub together in a warm mortar the first five ingredients, then dilute very gradually with the rose water, and perfume with the oils, previously mixed (*Amer. Drug.*, xxvii., 75).

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

Communications for the Current Week's Journal should reach the Office not Later than Wednesday Morning. Telegrams can be Received on Thursday Morning. All Communications respecting Editorial matters must be Addressed "Editor, 17, Bloomsbury Square, London," and not in any case to individuals supposed to be connected with the Editorial Staff of the Journal.

All Instructions from Members, Associates, and Students of the Pharmaceutical Society, respecting the transmission of the Journal, must be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London, W.C.

Business communications—including advertisements, orders for copies of the Journal, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Cheques and money orders should be made payable to "Street Brothers."

Correspondents who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for illustrations should be done with pen and Chinese ink, and consist of clean, sharp lines, without shading by washes. They should also be prepared twice the desired size, so as to allow for reduction.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Queries addressed to the "Editor" will be replied to in the Journal as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries." The Editor cannot undertake to reply to queries through the post.

Reprints of articles cannot be supplied unless authors communicate with the Editor before publication.

LETTERS.

Technical Education in Blackburn.

"One of the Class," in response to Blackburn chemist's apprentice, says, "I think his letter very absurd, and also insulting to the officials of the Technical School. I am surprised that he should expect students to be prepared for the Minor examination for such a small fee. He seems to forget that the majority of pharmaceutical students from want of time cannot attend more than three classes, and as a result of that, the botany and physiology classes were failures two years ago. Nevertheless, if 'B. C. A.' had inquired he would have found that a botany class has been formed through the activity of a chemist's assistant: with a little exertion 'B. C. A.' might have formed a physiology class. He mentions the lecture-room capable of accommodating two hundred students, and also the laboratory in which only twenty-four students could work, but he ignores the facts that last session only from fifteen to twenty-five attended the chemistry lectures, and in the laboratory there was room for five more students. Almost all the experiments during the last two sessions that required careful manipulation have to my knowledge been practically demonstrated, and in some cases three or four trials have been made in order to perform the experiment. As to apparatus, there is a very good collection, but as 'B. C. A.' remarks there is not either Hoffmann's, Gay-Lussac's, Victor Meyer's, or Dumas' vapour density apparatus. As it seems to grieve him very much, I suggest that we should combine to present either Victor Meyer's (4*s.* to 6*s.*) or Dumas' (8*d.*) apparatus to the School. Surely 'B. C. A.' will be as generous with his money as with his complaints."

Appointment of Local Secretaries.

"Middlesex" writes on this subject as follows:—"I am in receipt of the Society's circular and post-card *re* the appointment of Local Secretaries, and quite agree with the Council in attaching great importance to the appointment of these gentlemen. There can be no doubt that the interests of the Society might be greatly advanced if closer relations were cultivated between members themselves, and such relation could be much facilitated by the action of the Secretaries. I have now been resident in this district over eight years, but have never had the pleasure of speaking to or hearing from your representative in this quarter. Should it not be the business of such a one to call the members in the locality together and lay before them the business of the year, and to discuss such a question as the one now in hand, and otherwise to promote a good feeling in regard to individual and trade interests? I do feel that if the Society, and therefore the trade, is to be advanced, it must be by something more than a negative stand-still. The Council itself no doubt would be only too pleased to feel the pulse of its members on any subject of the hour, and this can only be done properly by sending the united opinion through the proper and official channel."

A Correction.

Mr. Chas. G. Yates, of Brighton, says his attention has just been called to the statement in the Journal (*ante*, p. 296) that the Brighton Junior Association of Pharmacy gave £2 7*s.* 3*d.* to the Benevolent Fund this year. He proceeds, "will you be so kind as to have the mistake made known, the sum being £4 11*s.* 3*d.*?"

Vin. Ferrugineux Amère.

Mr. J. G. Harris, of Wimbledon, in reply to Sutherland Hudson, *re* vin. ferrugineux amère, says he has "frequently made it, both in Paris and the South of France, by dissolving ferri et ammon. cit. (a variable amount) in the ordinary vin. de quinquina au Malaga, allowing to deposit, and then filtering."

"E. C. G." sends from Biarritz the following "formula of a Belgian preparation which has a large sale:—Calisaya bark and coffee, in coarse powder, of each 100 Gm.; lactate of iron, 1 Gm.; Malaga wine, 2000 Gm. Macerate seven days."

Substitution in Pharmacy.

Mr. E. F. Young, Pharmaceutical Chemist, of 67, Wells Road, Bristol, says: "The practice of using cotton-seed oil in making camphorated oil is not confined to grocers and stores. There are some few chemists who use other oils than olive for the purpose. Cotton-seed oil among others I know is sometimes used. The only way to ensure uniformity in this preparation, both as regards its strength in camphor, and as regards the species of oil used in its production would be to make camphorated oil a synonym for linimentum camphoræ in the new Pharmacopœia. I have always been unable to dissolve the camphor in the olive oil without the aid of heat. Would it not be well if the Pharmacopœia stated that the camphor should be dissolved in the oil by the aid of a gentle heat?"

Methylated Spirit in Liniments.

Mr. E. H. Butler, of Leicester, referring to the case against himself, reported on page 340, points out the necessity when liniments which are not included in the four authorised methylated liniments are inadvertently made with methylated spirit, of destroying them at once. He says: "Had my manager done this, as he intended, I should have been spared the annoyance and expense attending yesterday's proceedings."

ANSWERS.

"Stammerer."—We are unable to assist you in the matter. You should apply to a medical man.

"D. J."—The book you name will serve very well for an introduction to the subject, but for later work you should get Green's 'Manual of Botany' (Churchill, 7*s.* 6*d.*).

"Quinine."—The 'Pocket Formulary' gives the following:—"Suppositorium Quiniæ. Boudin. Sulphate of quinine, gr. xv.; butter of cacao, ℥iss. Mix." The acid sulphate will probably be found more suitable on account of its greater solubility.

"J. W. T. M."—The *Carpocapsa saltitans* is not a tree, but an insect. The so-called "jumping beans," in which the larvæ of the moth are found, are the product of various species of *Sebastiania* (Euphorbiaceæ). See article in the *Pharmaceutical Journal* for July 25, 1891, page 64.

Communications, Letters, etc., have been received from Messrs. Bateson, Baxter, Bayley, Benedict, Bennett, Breeze, Broom, Brown, Butler, Christy, Clague, Clarke, Cupit, Davis, Delchevalerie, Dodridge, Druce, Eberlin, Ferguson, Gare, Gaubert, Halford, Hall, Hare, Harris, Harrison, Hill, Hobbes, Hockey, Hoit, Holding, Hooper, Jackson, Jarvis, Jones, Kemp, Macdonald, Marshall, Martindale, Morrison, Palmer, Pardoe, Petersen, Powell, Riley, Roberts, Rogers, Rushton, Russell, Sawer, Schimmel, Sherborn, Smith, Southall, Thompson, Wallace, White, Young.

BARK OF AILANTHUS EXCELSA.

BY DAVID HOOPER.

The tree known as *Ailanthus excelsa*, Roxb., attains the height of about eighty feet and forms a very ornamental and imposing feature in the landscape. There are three trees of this genus common in many parts of India. They are all bitter like many other plants of the natural order Simarubaceæ, and they all have medicinal properties attributed to them. The *A. glandulosa*, Desf., is probably an introduced tree, but it yields an intensely bitter bark, which Dr. Robert, of the Chinese Naval Department, in 1874, found very useful for dysentery, and which Professor Hetet has recommended as an active vermifuge. It is said of this tree that its leaves afford food for the silk-worm (*Attacus cynthia*), while it checks the spread of the rose-bug, to which it is destructive. The third species is *A. malabarica*, D.C., the Perumarum of South India, which yields a rather fragrant resin named muttipál, useful, when purified, as a substitute for Venice turpentine. The word "ailanthus" is latinised from "arantha,"* the Malayalum name of the last-named tree.

The bark and leaves of *Ailanthus excelsa* are in great repute in Madras, and have received favourable notice from Drs. Ainslie and Wight. In the Telugu country the bark is regarded as a powerful febrifuge and tonic in cases of debility. It is also good for dyspepsia and bronchial and asthmatic complaints.

The only notice of a chemical examination of the bark appeared in 1870,† when Mr. Narayan Daji read a paper on the subject before the Grant College Medical Society of Bombay. Mr. Daji separated an acid principle, which he named ailanthic acid. It was reddish brown, very bitter, forming a deliquescent mass of waxy consistence, easily soluble in water, less so in alcohol and ether, and insoluble in chloroform and benzol. He also found a bitter, non-crystallisable principle, but he attributed the medicinal virtue to ailanthic acid. In doses of 1 to 3 grains it was said to be tonic and alterative. In larger doses it caused nausea, vomiting, and purging. He strongly recommended its use in dyspepsia with constipation.

An authentic sample of the bark having been supplied by Dr. Watt, of Calcutta, I proceeded to make an examination of it to confirm, if possible, the presence of ailanthic acid, and to ascertain more definitely the nature of the bitter principle.

The bark was in flattish pieces about 6 inches long by 3 to 4 inches wide, and half an inch thick. It was light coloured and granular in texture; externally hoary and rough from the presence of numerous longitudinal scabrous ridges, internally, yellowish white and finely fibrous. When soaked in water the bark swells and becomes glutinous on the surface. The odour is acrid and mawkish; the taste very bitter. The bark contained a large number of stony cells collected together in groups, and many conglomerate raphides. The ash of the air-dried bark amounted to 7·4 per cent. Starch was present in the medullary rays, but no tannin was discovered. Dr. Mohideen Sheriff in his 'Materia Medica of Madras' stated that the bark of *A. excelsa* is distinguished from that of *A. malabarica*, by a decoction of the former blackening the persalts of iron. My experience of the barks in question is that they are both free from tannic acid.

Several ounces of the powdered bark were macerated for a week with rectified spirit and then percolated to exhaustion. The percolate was distilled to recover most of the spirit, and the residue was gently evaporated to a syrupy consistence. No crystalline matter appearing, evaporation was continued to dryness, when a brownish-red acid and bitter residue was left. Water formed a light-coloured solution of the bitter principle, and this extract being naturally acid it was shaken with ether and other solvents, which removed a waxy, brown body, not bitter, and insoluble in water in a free state. After this treatment the aqueous solution was found not to be disturbed by alkalies, but to give precipitates with iodine, tannin and lead acetate, in the latter case the bitterness was left in the soluble portion. Some more of the solution was treated with freshly prepared tannin liquor until a precipitate ceased to be formed, this was collected on a filter and washed. This precipitate was mixed with fresh lead hydrate, and the whole dried at a low temperature. The dried tannin compound was powdered and boiled with successive portions of alcohol, and the blue fluorescent liquid was evaporated. The residue was a light brown granular substance, not distinctly crystalline, intensely bitter, neutral in reaction, soluble in water and spirit with a fluorescence, not readily soluble in ether, but distinctly so in chloroform. It gave a purplish colour with sulphuric acid, and yellow with nitric acid. Its solution was precipitated by iodine in potassium iodide, potassio-mercuric iodide, and tannin. The bitter principle was not shaken out of acid, neutral or alkaline, solutions by ether or chloroform. The spirituous extract of the drug also contained a fatty substance, a resin, and a body freely reducing Fehling's solution.

From the above examination it would seem that the bitter principle of *Ailanthus excelsa* bark has no claim to be called an acid, but rather to belong to a neutral class of substances related to quassiin. Although not obtained in a distinctly crystalline condition, perhaps by working on a larger quantity than I had at my disposal, crystals could possibly be separated by this or another method. The fluorescence of its solutions, the abundant precipitate it gives with tannin, and the purplish colour it communicates to strong sulphuric acid are characteristic of the bitter principles of many plants of the Simarubaceæ. The cedrin obtained by Lewy in the seeds of *Simaba cedron*, the principles separated by Warden from the wood of *Picrasma quassioides*, and by Shimojama and Hirano from *P. ailanthoides*, and the samaderin from *Samadera indica* may on more complete analysis prove to be one and the same active principle, and that principle quassiin.

* According to Narayan Daji (*Pharm. Journ.* [3], 1, 193), the generic name is derived from *Ailanto*, the generic name for a species found in the Moluccas. The name signifies "the tree of heaven." The paper referred to is illustrated by a representation of the inflorescence and foliage of *Ailanthus excelsa*, Roxb., and the author points out that "this species of *Ailanthus* is found in a native state in India and in Ceylon. Roxburgh mentions it as an immense tree, and native of the interior of Coromandel. It flowers during the cold season. Royle found it around Delhi, along the Jumna, as well as on the Coromandel coast. It is found growing in the jungles of Travancore, Coorg, Mysore, Malabar, and Ceylon. In the Bombay presidency it chiefly occurs in Gujarat and Kattiawar, particularly so near Ahmedabad, Baroda, and Broach, and is thinly scattered over the Deccan."—[Ed. *Pharm. Journ.*]

† *Pharm. Journ.* [3], vol. 1, p. 154.

CHEMISTRY OF THE TERPENES.

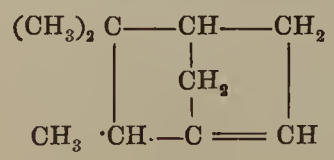
From among the results of recent investigation of the terpenes occurring in essential oils Messrs. Schimmel have selected the following as bearing most directly upon the chemical relations of these bodies :

Wallach has recently investigated the relations of phellandrene to known members of the terpene series, taking bitter fennel oil as the starting point for dextrophellandrene derivatives, and Australian eucalyptus oil as the source of lævo derivatives. The nitrite was first prepared, $C_{10}H_{16}N_2O_3$. This compound is decomposed by sodium ethylate with active evolution of nitrous oxide, and formation of a product, $C_{10}H_{15}NO_2$, which Pesci has termed nitrophellandrene. When this product is treated with sodium, a base, $C_{10}H_{19}NH_2$, is formed, together with a ketone, $C_{10}H_{18}O$, and an alcohol, $C_{10}H_{20}O$. By reaction with sodium nitrite, the base, $C_{10}H_{19}NH_2$, yields the alcohol, $C_{10}H_{20}O$, and by oxidation of that the ketone, $C_{10}H_{18}O$, can be obtained.

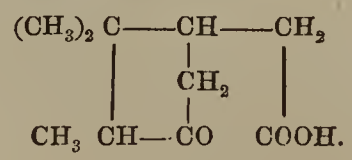
These phellandrene derivatives are all optically active. To compare them with the corresponding inactive compounds of the same composition which Wallach previously obtained from carvene, corresponding compounds obtained from lævo and dextro phellandrene nitrite were combined to racemic mixtures. It was ascertained that the inactive bodies resemble in all their properties the compounds of the carvol series ; they are, in fact, tetrahydrocarvylamine, tetrahydrocarveol, and tetrahydrocarval.

By the oxidation of pinene, Tiemann and Semmler have converted that body into a liquid acid, pinonic acid, $C_{10}H_{16}O_3$. It is a saturated ketonic acid with marked acid properties ; it boils at 193°-195° C., 22 M.m. With hydroxylamine it yields a crystalline ketoxim acid derivative, $C_{10}H_{16}O_2(NOH)$, which is separable by recrystallisation into two isomeric modifications—one melting at 125° C. with separation of water, the other melting at 160° C. without losing water. Pinonic acid appears to deserve particular attention, since it must contain the ten carbon atoms of pinene in the original arrangement. Tiemann and Semmler have subjected this acid to the action of various oxidising agents. With nitric acid they obtained terebic acid, $C_7H_{10}O_4$, and oxalic acid ; with chromic acid isoxy-camphoric acid (iso-keto-camphoric acid), $C_{10}H_{16}O_5$—iso-camphoronic acid, $C_9H_{14}O_6$, and terebic acid, $C_7H_{10}O_4$. By heating with 4 per cent. solution of potassium permanganate, pinonic acid yields an acid melting at 147° C., $C_8H_{12}O_6$, described as dimethyl-tricarb-allyic acid, which loses water when heated, and is converted into anhydro-dimethyl-tricarb-allylic acid, melting at 142°·5. Another oxidation product of pinonic acid is the lacton acid, $C_9H_{12}O_6$, isocamphoronic acid, which yields, when treated with alkalies, salts of the tribasic oxyiso-camphoronic acid, $C_9H_{14}O_7$. By the alteration of pinonic acid another acid, $C_7H_{12}C_5$, melting at 141° C., oxytrimethyl-succinic acid, and by heating with hydriodic acid it yields trimethyl-succinic acid.

Several of the compounds above mentioned were obtained by Kachler among the products resulting from oxidation of camphor with nitric acid ; for instance, iso-camphoronic acid (hydroxy-camphoronic acid), oxyiso-camphoronic acid, and oxytrimethyl-succinic acid. Tiemann and Semmler suggest the following formulæ as the result of their investigation of pinene and pinonic acid.

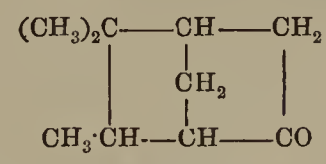


Pinene.

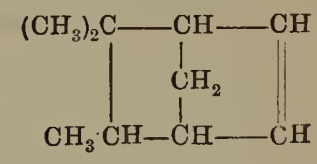


Pinonic Acid.

For camphor and camphene they suggest the formulæ

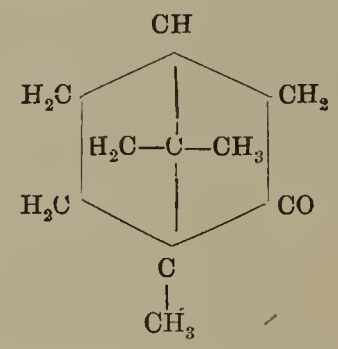


Camphor.

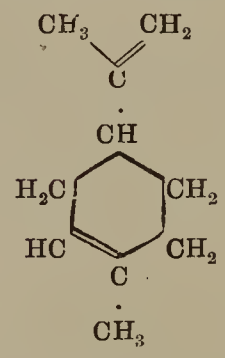


Camphene.

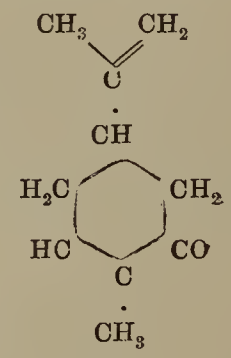
as distinctly representing the relations of these compounds to pinene. They consider that Bredt's formula does not represent the easy convertibility of camphor oxim into campholene nitril



According to Wallach, dihydrocarveol yields by oxidation a trioxy-hexahydrocymene, $C_{10}H_{20}O_3$, which differs essentially from the compound of similar composition produced by oxidation of terpineol. Tiemann and Semmler have obtained this compound from dihydrocarveol by oxidation with chromic acid, and at the same time a ketone alcohol, $C_9H_{16}O_2$, melting between 58° and 59° C. When this alcohol is shaken with an alkaline solution of bromine, there are produced bromoform and a crystalline acid, $C_8H_{14}O_3$, which on heating with bromine yields *m.* oxy *p* toluylic acid and small quantities of *p* toluylic acid. By oxidation of dihydrocarvol Tiemann and Semmler obtained a diketone, $C_9H_{14}O_2$. From these results and those of other observers they deduce the following formulæ for limonene and carvol :—



Limonene.



Carvol.

Wallach has recently found that the semicarbazones, on account of their insolubility, are peculiarly adapted for separating terpene ketones. However, the identification of these compounds is not easy, since they assume various modifications differing in melting point, and also in the readiness with which they are hydrolysed. Those having high melting points are distinguished by *a*, and those having lower melting points by *β*.

	Semicarbazone.	Oxim
Isothujon	*a* 208°–209° / *β* 184°–185°	119°–120°
Carvotanaceton	177°–178°	92°–93°
Carvenon	*a* 200°–201° / *β* 153°–154°	91°
Thujamenthon.....	179°	95°–96°
Tetrahydrocarvol	173°–174° / 135°–140°	105°

Tiemann and Semmler have recently found among the products of the oxidation of citral a methylheptenone that is identical with

the ketone Wallach obtained by the dry distillation of cineolic anhydride. The same compound has since been found in several of the essential oils which also contain compounds of the geraniol series—geraniol, linalool, citral. Since methylheptenone is no doubt closely related to geraniol, citral, etc., the determination of its constitution would appear to offer some prospect of an insight into the constitution of geraniol, etc. By oxidation with very dilute permanganate solution, methylheptenone first yields a product resembling glycol, of syrupy consistence, and by further oxidation with chromic acid it s converted into acetone and levulinic acid, $CH_3{\cdot}CO{\cdot}CH_2\,CH_2{\cdot}COOH$ (m.p. 32°–33° C.). It may thence be inferred that methylheptenone has the following formula :—

$$CH_3{\cdot}C(CH_3){:}CH{\cdot}CH_2{\cdot}CH_2{\cdot}COCH_3$$

By oxidation linalool and geraniol undergo a very similar alteration, yielding acetone, levulinic, and oxalic acids. Having regard to the general chemical and optical characters of linalool and geraniol, the following formulæ may be deduced from the above-mentioned results :—

Linalool. $CH_3C(CH_3){:}CH{\cdot}CH_2{\cdot}CH_2{\cdot}COH(CH_3){\cdot}CH{:}CH_2$

Geraniol. $CH_3{\cdot}C(CH_3){:}CH{\cdot}CH_2{\cdot}CH_2{\cdot}C(CH_3){:}CH{\cdot}CH_2OH$

and citral would be the aldehyde corresponding to geraniol.

The different results obtained by Barbier and Bouveault by oxidation of methylheptenone, linalool, citral, etc., are probably due to the use of sulphuric acid by the French chemists and to an alteration thus induced. Thus the presence of terebic acid among the oxidation products of linalool may be accounted for, since linalool and geraniol are almost completely converted into terpinhydrate when shaken with dilute sulphuric acid. By the action of dilute sulphuric acid terpinhydrate is converted into terpineol, and on oxidation this yields terebic acid.

Tiemann and Semmler now concur with the view suggested by Messrs. Schimmel that the alcohols, $C_{10}H_{18}O$, boiling at 198°–200° and obtainable from the oils of lavender, bergamot, petit grain, and neroliare identical with linalool, the slight differences which they present being attributable to the presence of minute admixtures.

Tiemann and Kruger have not been able to confirm the statement of Barbier and Bouveault that methylheptenone is formed by condensation of isovalerylaldehyde with acetone, and they have obtained as yet only the well-known diisovaleraldehyde (b.p. 190°). By condensation of isovaleraldehyde with acetylacetone, they have, however, obtained a synthetic methylethylonheptenone, $C_{10}H_{16}O_2$, in which one atom of hydrogen can be replaced by a metal. By distilling the calcium compound with steam a methylheptenone is formed together with calcium acetate, but it is not identical with the ketone occurring naturally as shown by the following comparison :—

	Synthetic Methylheptenone. 163°	Natural Methylheptenone. 171°
Boiling point	0·8345	0·8499
Volume weight at 20° C.....	1·4315	1·4380
Index of refraction nD		
Molecularrefraction observed ...	39·12	38·92
Molecularrefraction calculated..	38·72	38·72

Having regard to the mode of formation of this ketone, Tiemann nd Küger suggest the formula $CH_3{\cdot}CH(CH_3){\cdot}CH{\cdot}CH{\cdot}CH_2{\cdot}CO{\cdot}CH_3$

From eucalyptus oil, distilled in the South of France, Bouchardat and Tardy have obtained in considerable quantity a strongly dextro-terpene (pinene) + 34°; b.p. 156°–157° C.; sp. gr. 0·865 at 18° C. By treatment with crystalline formic acid an ester is formed, which yields on saponification crystalline terpineol (m.p. 33°–34°; b.p. 218°; $[\alpha]_D = +88°$. When this terpene is heated along with benzoic acid, it is partly converted into dextro-limonene, partly into ester of borneol and of fenchol (Wallach's fenchyl alcohol). The borneol regenerated from he ester melts and boils at 213° whence t may be nferred that it is wholly or in part isoborneol By further heating with benzoic acid for twenty-four hours rotation of this borneol is increased from $[\alpha]_D$ +18°40′ to $[\alpha]$ +25°40. In both conditions this borneol yields, on oxidation, camphor, having a rotation of +31°. The fenchol, $C_{10}H_{18}O$, formed simultaneously (m.p. 45°, b.p. 198°–200°, rotation −10°) yields, on oxidation, strongly dextro camphor liquid at 15° C., solid at 0° C., probably identical with Wallach's fenchone, $C_{10}H_{16}O$.

The semicarbazone compounds of ionone and irone have recently been turned to account for the detection of these ketones. Ionone-semicarbazone, $C_{13}H_{20}{:}N{\cdot}NH{\cdot}CONH_2$, is formed by direct reaction of semicarbazone acetate and ionone; it is crystalline, readily soluble in alcohol, ether, glacial acetic acid, or benzene, and is almost insoluble in petroleum spirit; it melts at 107°–110°, and is convertible by acids into ionone and semicarbazide.

Ironesemicarbazone, $C_{13}H_{20}{:}N{\cdot}NH{\cdot}CONH_2$, is liquid, and being much more soluble in a mixture of petroleum spirit with benzene than the ionone compound, the difference admits of the separation of these bodies.

Ionone *p*. bromphenylhydrazone, $C_{13}H_{20}{:}N{\cdot}NH{\cdot}C_6H_4Br$. On mixing ionone with a solution of *p*. bromphenylhydrazin in glacial acetic acid, pale yellow crystals of this compound are deposited; it is readily soluble in ether, acetone, chloroform, benzene, etc., sparingly in ethyl or methyl alcohol, and almost insoluble in water. It begins to soften at 134° C., and melts between 140°–145° C.

Irone *p*. bromphenylhydrazone begins to soften at 156°, melts at 168°–170° C.; it is less soluble in acetic acid or methyl alcohol than the corresponding ionone compound. On adding water to a solution of the two hydrazones the irone compound is first deposited.

Improved Borax Carmine Staining Solution.—The ordinary aqueous solution of borax carmine widely employed in vegetable histology requires almost always the destruction of the cell contents, so that only skeleton-like preparations have been hitherto produced with this stain. Professor Radais obviates this objection, however, by the use of an alcoholic tincture thus prepared: Powdered carmine, 2 parts; borax, 8 parts; alcohol, 70 per cent. by volume, 200 parts. The mixture is placed in a flask fitted to an upright condenser and heated on the water, so that the alcohol boils for twenty minutes. The liquid is then cooled and filtered. It is essential that the alcohol should be fully 70 per cent. by volume so that if an efficient condenser be not available, the strength should be 71 to 72 per cent. at starting. This carmine solution keeps well in stoppered vessels. Sections should first be macerated for a few minutes in a little 70 per cent. alcohol before being introduced into the stain; in favourable cases ten minutes at least are necessary to obtain a well-stained result, but the section may be left in the dye indefinitely without any fear of overstaining. After withdrawing from the stain the sections should first be washed with 70 per cent. alcohol, and then dehydrated with alcohol of greater strength, and finally mounted in an anhydrous medium. This alcoholic borax carmine tincture answers equally well for double staining, using iodine green or methylene violet for the complementary stain (*Journal de Pharm.*, [6], ii., 149).

CHAPTERS IN PRACTICAL PHARMACY.

The Preparation of Compressed Tablets.

Of all the developments of modern pharmacy none has acquired a firmer hold upon the public mind than the compressed tablet, in which a medicament or mixture of medicaments is presented in the smallest possible space. Unfortunately, however, in proportion as the use of compressed tablets has extended in this country, to the same extent has the retail pharmacist been relieved of the preparation of the medicines so prescribed and used. The almost universal custom has been to purchase the tablets from the manufacturer or wholesale dealer, and retail them in the same manner as sweetmeats, the pharmacist thus entirely sinking the professional aspect of his calling and dealing with the compressed medicaments as a tradesman pure and simple. The main reasons for this condition of affairs have probably been the lack of information regarding the preparation of the tablets, and the difficulty of obtaining suitable apparatus at a moderate cost for making them on a small scale. These difficulties are now non-existent, and British pharmacists should consider it incumbent upon them to be able to prepare compressed tablets as required.

Compressed Tablet Machines.

One of the simplest forms of apparatus is that devised by Professor J. P. Remington, and represented in Fig. 1. It is made of cast steel and the base has two counter-sunk depressions, in the centre of each of which there is a short post with a lenticular

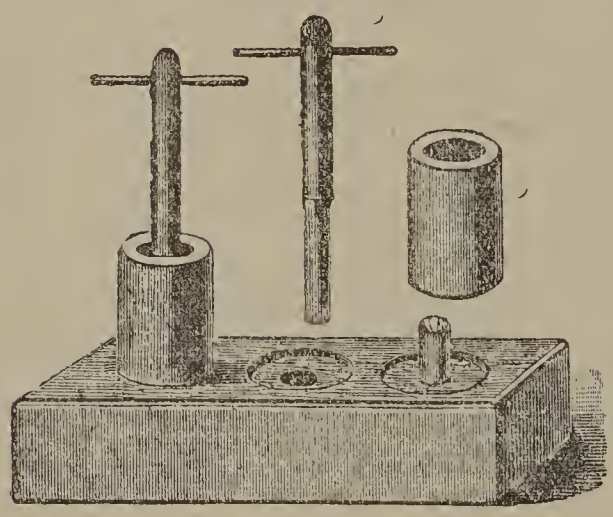


Fig. 1.—"Remington" Tablet Machine.

depression in the upper surface. A steel cylinder, bored throughout to the diameter of the tablets, which corresponds to that of the

Fig. 2.—"Perfection" Tablet Machine.

short post, is placed over the latter so that it rests in the depression in the base. This being placed in position and the proper quantity of powder introduced into the cylinder, the steel plunger, which also has a concavity at the end, is inserted and smartly struck with a wooden mallet. The powder is compressed between the two concave surfaces, and the tablet adheres to the cylinder, on removing which from the base it can be released by tapping the plunger gently.

In the next figure (2) is represented an improved form of apparatus,* the "Perfection" tablet machine, in which a simple mechanical arrangement obviates the use of the mallet. As will be seen, the plunger is operated by a lever and the machine is easily worked. Its construction is so simple that it cannot readily get out of order, and it enables the operator to turn out tablets with a sufficient degree of rapidity for dispensing and ordinary retail purposes. By using different cylinders and dies it is possible to prepare tablets of different sizes and weights. The machine is fitted with four sets of moulds, for making one, three, five, and ten grain tablets. It can also be used for making three sizes of suppositories and two of bougies, by means of a special attachment which is supplied if required.

The "Little Diamond" tablet machine,† is 8½ inches high and weighs 10 pounds (Fig. 3). It makes tablets of any desired size

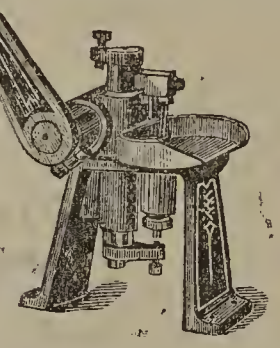


Fig. 3.—"Little Diamond" Tablet Machine.

and thickness, the dies being interchangeable, and is both strong and easily operated. It is self-feeding and the method of using it should be obvious from the illustration.

McFerran's Patent Compressed Tablet-Making Machines,‡ are made in a variety of sizes. The No. 5 machine (Fig. 4) is specially designed

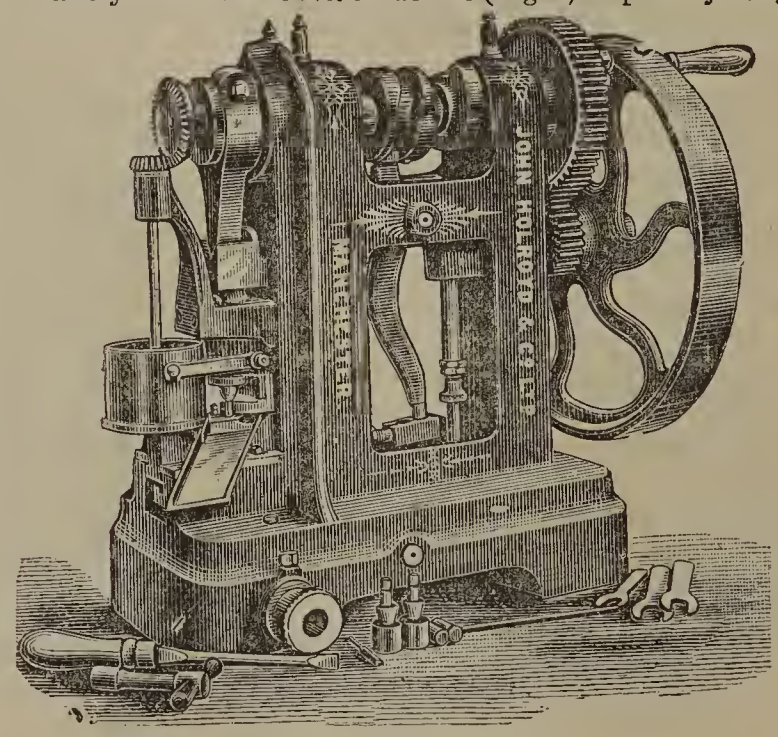


Fig. 4.—"McFerran" Tablet Machine

for retail druggists. It weighs about 2 cwt., occupies a space of 12 inches by 24 inches, and is worked by hand only. The machine makes one

* Supplied by the Stein-Vogeler Drug Co., 217-221, East 6th Street, Cincinnati, Ohio, U.S.A., at 7 dollars. net, or fitted with an attachment for making suppositories also, at 12 dollars.

† Supplied by Fox, Fultz and Co., of 52, Park Place, New York, and 18, Blackstone Street, Boston, U.S.A., at 15 dollars.

‡ Made by John Holroyd and Co., Ltd., Manchester.

tablet at each impression of the top punch, and forty per minute. It is very easily cleaned, and the punches and dies may be changed from one size to another in about three minutes. In the feed cup to the left is a stirrer which keeps the material in uniform motion, and the weight of the tablet is adjusted by turning the side screw The pressure is regulated by a worm wheel on the crank pin. The machine makes but little noise.

In the "Crown" tablet machine* (Fig. 5), the material to be compressed is fed into the funnel, in the lower part of which is a sieve, and thence finds its way to the die-plate. Uniformity in feeding is secured by the powder being kept in motion, the feeder being constantly shaken to this end as the machine works. As each

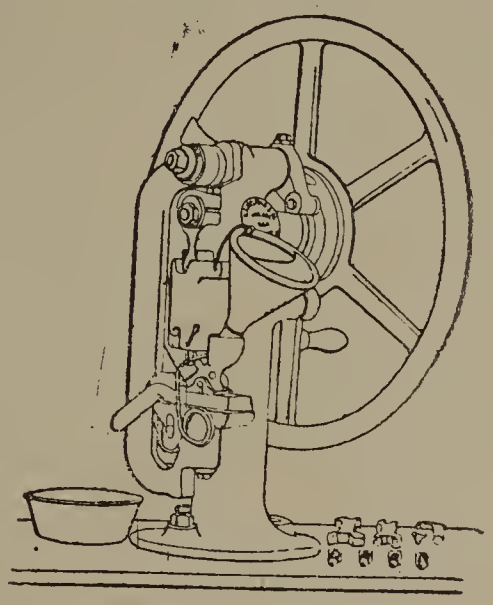


Fig. 5.—"Crown" Tablet Machine.

charge is delivered the feeder makes way for the compressor which then forms the tablet, and the ejector follows the compressor and conveys the finished tablet into a pan. There is a simple and accurate arrangement in this machine to adjust the weight of the tablets.

The "Witzel" tablet machine† (Fig. 6), differs from most others in that the dies are operated in a horizontal instead of a vertical position, the compressing chamber (4) being immediately

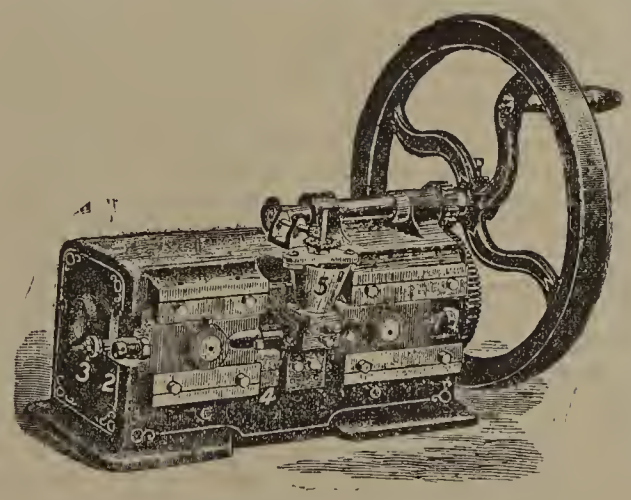


Fig. 6.—"Witzel" Tablet Machine.

under the hopper (5). The powder enters by its own gravity, and the tablets as formed are pushed off the die into a box by a mechanical finger. The machine occupies a counter space of 10 by 17 inches, the pressure is easily regulated, and provision is made for taking up lost motion due to the wear of moving parts. The dies and moulds are readily changed for those of other sizes.

(*To be continued.*)

* Made by H. K. Mudford and Co., Philadelphia, Pa., U.S.A.
† Made in Tacony, Pennsylvania, U.S.A.

CORRESPONDENCE.

[*Letters to the Editor should be written as concisely as possible, on one side of the paper only, and preferably with name and address for publication.*]

MODERN PHARMACY.

Sir,—Last Thursday a prescription was handed to me to be dispensed, which ran as follows:—

Sal. Hepatic. Efferves. ..... ℥iv.

The prescription bore the doctor's name and address (country). I therefore wrote to him for further particulars, another note being sent to the patient to explain the delay. A courteous reply arrived on Saturday morning from the doctor, stating he had passed on my letter to the chemist who prepared the salt, who would communicate with me. A post-card arrived from the chemist on Monday morning declining to supply the formula, but offering to forward a bottle of the salt. I wrote by return ordering a bottle to be forwarded by post, and a second note was sent to the patient, informing her how matters were progressing. Finally, the hepatic salt came to hand this (Wednesday) morning, and when I have posted on payment the matter will be at an end. Now this is certainly bad business for everyone, the Post Office excepted, and it might be interesting to know (1) Whether the medical man knew what he was really prescribing; (2) Whether the preparation could not have been prepared by myself, exsiccated salts not being unknown in London, nor exsiccation beyond the powers of an ordinary pharmacist; (3) Whether from a physiological point of view the patient's liver was the better or worse for the delay.

London, October 16, 1895. Pharmakos.

PHARMACEUTICAL ORGANISATION.

Sir,—In your correspondence column Mr. J. Anderson Russell contributes a very opportune and able letter on the above subject, and offers something in the form of a basis for those outside the ranks of the Society to become associated with it. That such an idea exists is itself a hopeful sign. Having obtained the admission that combination is necessary and that the Pharmaceutical Society is the only standard around which chemists can rally, it would, however, appear that any partial adhesion to the Society would only be perpetrating the different grades which have proved so fatal in the past to that unanimity which Mr. Russell, in common with all far-seeing members of our craft, recognises as the only means by which we shall be able to obtain any recognition of the justice of our demands at the hands of the Legislature.

Recently proposed amendments of the Pharmacy Act contain a provision that all passing the Minor shall be eligible for membership. Does this not recognise "the Minor as the standard of development," and would it not give an equal vote to all persons joining the Society, as, in fact, they practically have now? Putting aside the fact that the voluntary character of the Pharmaceutical Society is at variance with compulsory levying of fees for registration, there remains the fact which is frequently demonstrated to me in the case of personal friends, that except in the face of grave and pressing danger to their existence, a large number of chemists grudge the annual subscription, and they would, I think, continue to do so, whether for "registration" only or for general purposes, though quite willing that others should do the work and spend their money whilst they grumble and criticise. Unfortunately for them, and for us all the dangers to our calling have come upon us so gradually as at first to be ignored, and no great advance is possible until chemists as a class realise the position—that having ready at hand a Society which they can make as democratic as they choose, which is quite capable of all they require, they themselves fail to combine, as almost every other class of men have done or are doing, to defend their rights and advance their interests.

That local associations are of great service is obvious—they tend to relieve the strain between neighbours, men are got at and out of themselves, and the most difficult to get at are frequently when once got, the most active; but for the ultimate good of our calling, the effort should not rest there; until all are convinced that the Pharmaceutical Society is capable of being made powerful for good, and its affairs managed according to the will of the majority of which each member of the trade remaining outside is one, and so induced to join its ranks, so long will continue the waste of power existing amongst us, but unused.

Plymouth, October 22, 1895. R. F. Roper.

PLYMOUTH, DEVONPORT, STONEHOUSE, AND DISTRICT CHEMISTS' ASSOCIATION.

Conference at Plymouth.

A conference of chemists in the West of England was held at the Foresters' Hall, Octagon, Plymouth, on Wednesday, October 16, under the auspices of the Plymouth, Devonport, Stonehouse, and District Chemists' Asscciation. The President (Mr. C. J. Park), presided and there were over fifty present including Mr. Michael Carteighe, President of the Pharmaceutica Society, Mr. C. B. Allen, member of the Pharmaceutical Council, Mr. Richard Bremridge, the Society's Secretary and Registrar, Mr. E. M. Holmes, Curator of the Museum at 17, Bloomsbury Square, and the leading pharmacists of the district. Before proceeding to the business of the Conference, the Chairman said he had great pleasure in the name of the local Association in bidding a hearty welcome to the President of the Pharmaceutical Society and those gentlemen with him who had so kindly and so readily answered their invitation to be present.

Territorial Representation.

Mr. Hunt commenced the proceedings of the Conference by reading a paper on this subject, in which he gave a detailed explanation of Mr. Charles Thompson's views. He was sure all would agree that nothing could be done without combination and organisation. This territorial scheme was dependent upon the formation of district associations to be complete, for the representative must be a delegate of a definite body, which must meet for deliberation. These associations would join hands with other similar bodies and become a federation. It would appear quite reasonable to expect much good to ensue, as increased interest in the trade by individuals must produce ultimate benefit, probably in the development of good feeling, as well as a friendly and mutual desire to be abreast of one's neighbours, both in knowledge and in the methods of conducting business. It would be the means of bringing before the trade generally anything of interest thereto, power to bring about reforms if needed, by Act of Parliament or otherwise; increased strength to the parent society by stimulating members of the Council to further action, and thereby inducing those at present outside the membership to join, the local associations acting somewhat as recruiting depôts; the formation of a strong means of defence in case of unjust prosecution, and for the removal of grievances, if any, on the part of Government Departments such as the Excise, Inland Revenue, etc. He was quite aware there were objections and difficulties, for whatever scheme ever was perfect at the start? but he felt sure if all pulled one way, and that with a desire to perfect rather than to destroy, the troubles would be more imaginary than real.

Mr. J. G. Netting (Vice-President), said he could not imagine what benefit they would have by this territorial representation, and thought they could trust the Pharmaceutical Council to deal with their grievances.

Mr. Alderman G. Breeze, J.P. (Vice-President) thought the idea was decidedly a good one, and he thought it would tend to strengthen the Society. If each district sent its representative he would know its particular needs and be able to represent the opinions and feelings of its residents, and the Council would be able to understand the requirements of chemists in each district.

Mr. R. H. Rendle said they should go further, and aim not at territorial representation entirely, but proportional representation, because the objection urged by Mr. Carteighe would be that they would have a difficulty in obtaining suitable members in the several localities. It had been said that there were three Cornish gentlemen on the Council, but they did not say a word about Devonshire. The time had arrived when the chemists west of Bristol should have on the Council their proportion of representation.

Mr. Roper said he should very much prefer to have the power of voting for a number of candidates.

Mr. C. B. Allen, of London, after referring to the pleasure it gave him to come to Plymouth, said they had met to promote the best interests of their vocation, and the interests of the Pharmaceutical Society, to which he expected most of them belonged. With regard to this scheme of territorial representation it seemed hardly a matter on which a member of the Council could say very much without in some way committing himself. But it seemed to him that it would be a very difficult matter for associations, because first of all the number of associations was very small. They in Plymouth could congratulate themselves upon the vitality of this Association; it was one which they should be extremely proud of. He took it that if this Association wanted to enter any particular candidate for election to the Council there would be no difficulty in securing his election. If there were fourteen other associations existing in different parts of Great Britain, he thought they would be able to run particular candidates, and therefore ensure fourteen selected candidates being elected upon the Council. Whether that would be good or not for the Society at large was another thing. It must be remembered that the proper working of the Pharmaceutical Society necessitated the selection of a certain number of gentlemen who were resident in London. The detail work of the Society required at least, he should say, seven men to be members resident in London. The amount of work that fell to that particular section of the Council was considerable, and there is, moreover, no very great rush for election to seats upon the Council. He was inclined to think local associations would find considerable difficulty in getting candidates to come and represent them for their own districts. It seemed to him that if this scheme of territorial representation were worked out, it would prove, after a time, that local associations would find considerable difficulty in getting men. In that case they would have to do as political bodies did, write up to some central organisation to send them a man. He believed that if they limited themselves to voting for one man they would be very much curtailing their power. But, at the same time, one could not help sympathising with the cry which came from the provinces as to the distance from London, and the difficulty of getting men to represent them. It would be an advantage if it were possible for 13 or 14 men, representing certain districts, to see members of the trade living in those districts annually, or twice a year, hear their grievances and listen to their exact requirements: he believed it would strengthen those particular members and would tend to strengthen the Society. The formation of associations was, no doubt, intended first of all to strengthen the craft in particular districts, but no doubt, by and by, such associations would add strength to the Society, because those who joined local associations would eventually join the Pharmaceutical Society. He pointed out that though the powers of the Society are exceedingly limited, chemists and druggists, by working together for one common purpose, might be able by that unity to represent their views to Parliament in a much better and more concrete form than they can now.

The next business was the consideration of

Suggestions for a New Pharmacy Bill.

Mr. J. D. Turney opened the discussion on this subject. He said he had no definite proposition to bring forward, yet he thought there was one question which would have to be answered, and that was in what manner the Pharmaceutical Society could strengthen its hands, or be so recognised as to represent more fully than it does at present the whole body of chemists? One of the suggestions made was that the Pharmaceutical Society might reduce its subscription to one-half, and obtain the power to enforce the membership of every individual that had been examined. He thought other societies had that power, and that the Pharmaceutical Society might strive to obtain it. When they were thoroughly united, they would be more likely to get a Bill passed restricting dispensing to duly qualified persons, including such a poison as carbolic acid in the Schedule, and bringing Government and other dispensaries under the same law and conditions as controlled chemists in business.

Mr. P. A. Kelly said his idea was that before they could have a new Pharmacy Bill they would have to secure the consolidation of persons engaged in the practice of pharmacy.

Mr. W. J. Rawling (Torquay) said so far as he understood Section 5 of the 1868 Act, every person on the Register was supposed to pay a fee, and he considered that if the Society acted upon that they had power to compel each man upon the Register to pay the fee.

He thought that all offenders under the Pharmacy Act should be gazetted much as bankrupts were, and it was a scandal if the law of libel prevented it. Again, there should be better opportunity of controlling the business of a chemist and druggist. A widow was not allowed to conduct her business without a qualified man, but who was to know whether the manager was qualified?

Mr. Rendle said it would be remembered that at their last conference with Mr. Carteighe he promised that all patent medicines containing poisons should have the prompt attention of the Pharmaceutical Society. That he need not say had been carried out, and their thanks were due to the Council for the energetic way in which action had been taken. He expressed his opinion that the Pharmacy Bill of 1868 was very meagre in its support to, and protection of, chemists. Whenever they went to Parliament they must have a

broad and comprehensive scheme. He suggested that they should go to Parliament with a Bill which would give chemists something for the trouble, labour, and expense of their training, and nothing less than that would bring the whole of the 15,000 chemists into the fold.

Mr. A. P. Balkwill said a clause should be included in the new Bill requiring that the restrictions which applied to chemists should also govern medical men, and public institutions where dispensing was carried on. The medical profession as a profession had not a quarter of the knowledge of drugs that chemists had, and if in this Pharmacy Bill anything could be introduced that would protect the public and themselves on those lines he thought it would be advantageous.

Mr. Alderman Breeze, J.P., thought they should first increase the strength of the Pharmaceutical Society, so as to make it a thoroughly representative body. They had only to look at the legal and medical societies to see the immense power they had secured by keeping their requirements before the House of Commons. It appeared to him that an educated body, such as they were entitled to be called, should have greater protection than they had at present. They had a recognised representative body in the Pharmaceutical Society, and it was to their interest that they should support and strengthen it as much as they possibly could. He thought they should also devote attention to the Patent Medicines Stamp Act, which operated very unjustly and very harshly towards chemists and druggists.

Mr. H. Gadd, J.P. (Exeter), said he should like to ask Mr. Carteighe if they could not so amend the Pharmacy Act of 1868 as to make it compulsory for all chemists and druggists on the Register to join the Society. He agreed with previous speakers that in any new Bill there should be a restriction preventing the sale of poisons, or dispensing by unqualified people.

Mr. C. Shapley (Torquay) said one way of uniting chemists and druggists was to thoroughly organise local asscciations so that the members could meet and discuss matters connected with their business more often. At present they heard very little about the Pharmaceutical Society as a body, owing to their not having better opportunities in large districts to talk over questions with the local secretaries. Some chemists, he regretted to say, were always telling others what ought to be done, but they did not always do their own duty to the Society.

Mr. H. Gadd (Exeter) asked if it would be possible to make a more complete Register of Chemists and Druggists, by giving under the head of every town the names of all the chemists and druggists in that town, indicating those who belonged to the Society and those who did not. It would be extremely helpful to the trade.

Mr. R. Bremridge (London) said that if they attempted to publish such a book he thought it would be rather a heavy job as regarded expense, and it would be extremely difficult to keep it posted up. The idea had been talked about before, but was abandoned some years ago because of the difficulty and expense.

The Chairman sympathised with Alderman Breeze's remarks respecting the Stamp Act, and suggested that an exception should be made with regard to chemists. With their technical knowledge they should be exempt from the medicine stamp duty when they recommended their own preparations over the counter. When a chemist was able to put forward a new preparation it was only due to the public that they should have information respecting it.

Mr. Condy U'Ren said that manufacturers, as well as the chemists who retailed proprietary preparations containing poison, should also be liable to penalties.

Mr. J. G. Netting said that since they had established a defence association at Plymouth none of their members had received a visit from the Inland Revenue authorities.

Mr. M. Carteighe was cordially received on rising to speak. He said it was a very great privilege for him to be amongst them again, and to remember that some five years ago he was instrumental with some of his colleagues in bringing them together, and particularly in getting Mr. J. G. Netting to become a member of the Pharmaceutical Society. He believed he had shown activity in connection with every department of their Association, not only educational, but also in reference to the trade defence and political side of it, and he felt certain that if the appeal he had made could be carried home to the minds of their brethren it would be heartily responded to.

Proposed Reduction of Subscription.

He said now, as he said before, that the Pharmaceutical Society did not want guineas, but men—and in their present position it was useless to raise the question whether the subscription should be five guineas or one guinea. If a man was unwilling to come amongst them the question of money did not come into it at all, but on the other hand, if they could by any means persuade their brethren that their intentions were good, that they wanted as a society to enrol within its fold everybody in the craft, then if they could encourage them to believe that—if they could only get their promise to come in—the question of subscription was secondary. He meant to say that with all enrolled they might do with less than a guinea, but he would not suggest a reduction of the subscription. He would never advise the reduction of the subscription, because it seemed to him—having regard to the future that was before them, and to the extreme competition that was going on between all classes of the community—it was worth paying a guinea a year for defence and insurance. They should rather make the Society stronger than cripple it, because after all money did go for something, and when they were asked to enrol themselves within the ranks of the Pharmaceutical Society and pay a guinea annually, they were asked to do that which was done in the case of all trades unions almost voluntarily. True, the unionists paid it weekly, and he would not insult their intelligence by calculating what that weekly sum came to annually, but he was sure if they went into calculation they would find that their subscription to the Pharmaceutical Society was not a large sum after all.

Desirability of a Registration Fee.

Whilst speaking on that subject, he would refer to Mr. Kelly's suggestion, which was a good one. The best thing in his judgment for protection, without any further powers, was the compulsory payment by every chemist and druggist of a registration fee. They had no power to make men join the Society, but they would understand him if they knew the power which was given to solicitors by the fact that none could practise without an annual subscription. He was not going to let the outside world see the argument carried to its utmost limits. When the Pharmacy Act of 1868 was passed, the Society was weak enough to register every member of the trade for nothing, and the trade had valued that registration at exactly the price paid for it. It had been suggested from time to time that there should be a modest five shillings registration fee for the purpose of keeping the Register accurate, but the whole trade was up in arms. The power such a regulation would give in many ways would be of very great importance, and he thought it ought to be one of the powers put into a new Act of Parliament. A registration fee would be of great service in many ways.

Compulsory Membership.

He would now answer and discuss the suggestions that had been made by the speaker. With regard to the reduction of subscriptions, he had already said, as representing the Pharmaceutical Society, that they could do without subscriptions. They could arrange their business to-morrow if they liked to do without subscriptions, and become a mere registering machinery. They could do so, but would become a stagnating body with no interest. Their subscriptions, their interests, and their suggestions were the things which the Council had to consider, or else the Society's business was not satisfactorily carried on, and he ventured to suggest that the mere reduction of subscriptions would not do very much. It had been suggested that they should have power to compel every person when examined and registered to pay a fee which would make him a life member. The Council had considered that scheme, and it was one with which he had a certain feeling of sympathy. They approached the Government, but the answer they got was "You are, in regard to chemists and druggists, in the position in which the Incorporated Law Society is in regard to solicitors. We (the Legislature) have imposed upon you certain duties of examination in the public interest. You are part of the Government, and you must carry those duties out, but you have no right to tax a man, who shall have satisfied your Board of Examiners of his fitness to be registered." That was not an unreasonable position to take, and moreover he thought they would agree with him that by adopting a process by which the person became a member without knowing it, they would then probably have a class of men who would be antagonistic to them, and would be no source of strength. He thought no institution of the kind could succeed unless it was dependent upon the subscriptions of a certain number

of people who declared from time to time their assent to certain work that was going on. Look at the Royal College of Surgeons of London. They never heard of that College doing anything active. There were also the College of Physicians of Edinburgh, and like colleges in Dublin, all purely examining bodies, and he thought he might say without offence—they were absolutely inanimate except for purposes of registration. It was wise that every member of the trade should be made to register every year, and pay a small fee for registration, and that on becoming members of the Society they should pay the subscription whatever it might be. It must not be too small, because the subscription, in its power for working, was material. The Society was powerful even now, without having the whole of the trade at its back; but for the purposes of defence, and for the purposes of their craft, money was an important factor.

Attitude of the Government.

They must remember that in approaching the Government one had to consider not so much the Legislature but more especially the Governmental department, which was permanent. Therefore the subordinate officers of such a department became, in fact, very largely influential, if they did not absolutely control matters as between themselves and their chief. In effect, they had a continuity of policy as representing the public, and they took a somewhat broad view of their duties, and did not readily accept any proposition which appeared to interfere with free trade. The Council had to approach them with care, with the assistance of men who knew them and knew their work, and were unbiassed. In fact they had to bring evidence to show they were not seeking to make a one-sided bargain. They did not ask as chemists and druggists for a one-sided bargain. What they asked for was that there should be a recognition of the education and training that they had gone through, and that it was to the interest of the public that such recognition should be given. Such recognition was given in all countries, especially in all our young colonies. He had just received through the Registrar a copy of the amended Pharmacy Act which was passed and assented to on November 28, 1894, for Western Australia. It was a perfect Act in many respects. There were in it clauses which they had been discussing in this country for the past twenty years. There was the question of penalties, a difficult matter to deal with, because men carry on the business of a chemist and druggist in spite of penalties. He might almost say that in some cases they regarded the payment of a penalty as a licence to practise, as it was only five pounds in this country.

Western Australian Pharmacy Act.

The principal clause which dealt with penalties in this Act—"An Act to establish a Pharmaceutical Society of Western Australia; to repeal 'The Poisons Sale Act of 1879,' and to enact other provisions in lieu thereof"—says, any person who shall be guilty of an offence against the Act in respect of the sale of poisons shall be "liable, upon conviction, to a penalty not exceeding one hundred pounds, or to imprisonment for any term not exceeding twelve months, with or without hard labour." He confessed to them that this Bill took all his courage out of him. Sub-section 2 of Section 33, dealing with penalties, said, "for the purpose of this section the person on whose behalf any sale is made by an assistant or apprentice shall be deemed to be the person who sells, and such assistant or apprentice shall be also liable to the like penalties as the person on whose behalf he makes such sale." That was pretty strong. He just referred to that as showing that if a law of that sort was given to their brethren in Western Australia, and that similar laws had been passed in other parts, it did seem astonishing that in this country chemists had a difficulty in getting themselves heard.

The Draft Pharmacy Bill.

With regard to "the Bill in the cupboard," it was a Bill to which he had referred at various meetings. The Law and Parliamentary Committee would meet in a fortnight to consider the exact form of the draft, and the observations that had been made would tend to show his colleagues what was the feeling of a large portion of the community in the South and West of England. It had been suggested that restrictions should be imposed on all compounders of medicines who were not qualified. It was necessary for the safety of the public that all who sold or dispensed poisons, wherever it might be, should be qualified. Chemists admitted willingly that, in a certain sense, medical men's privileges were reserved, but they would find it distinctly stated in the Amending Act of 1869 that the exemption was limited to medical men who had taken a qualification in pharmacy; and the whole spirit of the Government department with which they had to deal was in favour of Mr. Balkwill's suggestion.

Proprietary Medicines and the Stamp Act.

With regard to the Medicine Stamp Act there were two courses open to them, either to have the tax abolished altogether, or, as suggested by the Chairman, to leave the Act as it is and exempt chemists and druggists, as being qualified to sell their own compounds—that, in fact, the chemist and druggist should be in the position of being able to put a label on his own compounds. These were very difficult propositions to deal with. With regard to the abolition of the medicine stamp and licences, there was a time, when he was a young man, when he thought as a matter of principle it was a wrong thing to have the stamps. He considered, moreover, it was a wrong thing for the Government to give licences to anybody to sell medicines when there are registered persons qualified for that duty. But it brought in money, and no Government was disposed to part with money. He was bound to say also that if they abolished that tax, although they would make their position more logical, they would allow every huckster to put up halfpenny, penny, and threepenny boxes and bottles of pills, etc., and sell them in front of the chemists shops throughout the kingdom. It would hardly pay any person to put a stamp on anything below sixpence. The Council had from time to time considered this question most carefully. In some districts of London, men stood in the crowd on a Saturday night retailing medicines without putting a label on at all, and the net result of the proposed change would be an increase of quackery, which would not benefit the chemist and druggist. As to allowing simple directions to be put on the package, if that were once accorded, the privilege would be stretched as far as it could, and it would be giving every chemist and druggist an unlimited licence to prepare and compound proprietary medicines. He did not say that would be wrong, in fact, he thought they should be the ones to do so, but it would reduce the revenue, and that argument would be used against them. The simplest thing for chemists and druggists to do was to deal orally and personally with the public. The moment labelling was introduced they brought in the mechanical element, and it would be urged that any manufacturer could do what was done by the chemist. He was inclined to think that the best business for them as dealers was to have simple labels, and appeal to the public to come to them for information as to how to use the medicines.

The Liability of Manufacturers.

As regarded the liability of manufacturers for the illegal sale of poison, he was not sure that the manufacturer was not liable, but that would not relieve the last seller from being also liable. They surely would not want to relieve the last offender, because the man who sold to the public must be liable. If he did not know the poisons he sold, he ought to. He was not compelled to sell a preparation of which he knew nothing. There were several ways of finding out what the preparation contained, and the seller might analyse it, or he might write to ask the manufacturer. He believed in law it was possible to recover the fine from the manufacturer, but he would not adopt that course. He considered it was to their interest to take the responsibility the law imposed upon them, and to demand from the public a proper remuneration for the conditions under which they had to sell those poisons. With regard to a point raised as to the 17th Section, he did not think the spirit and intention of that section was to prevent criminal poisoning but especially accidental poisoning.

Desirable Reforms.

He was happy to say that several of those present had expressed themselves well as to what reforms they ought to advocate. In the first place he thought they ought to seek power to deal with the Preliminary examination, so that there should be an interval between the Preliminary and the Minor; to make it penal for a man to have an apprentice in the pharmacy who had not passed the Preliminary examination. He did not know whether the whole of the trade would support that idea, but he did think that a person should not be allowed to present himself for the Minor examination unless he had passed his Preliminary examination at least three years before. Then there should be a curriculum throughout the kingdom, not too serious. They wanted to recognise the efforts of their brethren elsewhere in their educational work, and they wanted to have places of instruction throughout the whole of the country, so as to be in touch with educational, quite apart from political, matters. Such

a curriculum would be good for the student and good for the master. As had been said, they ought to have the sole right of compounding prescriptions, and the word "prescription" must be left to be determined broadly. With regard to the power to remove names from the Register, he considered that there should be power to remove a man's name from the Register. Their friends in Western Australia had a clause in the Act, which said: "The Governor may, on the recommendation of the Council, by order, direct the cancellation of the licence of any person to sell poisons, deemed by the Council unfi to continue to sell poisons."

Membership of the Society.

With regard to consolidation, he thought that every person on the Register of Chemists and Druggists, whether in business before the passing of the Act or by virtue of passing the Minor examination, should be a "member" of the Society. Some of them knew, probably, that the late President of the Pharmaceutical Conference held different views. Certainly he did not agree with him. Having regard to the democratic character of their Society and the cry that everybody should be within its fold, he thought it would be a source of strength for them to adopt that project. He went further, and said that he was only advocating what Mr. Sandford contemplated when the Act of 1868 was originally drafted as a Bill. Mr. Sandford had to give way on that point owing to the opposition of the pharmaceutical chemists, but they should now recognise that a man who passed the Minor examination ought to be a "member" of the Society. He hoped that the Council would accept that view, and that pharmaceutical chemists would not in the slightest degree obstruct the reform. He believed it would be good for everybody. Then, of course, they would like to have the conditions of the Municipal Reforms Act applied to them in the election of Council, so that one-third of the Council should retire annually.

Company Trading.

With regard to company trading, it was a question whether they should take action by proposing an amendment to their own Act, or whether they should combine with other bodies to amend the Companies Act. They had at last, with the assistance of the Registrar, Mr. Bremridge, got the Government department dealing with the trade to say that there was an injustice to chemists and druggists in the present regulations, and that was an important point. The department suggested that a company should be wound up under certain conditions to meet the objections raised by the Pharmaceutical Society. The report of the Departmental Committee dealt more particularly with one-man companies—what they called bogus companies. He hoped to be able to have something more stated in the proposed Bill on that subject. They had been successful in a great many cases, but there was great difficulty in getting the name of the individual seller in these cases. He thought it was a scandalous thing that a man should be able to keep a shop, whether with or without a registered person, and call himself a corporation. In regard to that they might be powerful enough, with the assistance of chemists throughout the country, to amend this Bill or to put pressure upon the Board of Trade, with the assistance of many other persons who had a professional qualification, so as to get it amended. This subject struck at the root of all professional qualifications. Various Acts mentioned the word "person" as representing one not allowed to do several things, and he thought a corporation ought not in law to be able to use the title of chemist, druggist, dentist, etc., etc. It was not right that a corporation should sell poisons and also be able to use a title which implied examination, when it could not be examined. What they wanted to do was to get rid of bogus companies entirely, and to regulate others. If companies wanted to use a title they should put up that of their manager along with his name.

The Necessity of Union.

On the question as to how best to obtain Parliamentary legislation chemists should give up their bickerings about petty things and support the Council of the Pharmaceutical Society in its efforts to benefit the trade. They should organise committees throughout the country where there were local associations, and in Plymouth they should have a standing committee on law to do anything the President of the Pharmaceutical Society wanted them to do, because they could do many things better than he could. Whether to amend the present Bill or bring in a new one, the Council would equally want their support. The spirit was perfectly willing, but even the Carteighe flesh was not strong enough, unless they backed the Council up, right through the land. Chemists were being driven, as it were, into sections and beaten into a corner by the power of capital, and if he could not get even the poorest chemist to back the Council he could say nothing. If chemists throughout the country were willing to support the Council of the Society in efforts to amend the Companies Acts in the way he had suggested, if they were prepared to give up some portion of their time to assist the Council when the Bill was in Parliament, he saw a power which would be beneficial to the trade. He was an old officer of the Society, and he was attached to it, and considered it his duty to do what he could for it. Therefore he had a right to appeal to them to do a little of their duty also.

Mr. Netting concurred with Mr. Carteighe as to the desirability of forming local committees, and suggested that pressure should be brought to bear on the members of Parliament in the respective districts, and then when a Bill was presented to Parliament it would no doubt receive support.

Mr. Reade said he did not think they would get any assistance from the Government unless they had the sympathy of the Government departments.

Mr. E. M. Holmes, who had examined the collections of herbaria sent in for the Association's prize, stated that they compared very favourably with those he had seen at Bloomsbury Square and elsewhere.

On the motion of the President, seconded by Mr. Cocks, a vote of thanks was accorded Messrs. Carteighe, Allen, Bremridge, and Holmes for their attendance, and a similar vote to the Chairman, moved by Mr. Carteighe and seconded by Mr. Allen, terminated a most successful conference.

THE ANNUAL DINNER.

The second annual dinner of the Plymouth, Devonport, Stonehouse, and District Chemists' Association was held the same evening at the Freemasons' Hall, Princess Square, Plymouth, the President, Mr. Chas. J. Park, presiding.

After the loyal toasts had been proposed from the chair, Mr. E. M. Holmes proposed the toast of "The Association." As a former resident in Plymouth he had joined many years ago in an attempt to promote a somewhat similar association, but it, like two or three other attempts, failed. It failed apparently partly because they founded it on the basis of scientific education alone—not on that of social intercourse and commercial advantage, and partly because of a want of unanimity. Taught by previous experiences, the present Association was, he believed, established on a much broader basis. They were making an experiment which he hoped would extend all over the country. If they were loyal to one another and to the Cornish motto, "One and All," as well as the Devonshire motto, "Semper Fidelis," their continued prosperity and success would be assured.

The Chairman returned thanks on behalf of the Association and himself, as did also the Vice-President, Alderman G. Breeze, J.P., who said he was secretary to the extinct association of twenty-five years ago, and the cause of failure was the absence of the social element and too great anxiety to carry on education. In the present Association they had provided for social intercourse. Chemists and druggists had suffered very severely in the last few years from want of union, and he hoped this Association would do some good in shortening the hours of business, so that chemists could meet together more frequently.

Mr. J. G. Netting (Vice-President), in proposing "The Pharmaceutical Society," referred to a previous visit of Mr. Carteighe. They were glad to meet him on this occasion. To his mind Mr. Carteighe was, in the words of the menu card,

"A man and leader of men
Firm upon his feet."

They were willing to follow their leaders for the welfare of chemists generally.

Mr. Michael Carteighe was cordially received on rising to respond. On behalf of the corporate body which he had the honour to represent that night, together with Mr. Allen, Mr. Bremridge and Mr. Holmes, he begged to tender thanks. The Society was doing that for which it was originally founded—the promotion of education, the advancement of chemistry and pharmacy, and provision for those who might be left forlorn by the wayside. Chemists in Plymouth had begun the fight which men in the metropolis had to face more than fifty years ago. They were associated in Plymouth with educated men, with men connected with the various services, and he wondered if those who did not belong to their craft were aware of the sacrifices chemists were making for the welfare of the public, or whether they realised how they put their hands into

their pockets to provide educational facilities for their apprentices and students in order to fit them for the position they were to occupy in the future. He wondered if any of those retired officers of the Army, Navy, and Marines, whom he suspected abounded in that neighbourhood, realised how much that very humble personage, the chemist and druggist, did day by day through his sacrifices for the welfare of the public. The best spirit with which any craftsman could approach his art or his position was that in which they were approaching it there. As President of the Pharmaceutical Society of Great Britain he wished them heartily god-speed, and he specially felt happy in the thought that he had been associated with the foundation or resuscitation of that Association for objects which were good for the Pharmaceutical Society of Great Britain, which were good for the residents of Plymouth, and specially good for the young men of the future. They had, as officers of the Society, a number of men of very distinguished abilities, political and otherwise. They had managed with very great skill to associate themselves together for an object which was not only good for the members, for the apprentices and students, but was for the good of Plymouth. In the person of their President, in the person of their two Vice-presidents, Mr. Netting and Mr. Breeze, in the person of their Treasurer, Mr. Bailey, for whom they all felt the deepest possible respect, and lastly, but not least, in the person of their Honorary Secretary, Mr. Cocks, they were exceedingly well served. It was a privilege to him personally that he had been thrown into contact with those gentlemen in that most intimate and pleasant way, and he should feel it his duty to report to his Council when he returned to London of good work done, of honest work attempted in no selfish spirit, but with a desire to promote the true ends of equity as between the student on the one hand, the member on the other, and thirdly the public of Plymouth, whose lives were more or less dependent on the care and skill with which they carried on the work entrusted to them.

Medicine and Pharmacy.

The men who were connected with pharmacy were a comparatively young race. They had grown up as a development of medicine. Medicine as they knew was dominant in the early part of this century, and the doctor was undoubtedly one of the few learned persons who existed in the early part of this century, but the doctors found, as all other learned men had found, that the tendency of the time was towards specialisation, towards the division of work. The progress of medicine and of the sciences associated with it had tended more and more to prove that unless the medicine men threw overboard early in their curriculum a certain portion of the work followed by their predecessors, and formerly required by examiners, it was practically impossible, even in a five years' curriculum, to master all the subjects. It followed that there was need of a class of men ready to take up the threads, and, in fact, form what was sometimes called the fourth estate of medicine. He asked how far in a great place like London and Plymouth it was good, or safe, or wise for laymen to regard the doctor as a person who not only prescribed for their ailments and told them what to do, but also burdened himself with the onerous task of dispensing medicine? Was it wise to encourage the notion, which had grown from old women's practices in the middle ages, that medicine alone was the thing that cured, and that skill in dispensing was not of any account? He had always felt that the distinguished healer should be free from the cares and worry of details which chemists were specially qualified to undertake. The giving of advice was the province in which the doctor should excel, and not the dispensing of medicine. But the public had for many years been taught that there were specific medicaments for all ailments, and to look upon the doctor as the person who selected the particular form of medicine by which a cure should be effected. It was marvellous that as they approached the twentieth century the medical men and the Press had not been able to educate the public to appreciate the danger and wastefulness of the present system. When once the public were made to realise the importance of the subject and a change was effected, it would be for their good, for the benefit of the hard-working doctor, and it would be a recognition of the services of their Association and all such associations that existed.

Mr. C. B. Allen also responded, and pointed out what the Society has done for its younger members for more than fifty years. The Council was endeavouring to carry out the Pharmacy Act not as a trade defence association or a trade union, but as a means of ensuring the safety of the public.

Mr. R. Bremridge also responded. In referring to his secretarial duties he pointed out that members should communicate to him any cases of offences under the Pharmacy Act. The desire was to obtain obedience to the law rather than to punish offenders, but while people persisted in violating the law the Council would carry out the duty imposed upon it by the Act of Parliament. He heartily wished success to the Association, and thanked the members for their hospitality.

Mr. F. Maitland, D.C., in eulogistic terms proposed "The Honorary Members."

Mr. H. Gadd, J.P. (Exeter), responding, strongly advocated early closing, and expressed the opinion that no decrease in trade would result from it. He was glad to see the activity displayed by the members of this Association, and when on his return to Exeter he told the members of the Association there what was being done, he believed the result would be that the Exeter Associa- would try and run them close.

Mr. F. Luxton (representative of the firm of Mr. J. Townsend, medical label printer, Exeter), and Mr. H. J. Dalgleish (representative of the firm of Messrs. Ford, Shapland and Co., London), also responded, both expressing their belief that the Association was destined to make great progress.

Mr. R. F. Roper gave "The Officers of the Association," congratulating them on the arrangements they had made for the educational advancement of the junior section, and speaking of the services rendered by Mr. J. D. Turney in giving a series of lectures on materia medica.

Mr. James Cocks (Honorary Secretary) responded on behalf of the Committee and himself. Everyone would admit, he said, that the Association was an established institution, and he believed had justified its existence. They had established a Trade Defence section, and it had had a beneficial effect. He referred to the educational arrangements made by the Association for the junior section, and the various social gatherings held during the past year, including the summer outing and the junior ball. Finally, he observed that they had brought themselves in touch with the Pharmaceutical Society.

Mr. J. Harvey Bailey (Treasurer), also responding, said the number of members had increased during the year from 78 to 96, and they had a balance on the right side.

The health of Mr. A. D. Breeze (the Honorary Secretary of the Dinner Committee) was heartily drunk.

Mr. J. D. Turney gave "The Junior Section," speaking of the steps which the Association had taken to assist students, and referring to the means which had been given them of establishing a materia medica museum, which had been of the greatest benefit to the members.

The toast was acknowledged by Mr. H. O. Westcott, who said they would all be pleased to know that nearly all the assistants and chemists in the three towns were members of their Association. He had great pleasure on behalf of the members of the junior section in presenting Mr. Turney with a testimonial in recognition of the generous services he had rendered in conducting the series of materia medica lectures.

The presentation took the form of a handsome inkstand, which bore the inscription, "Presented to Mr. John D. Turney by a few members of the Junior Section of the Plymouth, Devonport, Stonehouse, and District Chemists' Association as a mark of respect and esteem, October 16, 1895."

Mr. Turney feelingly acknowledged the compliment.

Mr. H. Wood proposed "The Visitors," and Mr. J. Kinton Bond, B.A., B.Sc., who had taken an interest in the work of pharmacy and the doings of the local Association, and Mr. T. W. Martin, Deputy-Mayor of Devonport, and honorary solioitor to the Association, replied, the latter stating that he did not think early closing was necessary, because chemists were so obliging at all times that people could get what they required if they only knocked.

Mr. P. A. Kelly proposed "The Ladies," and Mr. C. T. Weary and Mr. R. D. Doble responded.

Mr. A. D. Breeze, proposing "The Press," referred with pleasure to the recent improvement in the *Pharmaceutical Journal*. He was very pleased to see they published local paragraphs to a greater extent than they used to.

The toast was acknowledged by the representatives of the *Pharmaceutical Journal* (Mr. S. J. Shapley, Exeter), the *British and Colonial Druggist*, and the *Chemist and Druggist*.

The company dispersed about 12 o'clock, after a most convivial evening.

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THE PLYMOUTH PROGRAMME.

The proceedings at the conference with which the anniversary of the association formed by the chemists of the three towns and district was celebrated last week, offer encouragement to all who desire to see earnest co-operation among members of the craft with the object of removing or mitigating evils which have long been ground for complaint by individuals. Though it cannot be said that there was remarkable novelty in any of the opinions expressed, or in the suggestions as to the modes in which the legitimate interests of registered chemists may be more effectually safeguarded, there was satisfactory evidence of a disposition to consider fully what is practicable, and above all, of a determination to make some effort towards the realisation of objects upon which there is a more or less general agreement among members of the trade. It is true that this is not the first occasion upon which meetings similar to that at Plymouth have been held and speeches delivered which seemed to have similar promise. Nor can it be forgotten that in many instances they have promised more than was found to result from them. But it must be remembered that in the interval very considerable changes have taken place in the views held as to the efficacy and primary intention of the Pharmacy Act of 1868, even when regarded purely from the point of view of its bearing upon the public interest. As a consequence, registered chemists are now in a much more favourable position for bringing before the Government and the Legislature a representation of claims for amendment of the law to afford them adequate security in the exercise of their business or to provide remedies for defects in existing enactments. In view of the progress which has been made in these respects, the proceedings at the Plymouth conference possess a special interest and importance, and they may be expected to stimulate very general activity in other centres.

As is usual at such meetings the necessity for organised consolidation of the trade was spoken of as a primary necessity, without which there can be small prospect of making any impression upon Parliament or upon Governmental departments. On that point all the speakers were agreed; the only difference was in regard to the mode in which that consolidation should be effected. The plan of making every person placed on the Register a life member of the Pharmaceutical Society, is at least a proof of the conviction that consolidation is indispensable. For that reason its advocates may be excused for overlooking the fact that compulsory membership would be destructive of the voluntary character of the Society, and, as the President pointed out, productive only of an inanimate body instead of an active and influential corporation. The suggestion of an annual registration fee appears to be a more reasonable and politic method of arriving at such a consolidation of all members of the trade as can be secured by compulsion. If voluntary organisation on a comprehensive basis cannot be attained, it may become a question whether some such means should not be adopted. Hitherto the burden of providing for the common interests of the pharmaceutical body has been borne by a minority of its members; but so far as their efforts have been beneficial the advantages gained have been shared by the majority. The question may therefore well be asked whether that unequal position is to be continued, or whether there shall not, in some way, be a more equal contribution, such as an annual registration fee would involve?

There is still among chemists too little appreciation of the fact that in the Pharmacy Act of 1868, they are regarded as only of secondary account. The provisions of that Act, whether considered as restrictive of trade or as protecting registered chemists, were instigated solely by regard for public interest, and were intended only to secure that object. The basis of consolidation afforded to chemists from that point of view has never yet been adequately developed by them as a means of protection and of advancing the interests of their craft. That is the work which now lies before registered chemists to be done, and on all sides there is agreement that it cannot be done otherwise than by a consolidated representative body. At the risk of being again charged with touting for members of the Pharmaceutical Society, the statement may be repeated, that the Society is the only possible means of consolidating the trade. So long as the majority of registered chemists remain unconnected with the Society, the work of obtaining legislation for amending laws which now operate prejudicially upon chemists, cannot be carried out or attempted with any prospect of success.. The projects of territorial representation and federation of local associations are in reality based upon a conscious or unconscious perception of this fact. Ultimately the meaning of those projects is to awaken increased individual interest in the conditions by which the registered chemist's business is influenced, it may be more or less in towns and in the country, but, nevertheless, so generally that those conditions, and the effects resulting from them, are equally the business of all members of the body. Until such general interest in pharmaceutical affairs exists there cannot be vigorous local associations, and when they shall have been brought into existence it cannot fail to be recognised that the only point through which their local influence can be usefully exercised, is the Pharmaceutical Society—that, in fact, it will be their means of federation.

In the discussions at the Plymouth meeting there has been a clear statement of what is desired by chemists. Though in some respects the President has, in his reply, shown that it may perhaps be necessary to modify the form in which legislative assistance is sought for, there can be no doubt as to the agreement existing between the Executive of the Society and the exponents of opinion on behalf of the body at large.

A CURIOSITY IN JOURNALISM.

A copy of the first number of a new monthly publication, the *Indian Druggist*, comes to us from Cawnpore. It is described as "a paper on Indian drugs and their prices," and consists of four pages. The first page is occupied, after the title, by advertisements of medicinal soaps, prescription books, and general stationery for medical men, all of which can be supplied by the "manager" of the paper. The introduction, in which the object of the publication is explained, occupies the next page. Following this is a brief note on *Randia dumetorum*, the fruits of which the "manager" expresses himself willing to supply, "at one anna for 10 tolas by pattern post," the intention being "to facilitate making trials of this Indian substitute for ipecacuanha." Finally, there is a price-list of drugs, the names of which are arranged under the heads of animal, mineral, and vegetable kingdom respectively. The first section of this list includes "Cera Flava, *Môm-pila*," and "Mel, *Shahad*," only. The mineral kingdom extends to thirteen items, ranging from "Aqua Destillata," and "Alumen, *Phitkarí*," to "Sulphur, *Gandhak*," and "Zinci Oxidum, *Safaida*." But the bulk of the list is occupied by the names of drugs obtained from the vegetable kingdom. These include "Aquae Rosae, *Gulabjal*," "Cortex Azidarachtae, *Chlal-Nim*," "Cortex Hollarrhenae, *Kurchi*," and many other barks, fruits, leaves, oils, and roots with strange and uncouth names, whilst the rear is brought up by "Sugarcandy, 1st quality."

But the most striking feature of this curious sheet, the manager of which is the sole advertiser, is its declaration of policy. Thus, the writer of the introduction makes the statement that "The Government and other Charitable institutions where the periodical pecuniary allotment being quite inadequate to meet with the real requirements, if stocked with Europe drugs, the Administrative Officers thereof are systematically obliged to have recourse to the use of the Bazar medicines for the cheapness of their price, but they are sometimes seen sadly disappointed in their practice with such medicines upon their patients." Since no key is provided it is doubtless imagined that this passage is quite clear. However this may be, the writer proceeds to remark that "The reason is not very far to seek for. The drug trade being in the hands of native *Pansaris* (grocers), most of whom as a rule are uneducated and ignorant people, and have no knowledge that a plant could be in its full medicinal virtues only for a certain time, or that a drug loses its medicinal properties if exposed to the sun or that it becomes inert if allowed to remain in a damp place, etc., etc." Again, "Besides these great disadvantages, the shameful practice of adulterating and selling false drugs for genuine prevails throughout, which not only weakens the faith in Indian drugs but puts the honest men out of the market, for they cannot sell good drugs for low prices." The remedy proposed for this sad state of affairs is to establish an "Indian Drug Emporium" at a place centrally situated, like Cawnpore, and it is with a view to ascertaining the opinions of hospital surgeons as to the prospects of such an enterprise that the "Indian Druggist" is started by the "projectors."

This is probably the first case on record of a monthly paper being started with such an object, but it is unlikely that the "projectors" are casting this novel literary bread upon the stormy waters of journalism without a fairly decided prospect of seeing it again before many days. For the further information is vouchsafed, that "till such time the Indian Drug Emporium is not established the manager of this paper will undertake to supply the drugs quoted within the list, and he is hopeful that encouragement will be afforded to him from all sides, so that it be not long to open the proposed emporium under the direction and supervision of qualified and experienced men." Pity it were, however, that such mere "pot-boiling" should be permitted long to continue to engage the attention of this adaptive manager. The world most certainly ought to have an opportunity of realising how little words may signify, and the scheme described in the following passage should surely not lack support: "To combine cheapness with genuineness and superiority of articles is the aim of the projectors; who mean to revive an art dying out, to reform a charitable trade which for want of being in the hands of energetic and truly patriotic men, doing a certain degree of mischief to humanity instead of doing any good to it, who mean to be of service to their own people through the instrumentality of our benign Government which defrays an enormous sum of money to maintain so many Hospitals in our country, by simply putting in the hands of its Administrative Officers facilities by which they could not only exert their rightful expertness but offer that boon to the expectant passive millions: which they would fain do as naturally interested they are in their divine mission; only they are once required to be convinced that the implement they would really possess the temper ascribed to them and the projectors are quite confident that in time the so called cheap Bazar Medicines would exclusively replace many of the costly Europe preparations and in their actions at least upon the native constitution would 'wondrously' surpass them." After this eloquent outburst, what "Civil and Assistant Surgeons and others interested in Indian Drugs" can resist the manager's appeal for literary contributions, or how can a proverbially hard-hearted "mercantile community" refuse to "afford their material help by sending their advertisements at the low rates given"?

DANGER OF NICOTINE FUMIGATIONS.

Dr. Fisher writes to the *Dorset County Chronicle* calling attention to the danger of using the powerful nicotine fumigating liquids in fruit houses where the fruit is required for immediate consumption. He states that six people were rapidly affected with all the well-marked symptoms of nicotism after partaking of some grapes from a vinery in which nicotine had been used to destroy insects. The doctor would limit the use of these preparations, which, from their efficacy as insecticides, are becoming largely used, to greenhouses where only flowers are grown. Pharmacists should note that since nicotine is a poisonous vegetable alkaloid, and as such included in Part I. of the list of poisons within the meaning of the Pharmacy Act, 1868, the sale of preparations containing it should be treated strictly in accordance with the regulations laid down by the Act.

ADHATODA VASICA.

In the *Journal of the Imperial Institute* for July, Professor Giacosa, of the University of Turin, announced that he had failed to find an alkaloid in the leaves of this plant. Mr. D. Hooper, who discovered vasicine in this plant (*Pharm. Journ.*, April 7, 1888, p. 841), has written to say that he has confirmed the presence of an alkaloid. He is engaged in analysing samples of the leaves from different parts of India, and will publish the results in due course.

NOTES AND NEWS.

The President at Exeter.—On Thursday, October 17, the day following the Conference at Plymouth, Mr. Michael Carteighe, President of the Pharmaceutical Society, Mr. R. Bremridge, Mr. E. M. Holmes, and Mr. C. B. Allen, accompanied by Mr. H. Gadd, J.P. (President of the Exeter Association of Chemists and Druggists), left Plymouth by the 10.35 train on their return to London. Breaking their journey at Exeter, they were warmly received by Mr. Gadd, with Mr. J. H. Lake (Vice-president of the Exeter Association), and Mr. P. F. Rowsell (Secretary and Treasurer), welcoming them on behalf of the Association. The three gentleman first named, and the local officials, afterwards paid a visit to the Exeter Technical University Extension College, attached to the Albert Memorial Museum, where pharmaceutical classes have recently been established under the Principal (Mr. Clayden), and they expressed themselves well pleased with the arrangements that had been made for pharmaceutical students.

Leprosy and its Cure.—Dr. W. Impey, Medical Superintendent of the Leper Settlement at Robben Island, Table Bay, has recently arrived at Plymouth, and is said to have stated that at Robben Island, where there are 600 lepers, when a patient has been attacked with any inflammatory skin disease, such as measles, erysipelas, or small-pox, the part affected has been invariably cured of leprosy, and the patient has either entirely recovered from the disease, or had his life indefinitely prolonged beyond the normal eight years. If this statement should be justified by facts, there ought to be but little hesitation regarding the desirability of inducing erysipelas within three or four years of a patient being attacked, as Dr. Impey is said to propose, and there would seem to be good grounds for his hope that leprosy may eventually be stamped out.

Centenary of the Institute of France.—The celebration of the centenary of the Institute of France commenced on Wednesday, and receptions, banquets, etc., have occupied the members and their distinguished guests during the rest of the week. The final ceremony in connection with the funeral of the late Professor Pasteur was expected to take place on the opening day of the celebration, but particulars had not come to hand at the time of going to press.

Substitution in America.—If the statements made by Dr. H. Schweitzer, in a paper read before the New York Section of the Society of Chemical Industry, be correct, it is high time American pharmacists devoted more attention to the examination of the synthetic remedies they supply. Dr. Schweitzer, it appears, is engaged by the owner of the phenacetine patent to examine ten-grain samples of that remedy purchased from time to time at retail drug stores. Of 2828 such purchases, 6·4 per cent. of the samples were found to be sophisticated. The percentage varied considerably in different towns, Augusta (Maine) heading the list with 33·33, San Francisco coming next with 12·60, New York 11·70, Brooklyn 6·75, Helena (Mont) 2·22, and Newark (N. J.) 0. The so-called phenacetine consisted in 105 cases of acetanilid only, 21 contained acetanilid and sugar, 12 acetanilid and sodium bicarbonate, and 1 acetanilid and bismuth. In one case quinine sulphate was supplied, in another antipyrine, and in a third borax was present. A curious fact noted by Dr. Schweitzer was that mixtures of acetanilid and phenacetine, in whatever proportion the two were present, invariably began to melt at 92° C. and became finally clear at 130°.

The Respirability of Impure Air.—Candle and lamp flames should be discarded as absolute tests of the respirability of air, observes Dr. Frank Clowes (*Chem. News*), since they can be extinguished by air which is still capable of supporting respiration. He finds that candle and lamp flames are extinguished by air containing about 16·5 per cent. of oxygen, and coal gas flames by a mixture containing only 11·3 per cent. of oxygen. On the other hand air may be breathed by a healthy person without harm until its oxygen is reduced to 10 per cent., and when the maximum amount of carbon dioxide present is considerably higher than 3 per cent.

The Production of Saké.—In a recent communication to *Nature*, Dr. Jörgensen claimed to have discovered that the mould, *Aspergillus oryzae*, employed in the production of the Japanese beverage "Saké" was capable of producing the yeast cells invariably present. This was opposed to the opinion of Atkinson, who had previously failed to find any evidence of such transformation, and Kosai and Yube, of Tokio, now uphold the views of the latter. They have found that, in addition to the *Aspergillus*, a species of yeast is requisite in the preparation of saké, and they are at present engaged in the identifioation of this yeast, which is said to resemble the *Saccharomyces cerevisiæ*.

A New Disinfecting Apparatus.—Dr. Thresh has devised a new steam disinfector, which will shortly be placed upon the market. This apparatus is described in *Public Health* as accomplishing disinfection by means of "current" steam at a few degrees above 212° F., and perfect drying is then effected by means of hot air, which replaces the steam on moving a lever. The apparatus has been tested, and favourably regarded by well-known experts. Its success will be generally desired, and its development watched with interest, as a cheaper form of disinfecting apparatus than those at present in use is a need greatly felt in English sanitary practice.

A Novel Means of Perfuming Air.—A French chemist recommends the use of fragrant essences in the form of effervescing powders. The perfume is poured on pulverised oxalic acid, which absorbs large quantities of the fragrant essences and retains the odours. The oxalic acid thus treated is divided into powders, each one being accompanied with a powder of bicarbonate of sodium. When both powders are placed in a glass of water, fragrant constituents of the essence escape with the carbonic acid, and are thus distributed about the room. Although the poisonous oxalic acid can be replaced by citric or tartaric acid, the first-named is said to serve the purpose best.

Relative Digestibility of Margarine and Butter.—Jolles has carried out a long series of observations upon dogs fed during four consecutive periods alternately with natural butter and with margarine (*Bost. Med. Journ.*). All the discharges were examined daily for unassimilated fatty matter. In the first and second periods more fat and less carbohydrates were given, in the third and fourth less fatty matter and more carbohydrates. Butter was used in the first and third periods, and margarine in the second and fourth. The other articles of food used, such as wheat-meal, sugar, etc., were all of ascertained composition, and were made up into dog biscuit so that the amount of the different kinds of food constituents consumed during each period were accurately known. It thus appeared that where proper care was taken to have all the conditions similar the natural butter and manufactured margarine had practically identical co-efficients of digestibility and nutritive value.

MISCELLANEOUS NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Pharmaceutical Football Club *v.* King's College.—This match was played at Wormholt Farm, Shepherd's Bush, on Saturday last, and after a most exciting game resulted in a victory for the former team by seven goals to two.

Pharmaceutical Legislation for the Isle of Man.—"Galen" writes to the Editor of the *Isle of Man Times* as follows: "My attention has been drawn to a paragraph in the *Pharmaceutical Journal* for October 12, reproduced from the *Isle of Man Times*, respecting the necessity which exists for a Pharmacy Act in this Island. The principle of legislation regulating the practice of pharmacy and sale of poisons is one which has been universally recognised and put into operation, and its wisdom and soundness will not be challenged by any person capable of offering an opinion. It is very gratifying to know that a Pharmacy Bill is now before the Council, and will receive immediate consideration; and it is to be hoped that the measure will be dealt with in a sound and comprehensive manner. Its usefulness, when put into operation, will then soon be apparent, and in this connection I should like, briefly, to offer a few remarks. I, in conjunction with those fellow-chemists with whom I have had an opportunity of exchanging opinions on the subject, would favour the adoption by the Insular Legislature of the Pharmacy Act of Great Britain, of 1868, the creation of the Pharmaceutical Society (of Great Britain), as the power under which the Act should be enforced, and the placing of unregistered chemists in business in the Island, at the time of the passing of the Act on the same footing as that on which British chemists in business at the time of the passing of the Act of 1868 were placed. As the machinery, so to speak, for the enforcement of a Pharmacy Act in the Island practically exists within the control of the Pharmaceutical Society, it would be much simpler, less expensive, and conduce to greater efficiency in the administration of the Act, by giving the Society the power referred to, than by creating a special Insular authority to enforce it. Besides which, as you point out, the Society is well represented in the Island."

Sale of Stamped Medicines without a Licence.—At Milnthorpe Petty Sessions on Wednesday, October 16, James Creighton, grocer, of North Road, Ambleside, was charged with exposing for sale a certain medicine liable to stamp duty, without having obtained a licence. It was shown that on August 20 defendant sold a box of Beecham's pills to an Excise officer, and when asked if he had a licence, said he had, but could not put his hand upon it. In a letter of explanation which he afterwards wrote to the officer, he pleaded ignorance of the necessity for a licence for the sale of Beecham's pills. After referring to the Act under which the proceedings were taken, Mr. Edgar Williams, supervisor of Inland Revenue, said there were good grounds for believing that the defendant had for some years sold patent medicines without a licence. He would ask the Bench to inflict a substantial penalty. —A fine of £1 was imposed.

The Use of Trade Marks.—"There seems to be some ground," says the *Financial News*, "for the suggestion that the use of trade marks is likely to decline. Of course, with established trade marks, certain goods become identified with certain prices; but if there is a broad advance in the cost of raw materials or wages, a proportionate advance must be made in the price of the manufactured article. It is found in practice that it is far more difficult to raise the price of well-known goods than it would be if the trade mark were little known. Then, too, fraudulent trade marks are the means of doing infinite mischief to *bonâ-fide* trading, and the retail man is under constant temptation to palm off upon his customers wares inferior in quality, but upon which he will make a bigger profit. At best, he will sell the goods on their merits. Sometimes he has his own little trade mark or label, with which he carefully covers up the trade mark of the manfacturer."

The Rise of Physiology in England.—Dr. W. S. Church delivered the Harveian Oration in the library of the Royal College of Physicians, Pall Mall East, on Friday, October 18, before an audience of distinguished medical men and a number of students. Sir Russell Reynolds, President of the College, occupied the chair. Dr. Church observed that but few records remained of Harvey's work before his immortal discovery of the circulation of the blood. In order to fully recognise his merits it was necessary to realise the state of knowledge at the commencement of the seventeenth century. With the revival of learning human anatomy began to be studied, and details in the organisation of man were discovered; but in physiology there was no advance whatever, though there was some idea of the lesser circulation. Difficulty had to be encountered in opposing the tenets of the Church of Rome, and the same spirit of inquiry which broke down the tyranny of that Church also freed men's minds for the study of philosophy. Harvey would have been in the midst of the bitter controversy between the Aristotelians and their opponents had not his well-balanced mind preserved him from taking part with either of them, although his sympathies were with the Aristotelians. He not only discovered the greater circulation, but demonstrated the true action of the heart. By a chain of acute reasoning drawn from observation he proved once for all that the action of the heart was the main, though not the only factor in the action of the pulse. In his speculations on the nature of generation he did not reject the theory of spontaneous origin. He anticipated Darwin in his explanation of sexual adornment and in the scope of heredity traceable to remote progenitors. Reference was made also to the innate heat of the animal system, to the action of respiration, the red colour of arterial blood due to the action of the air, and to other discoveries traceable to Harvey's physiological teaching.

Sir F. Pollock on Tyndall.—Professor Sir Frederick Pollock delivered a lecture on "Tyndall, as Worker and Teacher," at St. George's Hall, Langham Place, on October 20. He said he proposed to give some impressions of Tyndall as a worker and teacher among men of science. No man could be a popular expounder of a scientific subject unless he had a thorough mastery of the principles and of the technical parts of that subject. The next essential was the power of expressing himself in language easily understood, and Tyndall possessed both requisites. He had, in a singular degree, the power of making things at once intelligible and interesting, and had sufficient energy for his work. His early training in science was of a particular and accurate kind, and he carried that accuracy through all his work, and with perfect sincerity for the objects he set before him and the methods he adopted. The sincerity of his scientific mind was sufficiently exemplified in the controversy on the question of "spontaneous generation." He was one of those who welcomed Charles Darwin's work at its earliest stage, along with Huxley. All Tyndall's prejudices, so far as he had any, and all his desires were in favour of discovering some possible origin of life in something that was not living. That seemed to be all that was wanted to complete the scheme of terrestrial evolution. There were those who asserted that they had actually obtained life under such conditions—in hermetically sealed vessels—a discovery which, if established, would have been one of the very highest importance. Tyndall proceeded to examine their work, and, if he had any prejudices, they must have been in favour of confirming it. He went to work, however, with no foregone conclusion. He repeated the experiments, found defects, and advised more stringent precautions, with the result of establishing that "where life is not you cannot get life." In the end, those who had thought otherwise admitted that Tyndall was right, and now there was no doubt whatever about it. That was only a sample of Tyndall's method in whatever he set himself to do. Truth came first and agreement afterwards. On that occasion he was led into a controversy which, on the upper side, at any rate, was rather hot—not by any means the only occasion on which he was involved in controversy. He never fought for his own hand; he never entered into any kind of controversy with the view of defending his own reputation, or from any kind of personal interest. It was always in the interest of truth, and generally in the interest of some other person who, he thought, had not received perfect jnstice. He was zealous in controversy, and sometimes said rather hard things, but his zeal was the result of generosity and a desire to see justice done. This was shown further in the controversies over the theory of glaciers and the mechanical theory of heat. With regard to his actual performances in science it would be found that almost every branch of Tyndall's work had been recognised as really valuable by the persons most competent to form an opinion in that branch.

Opticians as Chemists.—In the *Optician* for October 10 appears the following hysterical production:—"We have devoted some attention in previous volumes to the relationship of opticians and photographic dealers, as regards the conduct of their business, with that clumsily devised piece of legislation, the Act which regulates the sale of poisons. When the proverbial process of driving 'a coach and four' through an obnoxious Act of Parliament is feasible, it is agreed by lawyers and business men that the diversion is quite safe within the elastic limit of their conscience. Of course, in this view of the matter, questions of pure morality are not supposed to be involved. There is positively no moral aspect, in the conventional sense of the words, to the sale of poisonous material, for uses unrelated to the modes in which drugs are medicinally exhibited. We have, therefore, not hesitated to suggest expedients, whereby it may be possible to evade some of the most injurious provisions of the Act in question. But while the Pharmaceutical Society plainly recognised the moral injustice of certain of its legal powers, and went to work with the caution and moderation dictated by consciousness of a bad case, there was little need for technical and photographic chemists to exercise their ingenious minds upon the subtleties of nice legal points, such as those of which the existence and the delicacy have been hinted at. Nothing more has been required of the dealer, by common usage, and with the tacit aquiescence of all those interested, than to refuse to sell any 'statutory' poison, except for the purposes of chemical experiment, or for industrial non-medicinal use. Now, however, the pharmaceutical trade union is proceeding to tighten the strings with which it is imagined that free trade in scientific apparatus and materials may be strangled. We cannot too strongly insist that an actual—not merely nominal—monopoly of the sale of poisonous chemicals for technical use would carry with it a virtually equal monopoly of the sale of apparatus. Customers would seldom trouble to visit two different shops for the purchase of an evaporating basin and an ounce of cyanide of potassium. Is the 'plan of campaign' which has been sketched out to be tolerated, then, simply because pharmacists are combined in a powerful and unscrupulous trade union, while opticians and photographic dealers are not? We submit the contrary conclusion. We suggest that, through their grasping policy, the officials of the Pharmaceutical Society will overreach themselves. Changes must be made in the law as to sale of poisons before long, and we hope that these changes will be such as to not only remove unjust restrictions, and threatened restrictions, from a most important branch of trade, but also to confer greatly increased public security against the misuse, or rather the criminal use of pathogenic salts. Chemical science, and its practical applications, outside of the field of medical work, have been improved, and very widely popularised, since the date of the Pharmacy Act of 1868, the result being that the sale of fine chemicals and apparatus is now quite an important and distinct branch of trade. Many pharmacists believe that they are exclusively entitled to employ the application 'chemist.' Photographic and chemical material dealers, analysts, experimentalists, and chemical works managers (emulsion makers for example) are mere unqualified people! The pretension that a knowledge of the properties of medicinal drugs is the same thing as a knowledge of chemistry is, however, absurd, and cannot but weaken the case of those who put it forward."

Midland Pharmaceutical Association.—The members of the Midland Pharmaceutical Association assembled in strong force on Tuesday evening, at the Grand Hotel, Birmingham, accompanied by their lady friends, to take part in the opening of the session 1895-6. The occasion was devoted to a conversazione, which was held in the palatial dining hall of the hotel—a room acknowledged to be the finest in any hotel outside the metropolis. Mr. R. Darton Gibbs (President) received the members and the visitors, after which an exceedingly interesting programme was listened to with much appreciation. Pharmacists were present from most of the Midland centres, amongst those in attendance being Mr. W. H. Gibson and Mr. T. W. Chapman (Vice-Presidents), Mr. F. H. Prosser (Treasurer), Mr. C. J. Jarvis (Hon. Secretary), Mr. C. Thompson (Local Secretary Pharmaceutical Society), Mr. A. Southall, Mr. G. E. Perry, etc. At the conclusion there was a unanimous vote of thanks passed to the President and officers.

Liverpool Pharmaceutical Students' Society.—The half-yearly smoking concert of this Society was held on Thursday, the 17th instant, at 8.15 p.m., at the Alexandra Hotel, when the members mustered in strong force to enjoy the lengthy programme drawn up for their amusement by Mr. J. Gilbert Jackson, the items in which, contributed by "students" and their friends, met with a well-deserved and cordial appreciation at all hands. The chair was occupied by the President, Mr. T. S. Wokes, who, aided by Messrs. Mitchell, Pierson, and Jackson, managed to get off all the items without a hitch, a work of no small difficulty in consequence of the rather short time at his disposal. During the evening he took the opportunity of impressing upon the students the importance of attending the ordinary meetings of the Society in as great numbers as they did the smokers and social events generally, and of using every endeavour and inducement to get their friends in the trade to become members of the L.P.S.S., and so greatly increase its power and opportunities of doing good. His remarks were received in a very flattering way by the assembly, who numbered some forty or fifty members and their friends. The excellent manner in which the various items in the programme were rendered went far to make this smoker, the first under Mr. Woke's presidency, one of the most successful in the history of the Society. The somewhat onerous duties of pianist were discharged by Mr. Jones to the satisfaction of the audience and to that of the artistes, and well merited the hearty vote of thanks accorded towards the end of the meeting, on the proposition of Mr. T. H. Wardleworth, seconded by Mr. P. H. Marsden. The proceedings closed in very hearty fashion by the singing of "Auld Lang Syne" by the audience, in the approved and time-honoured fashion so dear to northerners.

Alleged Mutilation of Medicine Stamps.—At a special sitting of the Northampton borough magistrates on Tuesday, Evan Charles Ashford, chemist, was charged under the Stamp Duties Act of 1891, with mutilating an Inland Revenue stamp with the intent that use should be made of a part of such stamp. He was further charged with feloniously and without lawful excuse having in his possession on October 21, 1895, a certain stamp which had been fraudulently mutilated.—Mr. Arthur J. Llewhellin, detective supervisor of Somerset House, who prosecuted on behalf of the Inland Revenue authorities, said that in consequence of instructions he received, he visited certain chemists' shops in London, and as the result of his inquiries there he came to Northampton on Monday, and saw Mr. Ashford, chemist, of Gold Street, Northampton. He asked the prisoner what explanation he had to give respecting the mutilation of some Inland Revenue stamps on some boxes of powders which the detective produced to him, and told him had been purchased at different chemists' shops in London. Witness also pointed out to the prisoner the way in which a three halfpenny stamp on the lid of one of the boxes was in different pieces, and had been pasted together. He further showed Mr. Ashford another box of powders and a box of voice lozenges. The stamps on the boxes had been similarly mutilated and pasted together. When he showed the boxes produced to the prisoner, the latter made an admission of having committed the offence. There were other cases, of a somewhat similar sort against Mr. Ashford, but he did not propose to go any further into the case just then.—The magistrates agreed, and decided to grant bail.—Mr. Llewhellin said he had been instructed by the Revenue Board to ask for substantial bail, as the prisoner had incurred very heavy penalties.—The case was adjourned for a week, the Bench fixing the bail at £800, the prisoner in £400., and two sureties of £200 each.

Deficient Sweet Spirit of Nitre.—At the Malling Petty Sessions last week, Benjamin Millidge, chemist, of Snodland, was summoned for selling adulterated sweet spirit of nitre at Snodland on August 10.—Mr. Adams (analyst for Kent) proved that the drug sold by defendant contained only two-tenths per cent. of nitrous ether, and its specific gravity was ·897. In other words, it had been diluted with water to the extent of 22 per cent. Defendant stated that sweet spirit of nitre being very volatile there was a good deal of evaporation every time the bottle in which it was kept was opened. He denied having adulterated the drug. The Bench convicted, however, and imposed a fine of 10*s.* and costs.

To Furbish Oil-Cloths.—Dissolve 2½ pounds of hard paraffin in 1 gallon oil of turpentine by the aid of a gentle heat, and apply with a sponge or piece of flannel, while warm. Let it remain on the oil-cloth twenty-four hours, then polish with flannel. This solution not only renovates but preserves the cloth (*Pharm. Era* xiv., 174).

SCOTTISH NEWS.

Glasgow and West of Scotland Pharmaceutical Association.—The first meeting of this session took place in the Philosophical Society's Hall, on Friday, the 18th inst., when Mr. W. Lamond Howie, F.C.S., delivered his celebrated lantern lectnre on "The Scottish Alps." Admission was by ticket, and the hall was packed by a large and enthusiastic audience, comprising nearly every chemist in the city, with their lady friends. The lecture was well received, and the occasional flashes of humour, delivered in Mr. Howie's "pawky" style, were much relished by his hearers, who responded with great zeal to the vote of thanks proposed by the President, Mr. Currie. This is the first of a series of social evenings promoted by the "Social Committee," and from the large tnrn out on this occasion they have every prospect of their efforts meeting with the appreciation of the members.

Technical Education for Students.—On Saturday the students attending the Central School of Pharmacy, Clyde Street, Edinburgh, visited the Broxburn Oil Works, by permission, under the snperintendence of the principal, Mr. W. B. Cowie. Starting at 7.45 a.m., the works were reached at 8.40, and the company was shown over the various departments, including charging of the retorts with shale, condensation of the crude products and fractionation of the oils, the separation of solid paraffin by freezing and subseqnent pnrification, and the final manufactnre of candles. A visit was then paid to the sulphuric acid works, where the process of making acid from Sicilian sulphur was fully explained, the final evaporation being conducted in huge platinum stills. The acid is employed to form sulphate of ammonia with the ammonia obtained as a bye-product in the distillation of the shale. Mr. Woodrow, one of the chemists in the firm's laboratory, fully explained all the different processes and apparatus.

IRISH NEWS.

Ulster Pharmaceutical Association.—A social meeting in connection with this Association was held in the Foresters' Hall, Royal Avenue, Belfast, on Thursday, October 17. Mr. Wm. Prott, M.P.S.I., President of the Association, in the chair, and there was a most representative attendance. The Chairman, in his opening address, gave in detail the objects which the promoters of the Association had in view, and dwelt on its educational aspect, pointing out the benefits to be derived by those connected with it. He mentioned that the meetings would afford an opportunity of exchanging ideas on trade qnestions, as well as bringing the members into closer harmony than formerly. In conclnding, he pointed out that owing to the growing stiffness of pharmaceutical examinations, they might worthily claim to be members of an ancient and learned profession, and asked those present to do all in their power to increase the membership. After some routine business, tea and coffee were served, and subsequently an excellent mnsical programme, arranged by Messrs. G. M. Martin and R. S. Moore, was entered npon. Mr. Louis Werner presided at the piano, and at the close a hearty vote of thanks to the performers, proposed by Mr. W. Elliott, seconded by Mr. H. Scott, was conveyed to them through Mr. Werner, who responded in a few happy remarks, and a vote of thanks to the chairman, proposed by Mr. G. H. Waugh, seconded by Mr. R. S. Moore, bronght a most pleasant evening to an end.

Company Phabmacy in Dublin.—Fannin and Co., of Grafton Street, Dublin, surgical instrument dealers and medical booksellers, have turned themselves into a limited liability company. Messrs. Fannin, it will be recollected, were a short time since fined for selling corrosive sublimate and morphine, and they have now employed a pharmaceutical chemist—Mr. S. J. Smith, M.P.S.I.—as assistant.

The Proposed Erasure from the Register of Chemists and Drnggists of the name of R. C. Marshall, Dungannon, for a breach of the Pharmacy Act, in having compounded a medical prescription, will be considered by the Judicial Committee of the Irish Privy Council, at 11 a.m. on Saturday, the 2nd proximo, in the Council Chamber, Dublin Castle. Mr. Marshall having been, in July last, convicted for the second time, the Pharmaceutical Council applied to the Lord Lieutenant for an Order to authorise the erasure. Memorials from the Magistrates, the Town Commissioners, and from a number of the leading inhabitants of Dungannon, have been forwarded to the Castle in support of Marshall's own memorial praying that his name may not be erased. These proceedings will be specially interesting, as being the first public inquiry under the Irish Pharmacy Act for such a purpose.

FOREIGN NEWS.

Investigating the Composition of the Atmospheres.—With the object of investigating the composition of the atmosphere surrounding the earth in the high regions, a balloon was launched last Sunday from Paris, destined to reach an altitude of 18,000 metres (about 11 miles). This aerostatic machine is fitted with various instruments devised for the purpose of registering with exactitude the height attained, and the temperature at that height. It contains also an ingenious apparatus which will absorb automatically and retain the air collected at the highest point reached by the balloon. This air will be entrusted to M. Berthelot for the purpose of analysis, and more particularly to estimate the quantity of helium and argon contained in it. Precise instructions are placed in the car for the careful handling of the balloon and its contents when they again touch earth, in order to ensure its perfect delivery to the aerostatic establishment in Paris.

Potency of Alcoholic Beverages.—M. Daremberg who, for some time past has been pursuing some exhaustive stndies on the potency of the various alcoholic beverages in general use, with the view of determining their relative toxic influence, commnnicated to the Academy of Medicine this week some of the results of his experiments on rabbits, concerning the different actions of spirit, beer, wine, and cider. The conclusions that he arrives at are, that pure diluted spirit of wine is less noxious than brandy of the same strength, and more especially the "fine old cognac," that is so much esteemed, and commands such high prices. The latter diluted, however, does not do so mnch harm as wine containing the same percentage of alcohol. Red wine which is produced by fermentation of the skins and seeds, as well as the juice of the grape, is much more injurious than white wine, in the manufacture of which the juice alone is employed. The impnrities which are formed by the fermentation of the entire grape consist of furfurol, volatile acids, essential oils (which give the bouquet), higher alcohols, and cream of tartar, this latter, like all potash salts, being deleterious when continuously absorbed in notable quantities. The use of alcohol was more harmful to persons whose liver and kidneys were deranged than to healthy subjects, who eliminate with facility the toxic principles. M. Daremberg makes a slight reservation in favour of French beer, which contains only 5 per cent. of alcohol; cider he fonnd, however, was full of injurious principles.

Pasteur's Successor.—The Administrative Council of the Institute Pastenr assembled last week for the purpose of appointing a successor to the late savant as Director of that Institute. In accordance with general expectation the choice was made of M. Duclaux, Sub-Director of the Institute, and the oldest collaborateur of M. Pasteur, who was elected unanimously, withont giving rise to any discussion. Professor Duclaux has made his reputation by his researches on ferments, sericulture phylloxera, digestion, and microbiology, and is the author of numerons works on those subjects. He was born at Aurillac in 1840, obtained his Doctorate of Science in 1862, and then became one of the "preparateurs" of M. Pasteur. He is Member of the Academy of Médecine, and occupies the Chair of Biology at the Faculty of Science. Consequent on his long and intimate associations with the labours of M. Pasteur, he was appointed Sub-Director of the Institnte on its fonndation, and it is generally considered that no worthier successor could have been chosen to continue the work of the late scientist. M. Roux, whose name has been so prominently before the pnblic in connection with the discovery of the anti-diphtheritic serum, is selected to fulfil the office of Sub-Director in place of M. Dnclaux.

Sick-Insurance and Pharmacists.—The German law passed in 1883 in relation to insurance against illness, and extended in 1892, is the first legislative measure by which the wants of the labonring class are provided for in regard to sickness, accident, and old age. Prior to that time even a workman of the better class, who could, in good health, support his family with comfort, was liable to want or to

become for a time dependent upon public charity whenever he was prevented by illness from following his occupation. The object of the law was to provide against that contingency as well as the more permanent kinds of incapacitation. For that purpose all persons engaged as labourers in factories, trade or industrial operations, are compelled to insure against illness, and local authorities throughout the country are empowered to enforce these provisions, especially in the case of agricultural labourers, etc. The law also allows persons having an income not exceeding a hundred pounds a year to become participators in this form of insurance, though they are not compelled to do so. As a consequence of this enactment, necessity arose to provide for the requirements of sick persons who had been insured. To supplement the sick clubs of miners and other classes of workpeople which had existed upon a voluntary basis, a number of insurance organisations were established, either in relation to particular localities or particular industrial occupations, and with due regard for the circumstances of the case, while auxiliary organisations were formed on the principle of free aid to meet the wants of any persons who were not otherwise provided for by. These organisations are self-governing. In each a committee is elected from among the members, and provision is made for the representation of employers of labour. The members must in any case be provided with free medical attendance, medicine, bandages, spectacles, and all similar articles. In cases of incapacity to work, an allowance of at least one-half the wages, in proportion which the subscription has been adjusted, is to be paid after the third day of illness. Assistance of both kinds is to be given until the end of the illness, unless it be of very long duration, exceeding thirteen weeks from the time of incapacitation for work.

In addition allowances are made for women in confinement and for funeral expenses, amounting to twenty times the wages upon which subscriptions have been adjusted. Provision may also be made for further wants on the part of the family of a sick person. The amount of subscription for the labouring classes is not fixed by law, in other cases it is fixed at $1\frac{1}{2}$ to 2 per cent. of local labourers' wages, and in the case of factory workpeople, builders, etc., it is at the utmost from 3 to $4\frac{1}{2}$ per cent. of the average wages. Of these amounts the employer of labour has to contribute one-third, so that the contributions of the persons insured do not amount to more than from $1\frac{1}{2}$ to 3 per cent. of their wages respectively. The cost of management is defrayed partly from the funds of the insurance organisations and partly by the employers, who are also responsible for seeing to the payment of subscriptions and for the general conduct of the insurance.

Evidently this system of insurance has a very important social influence. In 1893 there were in Germany 21,498 organisations of this kind, with 6,329,820 members. The total income amounted to upwards of six million pounds (£6,001,598). In Berlin there were in the same year, besides the municipal insurance organisation, ninety-seven others, including about 335,973 members. In addition there were 8583 persons insured in the special organisations connected with the post-office and railways. Lastly, there were fifty auxiliary organisations, so that in all the number of persons insured in Berlin must have been nearly 400,000, or about one-fourth or one-fifth of the population.

With such a large number of insured persons, who in return for their subscriptions are now entitled to demand assistance from medical men and pharmacists, while formerly they were often unable to find money for such requirements, influence of an important nature is exercised upon the pharmacist. Since the introduction of the insurance system there cannot be any doubt that the returns of the business have been very considerably increased. This advantage will have been felt chiefly in places where there is a large industrial population, and it will be less sensible in country districts. But this advantage to the pharmacist was not left untouched and uncoveted. In the first place, the insurance organisations endeavoured to secure the advantage for their own interest by demanding the most favourable terms in the supply of medicines. Such endeavours were frequently supported by medical men, for though they really derived an immediate advantage from the establishment of the insurance system in the same manner that pharmacists did, the complaint was generally put forward in medical papers that the medical profession was damaged, and pharmacists had all the benefit of the change. In reality it was in consequence of the over-production of medical men that their services was offered to the insurance organisations so cheaply. Under such circumstances it is not surprising that difficulties should have in some instances arisen between pharmacists and the managers of the insurance organisations, and though both parties may be more or less to blame, pharmacists have reason to be apprehensive of interference with their business, in so far as freely saleable articles are concerned, and although the establishment of independent insurance pharmacies has not yet been sanctioned by the Government. On the whole, however, the relations between the insurance organisations and pharmacists are satisfactory: some reduction of prices below the official tariff is generally made. In Berlin, and in some other towns, special arrangements are made with the insurance managers, in virtue of which the cost of medicine is regulated according to the intrinsic value of the materials employed, as well as their preparation in compliance with the physician's directions. By this means difficulties have been overcome with mutual advantage.

Death of Baron Larrey.—By the death of the Baron Larrey, the Academy of Medicine of Paris has lost its oldest member. After a long and brilliant success in the medical profession, he terminated his career at the advanced age of eighty-seven, in the quiet retreat of the village of Bièvre. Through the influence of his father, Minister to Louis Phillipe, he commenced life under favourable auspices. without any of those struggles which most great men have to endure in early life. Entering the École de Strasbourg at the age of eighteen, he continued his studies in Paris, and qualified as doctor six years later. As Aide Major he was admitted into the Army Medical Service, and made his first campaign at the siege of Anvers in 1832. Three years later he was elected Professor of Pathological Surgery at the École du bal de Grace, where he was noted for his brilliant lectures. In 1858 he was made Médecin Inspecteur of the Army, and in that capacity went through the Italian Campaign; then at the side of the Emperor he had his horse shot under him, and narrowly escaped death. During the Franco-Prussian war he was chief of the medical staff of the Army of the Rhine. Being blockaded at Montniedy, he contrived to escape, and reached Paris, where he continued to act during the siege as doctor in chief to the invested army. It was his last campaign. He retired in 1871 with the order of Grand Officer of the Legion of Honour. Shortly afterwards he embraced a political career, and in 1877 was elected deputy for the department of the Hautes Alpes. He did not shine as a littérateur, but is regretted by all who knew him for his sterling worth, high integrity and honour, and the military precision with which he fulfilled all his duties, both professionally and socially. He was a great advocate of high social intercourse as tending to raise the status of the medical profession.

PROCEEDINGS UNDER THE PHARMACY ACTS.

The Sale of Poisons by Grocers in Scotland.

Bremridge v. *Stewart.*

On Wednesday, October 16, the case of Richard Bremridge against James Stewart, assistant to William Low and Co., grocers, 115, Overgate, Dundee, was heard in the Dundee Sheriff Court. The respondent was charged with an offence under the Pharmacy Act, he having sold a quantity of opium which formed an ingredient in a quantity of Powell's Balsam of Aniseed, though not registered as a chemist and druggist.

The respondent wished to plead guilty, but the Sheriff refused to let him plead, and said he took exception to the complaint on the ground that the quantity of poison sold was not stated.

Mr. J. M. Hendry, who prosecuted on behalf of the Registrar under the Pharmacy Act, said if the article was poison then the respondent must be registered as a chemist before he could sell it.

The Sheriff: There is prussic acid in the seeds of apples, but in order to poison a man it would require a ton of apples. The question here is between a poisonous dose and a preparation that would do no harm to anybody.

Mr. Hendry: The Act stipulates that no one shall be allowed to sell any drug containing poison without having a certificate.

The Sheriff: What is this stuff?

Mr. Joseph Wilkie, who represented accused: Cough mixture.

The Sheriff: If a man gets two or three drops of laudanum and a glass of brandy to cure some trifling complaint is that selling poison?

Mr. Hendry: Certainly, under the Act.

The Sheriff: Would the sale of a poppy in a flower shop be a sale of poison under the Act? Must it not be made clear in some way that the poison sold was a sufficient dose to be poisonous?

Mr. Hendry: I do not think so. If there is a sale of poison that is sufficient.

The Sheriff: Every poppy sold is a poison; it contains opium.

Mr. Hendry: It is not sold as a drug. This was sold as a drug. It was sold in a grocer's shop without a licence.

The Sheriff: Every glass of whisky contains poison. I am not going to sustain a charge which is ridiculous. You must make it appear in the complaint that there was sufficient opium to be dangerous. The purpose of the Act is to protect people against the sale of poisons by persons who know nothing about them in such a way as to be dangerous to human life. But it is not enough to say it is a poison. I have observed that this Act is being used oppressively, and I shall not convict anyone of selling poison if it is n such quantities that it could not possibly do any harm. I shall continue the case for a week to allow Mr. Hendry to communicate with his principal.

The case was continued on Wednesday last, when the respondent again asked to be allowed to plead guilty. The Sheriff allowed the plea, though he said he regarded the complaint as irrelevant. A nominal penalty of one shilling was imposed, with one guinea modified expenses.

Bremridge v. *Finlayson and Davidson.*

On Thursday, October 17, the cases of Richard Bremridge, Registrar under the Pharmacy Acts, 1852 and 1868, 17, Bloomsbury Square, London, W.C., against William Finlayson, grocer and spirit merchant, 12, High Street, Port, Montrose, and Mary Helen Davidson, grocer, wine and spirit merchant, 28, Wharf Street, Montrose, came before Sheriff Robertson, at the Sheriff Court House, Forfar.

Mr. A. Freeman, solicitor, Forfar, instructed by Mr. P. Morison, S.S.C., Edinburgh, appeared for the prosecutor, Mr. Yule for Mr. W. Ross, solicitor, Montrose, apppeared for the respondents.

Each of the respondents was charged with keeping open shop for the retailing, dispensing, or compounding of poisons on June 1, 1895, at the respective addresses before mentioned. Each had sold to agents of the Registrar on the date specified a bottle of Collis Browne's chlorodyne and a bottle of Powell's balsam of aniseed.

The respondents pleaded guilty, and Mr. Yule stated in mitigation that his clients were respectable tradespeople who were not aware that they were committing an offence. They had taken licences for the sale of patent medicines and understood that by so doing they were at liberty to sell these articles. The Act made no provision for getting at the makers of these articles, and it was very hard that the respondents, who merely handed them over the counter, should have to suffer. They knew nothing about the contents and could not know that they contained poison.

The Sheriff: Surely it is the duty of those who deal in these articles to make sure that they are not selling poisons? The object of this Act is to safeguard the public by restricting the sale of dangerous poisons to properly qualified persons.

Mr. Yule said he did not mean to plead that ignorance of the law could obviate a penalty. He merely wished to explain why he thought a nominal penalty only should be inflicted.

Mr. Freeman said he could hardly admit the statements made by Mr. Yule. He was informed that these parties continued to sell these poisons after being made aware that they should not do so. They had been warned. He also produced the bottle of chlorodyne sold by William Finlayson, which was distinctly labelled "poison," and bore a statement that it contained chloroform and morphine. It was also to be observed that the only deterrent in those offences, in the absence of power to imprison, was a substantial monetary penalty. He therefore asked the Sheriff to impose such a penalty in both cases.

The Sheriff, addressing the respondents, said they would have to pay a penalty of 10*s.* each, with £1 1*s.* of expenses each. He warned them that if again brought before him he might inflict the full penalty.

Sale of Poison by an Unqualified Assistant.

In the Nottingham County Court, on Monday last, his Honour Judge Masterman, J.P., D.C.L., adjudicated in a claim by the Council of the Pharmaceutical Society of Great Britain brought against a chemist's assistant named J. S. Webster, Hulme's Medical Hall, 14, Glasshouse Street, Nottingham, Mr. T. R. Grey (instructed by Flux, Thompson and Flux, London) was for the plaintiffs, defendant not being legally represented.

Mr. Grey said the claim was made under Section 15 of the Pharmacy Act, 1868. Having quoted from the preamble and several sections of the Act, Mr. Grey proceeded to say that the case which came before his Honour was the case of an assistant. The Pharmaceutical Society having heard that poisons were being sold in Nottingham by unqualified people, an agent was sent down to make some purchases, and when making those purchases he went to the shop No. 14, in Glasshouse Street, off Parliament Street. The name on the shop appeared to be Hulme, but to all appearances the shop was a chemist's shop. The defendant supplied the witness, who would be called, with some oxalic acid, besides some glycerin at the same time. His Honour would notice when he put it before him that the packet containing the oxalic acid was labelled with a red label: "Poison, Beware. Oxalic Acid," and that there was no name and address of any chemist. The other purchase made was glycerin, and on that label there was the name of "J. G. Clarke," and giving the address. Mr. Clarke, however, died in 1893, and there was no such person a chemist n Nottingham at the present time. There were four different shops in Nottingham, which apparently belonged to Mr. James Lord, who was on the Register, and it appeared he kept these four shops—173, Radford Road, 53, Upper Parliament Street, 12, St. James' Street, and the shop in question, 14, Glasshouse Street. They were all owned by him, and he apparently put into possession of those shops unqualified people, who sold these poisons. It was impossible, of course, for Mr. Lord to be in all the four shops, and though he did not actually infringe the Act in cases of this sort by putting unqualified people into shops, the unqualified men themselves were liable. Mr. Grey concluded by calling His Honour's attention to the case of the "Pharmaceutical Society *v.* Wheeldon," and reading Mr. Justice Hawkins' decision therein.—The following evidence was then called.

Arthur Foulds, private inquiry agent, stated that he went to Nottingham according to instructions on July 22, and called at the shop, 14, Glasshouse Street, off Parliament Street. He saw a young man in the shop, who handed witness his card, "J. S. Webster." Witness first asked for some glycerin, and subsequently for some oxalic acid. It was supplied to him labelled. The packet produced was the same.

Mr. Grey said he should put in the Register on which defendant's name did not appear.

The Judge: How is it proved before me that this is oxalic acid?

Mr. Grey: I am going to prove it.

Harry Moon, Clerk to the Registrar of the Pharmaceutical Society, said he received the bottle of glycerin and the oxalic acid, from the last witness and retained them in his possession until he handed them to the analyst.

Ernest John Eastes, Analyst and Fellow of the Institute of Chemistry, stated that he analysed the contents of the packet and found it to be oxalic acid, the quantity being 190 grains.

His Honour: I cannot add anything to the strength and importance of the observations in the High Court of Mr. Justice Hawkins, which you have read. I find for the plaintiffs for the full amount, £5, with costs.

POISONING CASES AND INQUESTS.

Laudanum.—Ann Barrow, aged 73, of College Road, Rotherham, died on October 2 from the effects of an overdose of laudanum taken to ease pains in the head. Verdict: "Deceased died from an overdose of laudanum, administered by herself without any felonious intention."

Laudanum.—Thomas Edward Palmer, aged 42, of Summer Villa, Lapwing Lane, Withington, died on September 28 from the effects of laudanum, taken to induce sleep. Verdict: "Death by misadventure."

Weed-Killer.—Thomas Carr, aged 37, of Downholland, died on September 29 from the effects of drinking some weed-killer containing a poison in mistake for beer. Verdict: "Death from misadventure."

Laudanum.—Mrs. Nicholson, of Liverpool, died on October 1 in the Blackpool Hospital, Blackpool, from the effects of an overdose of laudanum, taken as a relief for the face-ache. Verdict: "Death from an overdose of laudanum."

Arsenic.—At an inquest held on October 14, at the Holborn Town Hall, London, relative to the death of Thomas Dearne, aged 18, a chemist's assistant, who had died from the effects of arsenic contained in "Rough on Rats," self-administered, a verdict of "Suicide while of unsound mind" was returned, and the jury added that in their opinion preparations containing irritant poisons should only be sold by registered chemits. The Coroner said that he would send the rider to the Pharmaceutical Society and the Home Office.

NEW REMEDIES.

[*The notes given under this heading embody recent suggestions in therapeutics. They cover both new drugs and preparations, and old ones under new aspects. The word "parts" is used to represent parts by weight, both for solids and liquids.*]

Sodium Iodate in Swelling of the Ganglia, Chronic Neuralgia, etc.—Ruhemann uses the following preparations of sodium iodate:—A dusting powder composed of sodium iodate, 1 part; powdered boric acid, 8 parts. Pills of iodate of sodium, 3 grammes; mucilage of tragacanth, sufficient to mass. To be divided into twenty pills One or two pills to be taken three times daily. Injection thus made: Iodate of sodium, 1 part; distilled water, 20 parts. Subcutaneous injections are commenced with one to four Pravaz syringefuls, repeated every other day, afterwards three a week (*Nouveaux Remèdes*, xi., 217).

Phenol-sulphonate of Lime.—Parozzi prepares this salt by acting upon calcium carbonate with phenol-sulphonic acid. It forms a white, almost odourless, astringent powder, bitter in taste, readily soluble in water and in alcohol, which solution is neutral. The salt has a definite chemical constitution, and keeps well. It should prove a very useful antiseptic, disinfectant, and astringent; its employment is indicated in cases of obstinate diarrhœa, and externally or internally to effect the healing of wounds. It is given internally in 1 per cent. aqueous saccharine solution (*Apoth. Zeit.*, xi., 226).

Salipyrin in Menorrhagia.—Orthman has tested the value of salipyrin in the various forms of uterine hæmorrhage by observations on thirty-two patients in Martin's clinic in Berlin. Salipyrin was given in the form of lozenges containing 15 grains each. Of these the patient took three daily, commencing a day or two before the hæmorrhage was expected, and continuing throughout the whole period (*Inter. Med. Mag.*, iv., 382, after *Berliner Med. Woch.*).

Asaprol in Chorea.—Moncor lately met with a case of chorea, associated with malarial poisoning, in which he made trial of asaprol. Given in daily doses, at first 1 gramme, but gradually increased to 5 grammes, it had a most satisfactory action. The drug produced no unpleasant by-effects, the malarial symptoms promptly disappeared, and the chorea was cured in about seven weeks. During the administration of the drug the patient's mental condition improved, his muscular power more than doubled, and he gained very considerably in weight. Moncor strongly recommends further trials of this remedy (*Inter. Med. Mag.*, iv., 381, after *Revue des Malad. de l'Enfance*).

Argentamine in Gonorrhœa.—Albertazzi has found argentamine (a solution of silver phosphate in ethylenediamine) of great value as an injection in gonorrhœa, a 1 in 1000 or 1 in 2000 solution being employed. The stronger of these causes no appreciable pain, and cure results in from seven to fifteen days (*B. M. J. Epit.*, vol. 2, 1895, p. 20).

Guaiacol in Typhoid Fever.—Hull has treated nineteen cases of typhoid with guaiacol internally and externally. The bowels were also washed out frequently with large douches of warm soapy water. The guaiacol was given from ½ to 1½ drop doses every two hours, according to the tolerance of the patient for the drug, night and day. He finds that the external application of guaiacol will lower the temperature in about thirty minutes, and is preferable to the cold bath, as it is equally efficacious, and can be applied where the latter is not practicable. The amount should be small at first (from 5 to 10 drops) and gradually increased, as it is liable to give the patient a chill. The largest dose used at any one time was 20 drops. With the exception of the chills which occurred with the larger applications, no deleterious effects were observed from its use. These chills can be avoided with care in applying the drug, the temperature not being reduced below 100° F. The drug was applied over the abdomen, which was first washed with soap and water and dried. The guaiacol was then slowly dropped on the parts, carefully rubbed in, and covered with oil silk. The shortest duration of any one of these cases was fourteen days, the longest twenty-four, and the average between nineteen and twenty days (*Ther. Gazette*, 3, xi., 508).

NOTES AND QUERIES.

[*The information given in this column includes both notes of practical interest to pharmacists, and replies to queries which seem to possess sufficient interest to readers generally. Readers requiring working formulæ for special preparations should intimate their wants to the Editor, who will be pleased to assist them to the best of his ability. The word "parts" invariably indicates parts by weight.*]

A Dispensing Difficulty.

R. H. Rowell wishes to know why the following mixture forms a "gelatinous" precipitate when it stands:—℞. magnes. sulph., gr. 66; magnes. carb., gr. 33; potas. nit., gr. 11; aquæ, ℥i. Ft. mist. alb.—Presumably it is a stock mixture with which he has the difficulty. If dispensed with fresh distilled water it keeps as long as can reasonably be expected. With tap water or impure distilled water, however, a musty odour develops in a few days, and there is little reason to doubt that the presence of the potassium nitrate tends to render the mixture a sort of nutrient medium. If it is intended to be kept any length of time, half the water should be replaced by chloroform water.

White Poppies and Bee Stings.

According to *L'Agriculteur Lorrain*, the white latex of *Papaver somniferum* affords a speedy and perfect relief from pain in bee stings. A few drops of the milky juice is applied to the puncture, the pain is immediately relieved, and no inflammation follows. Our French *confrère* recommends bee-keepers to grow a few poppy plants near their hives so as to have this simple remedy at hand.

Lotion for Acne.

Dr. Wolff recommends the following (*Med. Chron.*, iii., 460):—Zinci sulphat., potass. sulphid., sulph. precip., of each ℥i.; aqua rosæ, ℥ij. To be applied every night after washing the face in tepid water, to which borax may have been added. If this does not remove the eruption, the following salve may be used at night:—Hydrarg. bichlorid., gr. j, vel. ij.; resorcin, ℥ss., vel. j.; aq. laurocerasi, ℥ij.; farinæ, ℥ij.; lanolin ad., ℥i.

Dr. Locock's Lotion.

The original formula for the so-called Dr. Locock's hair lotion is:—Expressed oil of mace, 4 ozs.; ol. olivæ, 16 fl. ozs.; liquor ammoniæ fort., 16 fl. ozs.; spirit rosmarini, 32 fl. ozs.; aquæ rosæ, to 2 gallons (imperial). The lotion was first prescribed by Mr. Alexander, the celebrated oculist, for his wife, and it proved successful. Dr. (afterwards Sir Charles) Locock, being an intimate friend, introduced it first in his own family, and afterwards recommended it extensively among his numerous lady patients—hence the name. The art of dispensing the lotion consists in thoroughly beating up the expressed oil of mace with a wooden pestle, adding the olive oil in fairly large quantities at a time, and very small quantities of strong ammonia to saponify each such addition. Towards the middle of the process, the oil of mace assumes a granular appearance of a reddish colour. Should it not do so, or should the mace be converted into a gelatinous mass, further manipulation may be abandoned, for the resulting emulsion will separate. When all the olive oil has been incorporated, add the rose water freely—then the spirit of rosemary, and finally the remaining portion of the ammonia. It will be found that the amount of liquor ammoniæ fort. necessary in the first instance, will not exceed 4 fluid drachms. The cream colour of the lotion is produced on adding the remaining portion of the ammonia, and the emulsion so made will keep permanently without a sign of decomposition or separation. Twenty minutes should be the time occupied in manipulation. [*Reply to A. H. H.*]

Apolysine—A New Antipyretic.

Under this name a combination of one molecule of para-phenetidine with one molecule of citric acid has been introduced as an antipyretic. It differs from citrophene, inasmuch as that body consists of three molecules para-phenetidine with one of citric acid. Apolysine melts at 72° C.; citrophene at 181° C. (*Journ. de Pharm.* [6], ii., 152, and *Apoth. Zeit.*).

Urotropine.

Urotropine is the therapeutic name given to hexa-methylene-tetramine. This name has been selected on account of the many changes observed in the urine after its administration. According to the *Therapist* doses of 90 grains can be taken daily by adults without deleterious effects.

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

Communications for the Current Week's Journal should reach the Office not Later than Wednesday Morning. Telegrams can be Received on Thursday Morning. All Communications respecting Editorial matters must be Addressed "Editor, 17, Bloomsbury Square, London," and not in any case to individuals supposed to be connected with the Editorial Staff of the Journal.

All Instructions from Members, Associates, and Students of the Pharmaceutical Society, respecting the transmission of the Journal, must be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London, W.C.

Business communications—including advertisements, orders for copies of the Journal, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Cheques and money orders should be made payable to "Street Brothers."

Correspondents who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for illustrations should be done with pen and Chinese ink, and consist of clean, sharp lines, without shading by washes. They should also be prepared twice the desired size, so as to allow for reduction.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Queries addressed to the "Editor" will be replied to in the Journal as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries." The Editor cannot undertake to reply to queries through the post.

Reprints of articles cannot be supplied unless authors communicate with the Editor before publication.

LETTERS.

Camphorated Oil.

Mr. J. C. Hyslop, 39, Church Street, Marylebone, N.W., says:—"The subject of 'camphorated oil' seems to me a somewhat important one. This medicament is increasing in popularity. The figures attached to lin. camph. (17) and lin. camph. co. (59) in Martindale's analysis do not represent the relative proportion of demand for these two articles. Lin. camph. co. is usually ordered by means of a written prescription, but the simpler article most commonly verbally. A patient is told to obtain so much camphor liniment, or, far more frequently, 'camphorated oil' from his chemist. For this reason one would urge that the suggestion to change the term 'lin. camph.' to 'oleum camphoratum' in the forthcoming Pharmacopœia should be strongly supported. However, which name soever be the recognised one, the *modus operandi* to ensure a uniform product ought to be clearly stated. By warming together 1 part of camphor with 4 parts of oil one cannot obtain a strength of 1 in 5 unless the process be conducted in some tightly-closed vessel, warmed and shaken for the space of half an hour, or until dissolved. But why should heat be necessary in mixing volatile articles, such as camphor, with oils and fats, since modern science supplies us with various greedy solvents that whip up in the cold such an article as camphor and carry it into any kind of oil one chooses, and that to any strength desired? A pharmacist I know prepares his lin. camph. by heating in a closed Florence flask flowers of camphor, 1, and olive oil, 4, until dissolved; but as to camphorated oil, he makes a gallon in five minutes—same strength—without heat. Half a pint of the former lasts him twelve months; of the latter he has to prepare a gallon every four or six weeks."

Draft Pharmacy Bill.

Mr. Albert Gowen, of Fleet, Hants., writes as follows:—"Seeing J. Anderson Russell's letter in the *Pharmaceutical Journal* of October 19, may I suggest that after the Draft Pharmacy Bill has been decided upon a printed copy should be sent to each chemist in business to urge the support of his representative member in Parliament?"

The Opportunities of Apprentices.

"Embryo," seeing by the letters of Mr. Gray and others that much dissatisfaction is manifest respecting the absence of facilities for pharmaceutical study in provincial towns, states his position and challenges a rival. "In this town there are three chemists, all elderly men, only one of whom is a chemist by examination. These gentlemen are not in a position to give much practical advice to the tyro, and as there is neither apprentice nor assistant in the town besides myself, I am, in the absence of any educational facilities whatever, in about as enviable a position as if in permanent residence at the North Pole. Moreover, the nearest centre, and the only place in the county where I might obtain instruction, is sixteen miles distant, and owing to the miserable train service, might as well be ten times as far. So let all complainers take courage, remembering that theirs is not the worst case, and if anyone can drop a suggestion that might serve to mitigate the lot of those situated similarly to myself, he will have the thanks of a hopeful but undeveloped Embryo."

Sundays in Liverpool.

Mr. Henry B. Morgan, honorary secretary of the Liverpool Pharmaceutical Students' Society, in sending a copy of the Society's syllabus for the coming winter, says, "I also enclose notice of a meeting held each Sunday afternoon in Liverpool, and to which I hope you will extend the same courtesy, which you have recently done to the notices sent by the secretary of the 'Sunday Society' (*ante*, p. 274). Neither meetings have anything to do with pharmacy directly, and otherwise I think one is as much deserving of mention in the Journal as the other." The notice referred to is as follows:—"A conversational class for the study of the Bible is held each Sunday afternoon, at 3 o'clock, at the Y.M.C.A. Central Institute, Liverpool. All young men are welcome. This opportunity for the reading and open discussion of a book which is acknowledged by our greatest thinkers to be the most wonderful and influential ever written, should appeal especially to the assistants of Liverpool pharmacists, who have not too many opportunities of getting entirely away from ordinary business thoughts and surroundings."

Ol. Chillie.

Mr. C. S. Ashton, of Brighton, observing the query of D. M. (*Ph. J.*, October 12), respecting "Ol. Chillie," "says perhaps Cooley will help him. Oleum capsici, L.; powdered capsicum, 4 oz.; olive oil, 1 pint; digest with heat for six hours, and strain."

ANSWERS.

R. H. Jessop.—They are of value to pharmacists only as a rule, and sets are not always in demand. You might advertise them in our Exchange Column.

C. A. Mote.—Time, patience, and constant use are likely to be the main factors in the restoration.

OBITUARY.

Merrikin.—On September 27, J. B. Merrikin, Pharmaceutical Chemist, Bath. (Aged 67.) Mr. Merrikin had been a member of the Pharmaceutical Society of Great Britain since 1870.

Aves.—On October 9, A. K. Aves, Chemist and Druggist, late of Newark. (Aged 41.)

Parker.—On October 11, William Parker, Pharmaceutical Chemist, Scarborough. (Aged 36.) Mr. Parker had been a member of the Pharmaceutical Society of Great Britain since 1881.

Harries.—On October 13, David Harries, Chemist and Druggist, Carmarthen. (Aged 35.)

Pridmore.—On October 14, Sydney S. Pridmore, Chemist and Druggist, Hinckley.

Ward.—On October 10, William A. Ward, Chemist and Druggist, Glasgow. (Aged 78.)

PUBLICATIONS RECEIVED.

Etidorhpa: or the End of Earth. The strange history of a mysterious being, and the account of a remarkable journey, as communicated in manuscript to Llewellyn Drury, who promised to print the same, but finally evaded the responsibility, which was assumed by John Uri Lloyd, with many illustrations by J. Augustus Knapp. Author's Edition, Limited. Pp. 376. (Cincinnati, U.S.A.: John Uri Lloyd. England: Brady and Martin, Northumberland Road, Newcastle-on-Tyne, 1895.) From the Author.

Communications, Letters, etc., have been received from Messrs. Atkinson, Bell, Carter, Coleman, Davis, Dickenson, Dixon, Dott, Durrant, Fraser, Garnett, George, Gowan, Greenish, Hill, Holroyd, Hooper, Hughes, Hyslop, Ince, Jessop, Mackie, Marshall, Maskew, McKellar, Moon, Morgan, Mote, Rossiter, Roper, Rushton, Russell, Strachan, Thoms, Tocher, Turner, Walker, Wilkie, Will, Wood, Woodhouse.

"THE MONTH."

Argonin. This compound, obtained by treating casein-soda with silver nitrate and precipitating the solution with alcohol (see *Ph. J.* [3], xxv., 1193), is said by A. Liebrecht to possess the same bactericidal properties as silver nitrate, without having the caustic action of the latter. It is a white powder, which dissolves easily in warm water, but with difficulty in cold. To effect solution, the argonin should first be thoroughly moistened with a very small quantity of water, then heated to 90° C. on a water bath, after which the opalescent liquid obtained should be well shaken for a few minutes, and finally filtered through pounded glass. In this manner solutions containing 10 per cent. or rather more may be obtained. Argonin and its solutions should be kept in the dark. The compound itself has a neutral reaction and is soluble in albumin, it being possible to obtain a 10 per cent. solution by mixing the powder with serum and warming the mixture gently (*Therap. Monats*, and *Moniteur*, xlv., 1882).

New Tests for Nitrites. G. Denigès recommends the employment of three new reagents for nitrites, as offering advantages over those in current use. The first, said to be absolutely specific, is prepared by mixing two solutions, A and B. A consists of pure white phenol, 1 Gm.; sulphuric acid, 4 C.c.; distilled water, 100 C.c. B is prepared by mixing mercuric acetate, 5 Gm. (or oxide, 3·50 Gm.); glacial acetic acid, 20 C.c.; and distilled water, 100 C.c. After shaking this mixture for a while add sulphuric acid, 0·5 C.c., and filter. In practice, 2 C.c. each of A and B are mixed and boiled, then one or two drops of the solution to be examined are added. With solutions containing 0·50 Gm. of nitrite per litre there is an immediate red or rose coloration. If the solution be so dilute that the colour is not at once manifested, 1 to 10 C.c. should be added to the reagent and the mixture boiled. By using 100 C.c. of the suspected water and 10 C.c. each of the solutions A and B, and boiling for two or three minutes, it is said to be possible to detect as little as 0·2 Mgm. of nitrous acid per litre. Besides being very sensitive and colourless, the reagent is unaffected by light or air, or by nitrates, chlorates, hypochlorites, hypobromites, chlorine, bromine, etc. The second new reagent is prepared by dissolving pure aniline, 2 C.c., and glacial acetic acid 40 C.c. in sufficient distilled water to make 100 C.c. On boiling 5 C.c. of this solution with a suitable portion of the suspected liquid (1 drop to 10 C.c., according to strength), a coloration is produced which varies from pale yellow to dark orange, according to the amount of nitrites present. The colour is changed to red by a few drops of hydrochloric or sulphuric acid, but again becomes yellow on adding sodium hydrate or acetate, whilst excess of mineral acid once more restores the red coloration. The latter is more intense than the yellow, and serves for the detection of nitrous acid in a solution containing only 0·2 Mgm. per litre, using 50 C.c. of reagent, and 100 C.c. of the suspected water, acidulating with sulphuric acid, and boiling for three or four minutes. Chlorates and nitrates do not affect this reagent, but hypochlorites, hypobromites, and free chlorine and bromine do. The third new reagent is a solution of pure white resorcin, 1 Gm., in distilled water, 100 C.c., acidified by sulphuric acid, 10 drops. Four drops of the suspected liquid, 2 C.c. of pure sulphuric acid, and 5 drops of the reagent are shaken together in a test tube. A very intense carmine or violet coloration is caused by the presence of 0·01 Mgm. of nitrous acid. Chlorates colour this reagent green (*Journ. de pharm.* [6], ii., 289).

Lantanine. Lugo-Vina draws attention to the anti-malarial properties of "lantana," a Verbenaceous plant, known and esteemed by the inhabitants of Brazil, La Plata, and Peru, under the name of "Sacred Herb." Buiza, of Lima, administered it first some ten years ago in a case of acute articular rheumatism, and another of typhoid fever, in both cases with most satisfactory results. The active principle was isolated by Negrete and called lantanine. Buiza further administered this new alkaloid to thirty-two patients attacked with fevers of different character and intensity, with equally good results. Like quinine, it produces a moderate effect on the circulation, determining a retardation of the chemical phenomena of nutrition and a diminution of temperature. It is superior to salts of quinine, as it is tolerated by the most delicate patients; in larger doses it is a powerful antiperiodic. Intermittent fevers, though antagonistic to sulphate of quinine, have yielded to the administration of 2 grammes of lantanine. The dose is from 1 gramme to 2 during the day, given in pills of 10 centigrammes each, two being given every two hours. Good results were obtained in some cases of facial neuralgia, and in two cases of metrorrhagia of a marked paludal character (*Rev. de Ciencias Medicas* and *B. M. J. Epit.*, Oct. 5, p. 56).

Thyroprotein. Notkine has recently isolated from the thyroid body an albuminoid which in properties and composition differs from all other albuminoids hitherto described. Under certain conditions this new body splits up, yielding a carbohydrate which is transformed with difficulty into a reducing substance. With a fairly strong solution of ferric chloride the albuminoid assumes a gelatinous consistence; tannin precipitates it in the form of thick flakes or as a transparent gelatinous substance, according to the strength of the solution. It dissolves in weak acids, and is precipitated by alcohol, the precipitate rapidly becoming insoluble in water. The author has named this substance "thyroprotein." From experiments on animals it appears to be very toxic, and is slowly eliminated. It acts at first as an excitant, afterwards as a paralysant, probably on the central nervous system. The author regards this albuminoid as identical with the poison which accumulates in the organism after the extirpation of the thyroid body; it is therefore not a secretion of the gland, but a toxalbumin which it is the function of the thyroid gland to neutralise by means of the peculiar ferment it elaborates, and so prevent the accumulation of the poison in the animal organism (*Nouv. Rem.*, xi., 422, after *Troudy Obchhtch. Kiev. vratch*).

Antinonnin. C. O. Hary and W. von Miller have investigated the properties of a new compound, potassium ortho-dinitro-cresolate, to which the trivial name of "antinonnin" has been applied, and proved that a solution in soap water of 1:1500 to 1:2000 is destructive to all common injurious parasites on plants, though without any deleterious action on the latter. Professor Aubry, of Munich, finds that a definite antiseptic and germicidal action is indicated when yeast is treated with antinonnin, the bacteria present being destroyed though the yeast itself remains unaffected by solutions containing as much as five per cent. of the compound.

Antinonnin is said to be odourless and very inexpensive (*Munch. Allge. Zeit.*, through *Nature*, lii., 627).

Antipyrine and Diphenols. G. Patein and E. Dufau describe the products of the combination of antipyrine with the three isomeric diphenols—pyrocatechin, resorcin, and hydroquinone. Pyrocatechin-diantipyrine (m.p. 78°–79°) forms colourless crystals, which are slightly soluble in cold water or in ether, more so in boiling water, very soluble in alcohol or chloroform. With ferric chloride the compound gives a greenish-black coloration. Resorcin-monoantipyrine (m.p. 103°–104°) occurs as colourless needles, which are soluble in 50 parts of cold water, very soluble in boiling water, alcohol, or chloroform, and but slightly in ether. Ferric chloride gives with it a blood-red coloration. Hydroquinone-diantipyrine (m.p. 127°–128°) also forms colourless needles, the solubility of which is very similar to that of the resorcin compound, except that its solution in chloroform is accompanied by decomposition. A dark red colour, which quickly becomes lighter, results on the addition of ferric chloride to the hydroquinone compound (*Comp. rend.*, cxxi., 532).

Calcium Cyanate. C. Faure describes the production, by means of the electric furnace, of this compound, Ca2CNO, which, if it could be prepared at a sufficiently low price, would constitute a formidable rival to sodium nitrate for agricultural purposes, since the nitrogen it contains ought to be very readily assimilated by plants. To prepare the cyanate, a mixture of limestone and carbon is first subjected to a preliminary heating at 1500° C., after which, in the presence of a large excess of pure nitrogen, the furnace is heated to 2500°. Finally, the product is oxidised by admitting air (*Comp. rend.*, cxxi., 463).

Saccharin Purification. W. J. Pope has prepared pure saccharin (orthobenzoic sulphinide) by crystallisation from an acetone solution of the commercial product which contains para-sulphamine-benzoic acid. Acetone, he points out, by the way, often forms a very good solvent for refractory organic substances required in large crystals. The orthobenzoic sulphinide is deposited from the cold acetone solution in colourless, transparent, monosymmetric crystals, two centimetres or more in length. A remarkable fact in connection with these crystals is that brilliant phosphorescence occurs on crushing them. It is also noted that on heating pure saccharin in a current of air a sublimate of long, colourless, glistening needles is obtained (*Journ. Chem. Soc.*, lxvii., 985).

Fer Crémol. This is a combination of the colouring material of blood with iron, prepared under a patent granted to E. Merck of Darmstadt. On mixing a dilute and neutral solution of a ferric salt with blood solution at a low temperature, and adding dilute alkaline carbonate to neutralise any liberated acid, the compound is deposited in the form of a brown precipitate, and when washed and dried is an almost tasteless powder, which dissolves without residue in very weak ammoniated water, forming a solution of a fine red colour (*Pharm. Centralh.*, 36, 540).

Reagent for Mucilage in Plant Cells. Guiraud employs a saturated solution of almost colourless hæmatoxylin in absolute alcohol, mixed with 100 times its volume of hot saturated solution of ammonia alum, as a reagent for the detection of mucilage in plant cells. The rose-coloured liquid deposits alum and becomes violet; it is then filtered and mixed with 30 per cent. of glycerin by measure. This reagent has the advantage of staining only the contents of mucilage cells, and not their walls (*Répert. de Pharm.*, 1895, 71).

Action of Alkaloids on Plants. Sig. A. Marcacci has carried out a series of experiments on the action of alkaloids on the growth of plants (*Lemna minor* and *Elodea canadensis*), and finds the results to vary under different conditions. While quinine arrests the transformation of starch into saccharose, and of dextrose into lævulose, without the action of light, strychnine produces the same effect only under the influence of light, and morphine does not completely arrest the transformation even in the presence of light. From these results the author draws the conclusion that the processes above referred to are not simple chemical processes, but are dependent on other forces not as yet fully investigated (*Nuovo Giornale Botanico Italiano*, 1895, p. 222).

Colouring Matter of Cucurbita. Dr. H. Ritter Schrötter von Kristelli has investigated the nature and the distribution of the colouring matter in the pericarp of highly-coloured varieties of the pumpkin, and finds that it is located to a small extent only in the palisade tissue, to a much larger extent in the underlying parenchymatous layers, and in both a crystalline and a non-crystalline form. When separated in a pure state, the chemical reactions of the pigment show that it is a lipoxanthin, and identical with carotin (*Verhandl. Zool.-bot. Gesellschaft Wien*, 1895, p. 298).

Elective Metabolism of Plants. Prof. W. Pfeffer has investigated the problem of the specific difference displayed by different plants in the proportion of different nutritive substances which they absorb. The special cases were the behaviour of the mould-fungi *Aspergillus niger* and *Penicillium glaucum* to the various carbon compounds contained in artificial nutrient fluids. He found that when two substances of different nutritive properties are presented at the same time to either of these fungi, the more nutritive one will be absorbed in preference to the other, and sometimes to the entire exclusion of the less nutritive one, though this is not always the case. Thus, when dextrose and glycerin are both presented to *Aspergillus niger*, the former being greatly in excess, the glycerin will be entirely rejected; while, if the proportion of dextrose is but small, some of the glycerin will also be taken up. Glycerin may, in the same way, be partially or entirely protected from absorption by peptone, and lactic acid by dextrose (*Bericht Verhandl. Sächs. Gesellschaft Leipzig*, 1895, p. 324).

Hydrastis Canadensis. A. R. L. Dohme and H. Engelhardt find that the root of *Hydrastis canadensis* contains hydrastine in the following proportions, partly in combination with an unknown acid :—

	By Keller's method.	By Linde's method.
Fresh root.....	2·32 per cent.	2·42 per cent.
Dried root.....	2 62 „ „	3·14 „ „

In the fresh drug 31·7 per cent. of the hydrastine is in the free state, whilst the dried root showed but 18·5 per cent. uncombined. Crystals of hydrastine obtained from benzene and ether extracts were invariably accompanied by a small amount of a pale yellow resinous body which may possibly be the canadine of Schmidt. Further work is being done on this substance and on the acid (*Pharm. Era*, xiv., 394).

Dalmatian Insect Flowers.

According to De Boisse, the active principle of *Pyrethrum cinerariæfolium* is a yellow resin soluble in ether, insoluble in water, and very slightly soluble in alcohol, carbon bisulphide, or fatty bodies. It is readily decomposed by alkalies. To extract the active principle the author exhausts the flowering tops of the plant with ether. The principle thus extracted is described as being of the colour and consistence of virgin wax, with an apple-like odour. From the fresh plants the active principle may also be extracted by macerating the finely-chopped flowering tops with half their weight of ether, vaselin oil, colza, or petroleum, according as the product is intended for medicinal or agricultural use. The mixture, after trituration, is allowed to macerate for seven or eight hours. It is then strongly pressed, the resulting liquid allowed to stand, and the supernatant yellow oily liquid separated from the watery portion, which is rejected. When prepared with vaselin oil the oily solution is useful for human medicine, being a powerful insecticide. The solutions in colza or petroleum have a wide application in agriculture to destroy insect parasites, being applied direct to trees or shrubs. Emulsified with forty times their volume of soot water they may be used for spraying the twigs and leaves (*Rev. de Scient. Natur.*, xlii., 589).

Vittæ of the Umbelliferæ.

M. C. van Wisselingh has studied the nature of the cell-wall of the vittæ in the different genera of *Umbelliferæ*. He finds that the substance which clothes the cavity, and is found also in the wall of the neighbouring epithelial cells, is of the nature of suberin and cutin, but is not identical with those substances, differing from them in the absence of fusible ingredients. The phellonic acid which characterises the suberous layer is replaced by a substance which is very resistant to potash. The name "vittin" is given by the author to the substance, or rather the mixture of substances, found in the cell-walls of the vittæ. It may occur either by itself or mixed with cellulose, but is always accompanied by pectic substances. It contains two ingredients, one of which resists potash, while the other is soluble in that reagent. In the clothing of the cavity and in the transverse walls the layer of vittin is on the outside of the cellulose membrane. The solid substance sometimes found within the vittæ is of the same nature as vittin. In the vittæ of *Astrantia major* a departure from the normal type is found. The layer of vittin is wanting on the tranverse cell-walls; nor does the epithelium contain this substance, which is replaced by one of a suberous nature. The septated vittæ of *Eryngium pandanifolium* display a similar peculiarity (*Arch. Néerland des Sciences exactes et naturelles*, 1885, p. 199).

Composition and Growth of Starch Grains.

A. Meyer considers that starch grains are true sphere crystals in every way analogous to those of inulin. They contain two forms of amylose and amylodextrin. The action of diastase on starch is regarded as a purely catalytic process, under which amylose takes up water and splits into two molecules of amylodextrin. The latter is transformed into isomaltose and dextrin, both of which pass into maltose. Starch grains originate and grow entirely within chromatophores, new layers of material being superposed on those previously formed. The pressure exerted on the chromatophore by the cytoplasm determines the contour of the grains, and their size depends upon the biologic relations of the plant (*Bot. Gazette*, xx., 458).

CHAPTERS IN PRACTICAL PHARMACY.

The Preparation of Compressed Tablets.

(*Concluded from p.* 349.)

The tablet machine should be kept scrupulously clean, and the surface of the dies and punches smooth and polished. Before commencing operations, two or three tablets should be made from weighed quantities of material, to enable the operator to adjust the pressure and size for the work in hand. Excessive pressure should be carefully guarded against,* and a regular, easy motion of the machine aimed at. The greater the pressure the slower does disintegration takes place. Insoluble substances therefore should be compressed as lightly as possible. Unduly light pressure, on the other hand, is accompanied by a greater tendency for the material to stick to the face of the punches. Coblentz states that the pressure should be regulated so that the tablets may readily be broken in half by the fingers; but should not break to pieces when dropped upon the floor. "Capping," *i.e.*, the splitting off of the surface of the tablet, may be remedied by slightly damping the granulated material with water, reducing the pressure, or by changing the weight of the tablet.

The three main points in tablet making are (*a*) to carefully regulate the pressure, (*b*) to ensure proper cohesion of the particles of substance under compression, and (*c*) to prevent adhesion of those particles to any part of the machine. The skilful dispenser, with his knowledge of what is best to use in any given case as a pill excipient, will not experience any difficulty in deciding whether gum arabic or tragacanth, syrup, dextrin, wax, mastic, or other adhesive agent should be employed. And he will also be fully aware that to prevent adhesion to the dies, etc., some liquid must be used which is not a solvent of the substance undergoing compression. The rapid disintegration and solution of tablets is facilitated by adding finely powdered starch, from one-twentieth to one-tenth the weight of material, to the granulated substance ready to be compressed. On the other hand glucose, which should be diluted with 25 per cent. of water before use, renders tablets hard and tough so that they will not readily disintegrate. This is frequently an advantage when it is desired that the tablets should dissolve slowly in the mouth. To prevent adhesion to the die a little powdered French chalk may be sifted into the material just before compression. White paraffinum molle (2 per cent. dissolved in sufficient ether) often facilitates the compression of a dry powder, and improves the appearance of the finished tablets, if diffused through the granulated material, the latter being subsequently sifted and dried before compression.

Preparation of the Material.

Experience proves that it is not desirable to have the substances to be compressed in a very fine state of sub-division, as a fine powder cannot be satisfactorily compressed into uniform and well-finished tablets. The granular product obtained by grinding hard crystals represents the condition that should be aimed at, powdered ammonium chloride and potassium chlorate, as supplied in commerce, being good examples of what is required. In many cases, however, it will be found necessary to reduce the substance to fine powder first, and granulate afterwards. In dispensing small quantities the material may be obtained in the desired condition by simply damping with ether or alcohol by means of an atomiser, or by rubbing up with a little powdered soap, and afterwards passing through a sieve.

* A case recently occurred in a northern town which forcibly illustrated the mischief that may result from compressing insoluble substances too much. The patient, acting under medical instructions, had been taking compressed tablets of salol, prepared by a wholesale firm, for some length of time. Later, an operation for intestinal obstruction became necessary, and the surgeon was astonished to find the whole of the tablets unaltered in the intestine.

With larger quantities of material, cane sugar and powdered gum are chiefly used, the former being preferable, as tablets prepared with it disintegrate more rapidly. Coblentz ('Handbook of Pharmacy') recommends the addition to the substance to be granulated of one-tenth of its weight of cane sugar and one-twentieth of its weight of gum. On the large scale white dextrin may often replace the gum. After thoroughly mixing, sufficient water should be added to render the powder of such consistence that it can readily be shaken through a No. 12 sieve, without sticking to it or clogging the openings. Care should be taken to add the water in small quantities at a time, and to thoroughly mix after each addition. The powder is next passed through a No. 20 sieve and dried, after which a lubricant is added to enable the particles of powder to move freely over each other and prevent them sticking to the die and punches.

Finely powdered French chalk, lycopodium, powdered boric acid or an odourless hydrocarbon oil may be employed for this purpose. The better the granulated material has been dried the smaller the quantity of lubricant required. Coblentz says 10 to 12 drops of hydrocarbon oil, added by means of a spray, is usually sufficient for each pound, with French chalk, not exceeding one-fortieth the weight of material, added after the oil. If, however, the tablets are to be dissolved boric acid should be used as the lubricant, clear solutions being thus obtainable. In many cases, of course, this latter addition would be undesirable, as in the case of mercuric chloride, in which chemical action would take place. When the lubricant added is a powder, it should be scattered over the material spread out on paper, and the whole then lightly shaken up in a bottle. By this means the granules are not broken down, and they become coated very thinly with the lubricating powder. It is above all things necessary that the operator should be familiar with the nature of the substance or mixture to be compressed, as this must to a great extent guide him in selecting a suitable granulating medium and lubricant. As McFerran pertinently observes (see *Pharm. Journ.* [3], xxiii., 974), "learn the nature of each article that you wish to compress, and take advantage of your knowledge of the solubility in different menstrua, and when the contrary nature of the different articles in a combination precludes the use of this knowledge, fall back upon such correctives as experience and your own thoughts suggest to meet the particular case." Tablet making is an art which requires not only carefully detailed instructions, but considerable experience and knowledge of the capabilities of the particular machine used.

Manipulation in Special Cases.*

Ammonium Chloride, in a slightly moist and finely granulated condition, can be compressed into tablets without any preparation.

Calomel with Sodium Bicarbonate requires special treatment. Sodium bicarbonate, 630 gr., and gum arabic, 30 gr., are mixed and damped with water, then passed through a No. 40 sieve, dried and bottled. Calomel, 90 gr., is added in the bottle, and the latter shaken until all the granules are coated. Finally compress into tablets (McFerran).

Charcoal and similar spongy bodies must be in impalpable powder, and should be granulated by the addition of at least 25 per cent. of cane sugar. They require no lubricant, as a rule, and should be fed to the machine in a very finely granular form. The granules should be passed through a No. 12 sieve, dried, and then reduced until they will pass through a No. 60 to 80 sieve. A solution of gelatin may be employed instead of sugar, in which case a little French chalk should be added afterwards.

Effervescing Mixtures should have their constituents granulated separately, and mixed in a perfectly dry granular condition just before being compressed.

Extracts require varying treatment, according to their condition. Powdered extracts should be mixed with starch powder before treating by the foregoing general process of Coblentz. Solid extracts should be rubbed to a syrupy consistence by the aid of a little water; the excess of water is then absorbed by the addition of about 25 per cent. of starch powder, the mixture being left sufficiently moist to form a proper consistence on granulation. Fluid extracts should be evaporated to a syrupy consistence and then treated in the same manner as solid extracts.

Hygroscopic or Deliquescent Bodies will need the addition of gum in the proportion of one-tenth the weight of substance, water being used for moistening.

Hypodermic Tablets may be made with sugar of milk (see below) as a basis, but dried neutral sodium sulphate and purified sodium chloride or ammonium chloride are frequently preferable.

Insoluble Substances, such as acetanilid, phenacetin, sulphonal, etc., are best granulated with one-tenth their weight of cane sugar, water being used for moistening.

Pepsin in powder should be prepared by adding to it one-tenth its weight of cane sugar, then spraying with diluted alcohol (50 per cent.) and mixing to ensure moistening of all the particles. The powder should then be capable of passing through a No. 80 sieve, and, after drying, is ready for compression. Scale pepsin requires only to be reduced to No. 30 or 40 powder and then lubricated.

Potassium Bromide and Iodide simply require crushing, and should then be treated in the same way as ammonium chloride.

Potassium Chlorate should be used in the same condition as ammonium chloride, and is very readily compressed.

Quinine Sulphate requires similar treatment to charcoal, but if, instead of French chalk, a little finely powdered arrowroot or ethereal solution of white paraffinum molle be added, the tablets will disintegrate more readily.

Rhubarb and Soda, in combination, require one-tenth their weight of cane sugar, and should be granulated by means of a mixture of liquid glucose, 1 volume; water, 1 volume; and alcohol, 3 volumes.

Salicylic Acid should be treated like charcoal, quinine sulphate, and substances of similar nature.

Salol and Phenacetine can be made into tablets by adding starch, moistening the mixture with alcohol, passing through a No. 20 sieve, then slightly warming, granulating, and drying prior to compression.

Salts containing water of crystallisation should be reduced to fine powder, then mixed with one-twentieth their weight of powdered gum arabic, moistened, and passed through a No. 12 sieve. The granules must then be dried and again powdered, mixed with one-tenth their weight of cane sugar, and moistened with just enough water to again pass through a No. 12 sieve. After drying, first spontaneously but finally by the aid of heat, pass the mixture through a No. 20 sieve, lubricate, and compress.

Scale Preparations generally require the same treatment as scale pepsin, which see.

Soda-mint tablets are prepared by mixing sodium bicarbonate, 1 lb.; gum arabic, 1 oz.; oil of peppermint, 180 gr.; ammonium carbonate, 60 gr. Damp with alcohol and water, pass through a No. 20 sieve, and dry (McFerran). Remington recommends that the oil (1 to 1½ per cent.) should be added after the other ingredients are granulated and dried.

Sodium Bicarbonate requires the addition of 5 per cent. of powdered gum arabic, then moisten with water, sift, and dry.

* For convenience of reference details are here given of a number of special cases considered by Coblentz ('Handbook of Pharmacy'), McFerran (*Pharm. Journ.* [3], xxiii., 972), and Remington ('Practice of Pharmacy'), whose writings may be consulted for further particulars. Though sieves with meshes of various size are mentioned, a No. 30 sieve will usually prove fine enough in almost every case.

Sodium Salicylate should be mixed with powdered gum, moistened with alcohol and water, passed through a No. 20 sieve, and dried. It may also be treated with gelatin solution, like charcoal. In that case, add a little French chalk just before compression, taking care to stir it in well.

Sugar of Milk, when used as a basis for powders that are to be compressed into tablets, should be moistened with a mixture of simple syrup, 1 part, and water, 2 parts.

THE REVISION OF THE BRITISH PHARMACOPŒIA.*

BY A. C. ABRAHAM, F.C.S., F.I.C.

In revising the Pharmacopœia this time it is proposed to adapt it as much as possible to the requirements of the whole British Empire, and not to restrict it to the wants of Great Britain and Ireland, as has been hitherto practically the case.

In attempting to do this, the Medical Council is not assisted by the presence of representatives of the colonies, although it has invited and received suggestions from various quarters of the Empire. How far this arrangement may answer remains to be seen, but it is always very difficult for the people of one country to appreciate the wants of another and supply them, even when they are most anxious to do so. A Parliamentary Committee has recently recommended the immediate legalising of the metric weights and measures, and the compulsory employment of them, instead of our present standards, in, I believe, two years. Probably nobody believes that the latter will be done, although the former, no doubt, will; but, in any case, we shall all welcome a Pharmacopœia with alternative formulæ in metric weights and measures.

The great questions of the imperialising of the B.P. and the introduction of the metric standards have probably, in part at least, been the cause of the unusual interest which has been shown by both medical and pharmaceutical bodies, and by individuals, in he revision now in progress.

Some of the medical writers would wish to make the Pharmacopœia not what its name implies, and what every Pharmacopœia from the earliest times has been, viz., a book of directions how to prepare medicines, but as someone has said, a sort of "Doctor's *vade mecum* and handy companion."

If medical men wish to have such a work prepared "by authority" for their use, we have neither right nor wish to say a word; but surely it would be a pity to put such matter in the Pharmacopœia, which is a work written by the physician for the pharmacist to tell him how he wishes certain drugs mixed and prepared for the use of patients; and therefore saving him (the physician) the trouble of writing long formulæ and directions, and ensuring for his patients a supply in any part of the country, and without delay, of what is required. This, which, I take it, is the primary use of a Pharmacopœia, should not be forgotten when we consider what a Pharmacopœia should contain, and I would put it thus:—

"A Pharmacopœia should contain formulæ for, or characters of, all such preparations and drugs as are frequently required by the physician, which it is not expedient to prepare when wanted, or such other preparations as are essential instruments of the healing art, although from their nature but seldom required."

Naturally one of the first questions to be settled is what to include; and the lists of suggestions as to omissions and additions made by physicians and pharmacists, and by bodies representing both branches of medicine, point in a very curious manner to the different aspects which the question presents to them.

Medical men want to remove, wholesale, drugs which they do not themselves employ, although largely used by others, the fact being well known to pharmacists, that the number of remedies employed by most doctors is extremely small, but that no two use the same. Some of the omissions suggested raise two important questions, viz., 1st, how far the Pharmacopœia is to be the standard for popular remedies, and 2nd, to what extent dentists are to be considered in it.

Syrup of poppies will continue to be largely used whether it is in the Pharmacopœia or not, and it is certainly a thing which should be made of a definite strength and in a definite manner.

Then tincture of pellitory, although not often prescribed by medical men, is constantly used by dentists, who, if not represented on the Medical Council, should surely be considered by it.

The dentists are, however, quite capable of looking after themselves, and in any case, as far as they are concerned, the matter is not important, but in view of the fact that the Pharmacopœia is the standard by which the quality of many domestic remedies is regulated under the Sale of Food and Drugs Act, it will, in my opinion, be most regrettable if they are removed therefrom, even if seldom prescribed.

While it appears to me to be inexpedient, if not impossible, to make the Pharmacopœia a work of reference for medical men in the sense which some desire, I cannot see why some useful information cannot be furnished without in any way neglecting its primary object. Thus tables of solubilities would be a very useful and proper addition, and I certainly hope that the doses may be retained. Before proceeding to deal *seriatim* with some of the preparations, either in, or proposed to be put into, the Pharmacopœia, I should like to urge very strongly the radical alteration of its arrangement.

In Liverpool we have a price-list arranged according to what I believe to be by far the most convenient and reasonable method, and, however strongly some may at first have objected to its introduction, I believe that we are now practically unanimous in approving of it. I allude, of course, to the arrangement of all preparations of a drug alphabetically under the name of that drug, and for the benefit of those who may not be familiar with the method, I cannot do better than take the following from the preface of the Liverpool Chemists' Price-List (2nd edition): "Every article is placed strictly alphabetically, and preparations are classed according to the chief drug after which they are named. . . . Thus, if it is desired to turn to cubebs, it is not necessary to recollect whether they are Baccæ cubebæ, or Piper cubebæ, but the pharmacopœial name cubebs is sought, and following it will be found the names of its preparations."

To those who have not used this arrangement, its advantages may not be apparent, but those who have are fully alive to them. Now if this arrangement is a great convenience in business—and I think that most, if not all, present will bear me out when I say that it is—how much greater will its convenience be to the medical man! He desires for instance to prescribe ergot, and he turns to that name, and under it finds—Ergotæ, ext. liq.; ergotæ, infusum.; ergotæ, tinct.; ergotæ, tinct. ammon. (if inserted); ergotinæ, inj. hypoderm.; ergotinum.

He at once has before him all the preparations of the drug and their doses, and is at once able to choose the one which he thinks the most suitable for the special case with which he has to deal.

How different it is at present; he may be in the habit of employing one preparation of a certain drug, which is not suitable for his present requirements, and if he wants to use another he must consult the index and turn to five or six different parts of the book to find what he wants, or perhaps to be disappointed. The present arrangement is one adapted to the druggist's shelves, where it is found convenient to store extracts, tinctures, etc., together, but is not adapted to the convenience of the physician, or the pharmacist, for purposes of reference.

* Read before the Liverpool Chemists' Association.

We are naturally so conservative in matters of this nature that it will be very difficult to get a reform of this kind adopted, but we fortunately have in the Editor of the Pharmacopœia a gentleman who has been able to produce a really well-indexed book, which is a most rare accomplishment amongst authors, and to him I hope an improved arrangement will appeal.

There is another alteration which I most strongly favour, and that is the elimination of directions for the preparation of tinctures. If a man cannot make a good tincture without the Pharmacopœia I very much doubt whether he can make it with it. The most suitable method of preparing a tincture depends upon many factors, of which the Pharmacopœia cannot take cognisance. It depends not only upon the quantity made at one operation, but upon the time available, and even upon the apparatus at the disposal of the operator. I would appeal to any practical pharmacist whether this is not so, and the conclusion to which this leads me is that we should have general directions for the preparation of tinctures, such as the following :—

Tincturæ.—Tinctures, unless when special directions are furnished, shall be made with the menstrua specified and with the proportion of the drug named, by any convenient process, so that the following conditions may be fulfilled: (*a*) If by percolation, or maceration and percolation combined, so that the constituents of the drug soluble in the menstruum employed may be practically entirely transferred to the finished tincture; or (*b*) By maceration during such time, and the employment of the drug in such a state of comminution, that the tincture expressed by powerful pressure from the marc may be of (practically) the same strength as that removed therefrom by filtration without pressure.

There are a few tinctures for which it might be desirable to give special directions, such for example as those containing a large amount of soluble matter which would in case of maceration increase their bulk to an appreciable extent.

Whether from want of skill, or from other causes, the tinctures met with are not remarkable by any means for their uniformity? There are undoubtedly several cases in which by following the B.P. directions most faithfully the completeness with which exhaustion is effected will depend upon the quantity operated upon, and I have shown that the strength of the tincture is in some cases dependent upon the power of the press employed. Tincture of hops is a striking example of this, and there are many others.

For tincture of pellitory we are ordered to use a 40 powder and even this is none too fine if an operator is simply satisfied to follow the Pharmacopœia without the application of any skill; but a very little of the latter, and the consequent slow percolation which would follow, would enable an equally strong tincture to be made with a 20 powder, which in this case would mean the saving of some hours of labour in the manufacture of, say, half a gallon of the tincture.

I must not detain you with further criticism of individual tinctures, but will content myself with saying that unless we can be trusted to make our tinctures in an intelligent manner with such restrictions as I have outlined, we ought to have a very large proportion of the formulæ entirely remodelled, with directions as to the time which the percolation should occupy, the ratio of the height of the column of drug when in the percolator to the diameter, and other details which would fill the pages to an utterly needless extent.

There is but one process which is adapted equally to large and small quantities of nearly all drugs, and that is simple maceration, which we need hardly consider, although it is the best process for several tinctures.

Acid. Salicylic.—Length of crystals should be indicated so as to reject all but "physiologically pure" acid.

Æther.—This might be omitted if the æther purus, so-called, were allowed to be made somewhat weaker, which would allow of its being made commercially in a state of purity.

Æther Purus.—I have before suggested (*Ph. J.* [3], xxiii., 275) that the sp. gr. of this should be lowered, and more stringent tests employed to assure its purity and the rejection of some of the shocking samples occasionally met with. Its name should also be altered to æther anæstheticum.

Aloin.—Dott would reject this, but I think he will find few to agree with him.

Aquæ.—Those distilled from fruits or bark cannot be made of an equal quality otherwise, as the essential oils obtainable are not sufficiently pure and fine. Those distilled from the oils are no better for distilling, and often get the flavour of the still.

Aq. Chlorof. is very easily made, and only requires a proper apparatus for shaking it when made in larger quantities. Three and three-quarter gallons is, I find, made in five minutes in a shaking bottle, such as I described here on a previous occasion.

Aq. Aurant. Flor. will be required, whether in the Pharmacopœia or not, and should be retained.

Aq. Sambuci.—A very nice preparation when made from English flowers, and should be kept.

Aq. Dest.—Process should be omitted. It is absurd in Liverpool or where good water is obtainable, to have to distil from a copper still. I believe it is necessary in London, but tests are surely sufficient.

Aq. Piment.—I should be sorry to see this omitted. Great variety in flavourers is required. This is in fair demand.

Calamina Præp.—I have shown that no genuine calamine of the colour named is to be obtained. My practice is to colour genuine calamine with bole, and I think this meets the want, the bole being harmless but the colour essential.

Calcii Chlor.—The dried salt is, as I have before urged, unsuitable for medicinal purposes, and, moreover, not known to medical men. Either the crystals or the fused salt of the old London Pharmacopœia should be official.

Carbo Animal Pur cannot be made by process to answer tests given (Hodgkin, *Ph.J.* [3] xviii., 192).

Ergotin.—It would be interesting to know if anyone makes ergotin according to the B.P. directions.

Ext. Aloes. Soc.—Clark says that "he had not been satisfied that a good extract of aloes could be made." I must say I cannot agree with him. Either by evaporation *in vacuo*, or, as the Pharmacopœia directs, with a current of warm air, a soluble and, I believe perfectly satisfactory, extract can be obtained. From good aloes treated with water as directed, evaporated *in vacuo* to a syrupy consistence, and allowed to cool, I have found a large quantity of aloin separate.

Ext. Belæ Liq.—The Pharmaceutical Society's Committee proposes to omit this. It is a drug having, I believe, no counterpart in the materia medica, and is regularly used by those who know its value and can get it good, in this country, to say nothing of India, where it is more often required. I am told by medical men that it is an invaluable preparation. The pharmacopœial process is bad, as it does not even order the bael to be bruised before it is treated.

Ext. Cinch. Liq.—I have shown long ago (*Ph. J.* [3], xvii., 897) how a much larger product can be obtained from a sample of bark, by first exhausting with boiling water and subsequently with the acid menstruum. I have reason to believe that the process is followed by some of the manufacturers.

Ext. Nuc. Vom.—I dilute this with powdered nux vomica to the right strength. If the same powder is used from which the extract has been made, a correct allowance can be made for the alkaloids contained therein.

Fel. Bov. Pur.—Some propose to omit this. It is not as much used as it should be, owing to the inferior quality of the commercial article. I have the best evidence of its being a very valuable preparation.

Glycerin Acid. Gallic.—The Pharmaceutical Society's Committee proposes to omit this, probably on chemical grounds, as the heat decomposes the acid. That fact may be a good reason for making it without heat, but not for omitting it altogether.

Gossypium.—The ordinary should be official as well as the absorbent. The latter is not suitable for many purposes for which the old can be used.

Liq. Calc. Sacch.—The process by which this is made is what one may call apprentices' pharmacy. The sugar should be dissolved in half the water, the lime slaked with the other half, and the two solutions mixed. A corked bottle should not be used unless it is desired to discolour the product.

Opium.—Standard should be raised a little, so as to gradually get back to a strength which does not require to be adulterated down to 10 per cent. of morphine.

Sapo. Mollis.—A limit should be placed on the alkalinity of this, which is often much too great.

Unguenta.—Several of the ointments are very unsatisfactory. For example, unguentum acidi carbolici and unguentum eucalypti.

Pil. Ferri.—I hope the footnote saying that this is commonly known as Blaud's pill will be omitted. It is not Blaud's pill, and is not chemically the same.

Tr. Strophanthi.—To my mind the heating of this to 120° is quite contrary to sound chemical principles. The active constituent is a glucoside, and it may suffer decomposition to some extent by such treatment.

CHELSEA BOTANIC GARDEN.

Intimately bound up with the history of the Apothecaries' Society is that of the old Botanical Garden at Chelsea. Half a century after its incorporation the Society leased from Charles Cheyne a piece of land lying between Queen's-road and the river, upon which a large house was erected. In 1674 the ground was walled in, and two years later part of it was converted into a herb garden, which, as time went on, became more and more important scientifically. The Society aimed at cultivating plants of medicinal value and acclimatising vegetable curiosities from foreign lands. When the lease of the garden expired in 1722, Sir Hans Sloane, who had acquired the land with the manor of Chelsea from Lord Cheyne, transferred his fee and interest in it, on certain conditions that have ever since been observed, to the Apothecaries' Society, at a yearly rent of £5, and the garden has been so held to this day, the present ground landlord being Lord Cadogan The ground measures about four acres, having received a small addition from the Thames foreshore when the Chelsea Embankment was made twenty years ago. In the centre is Rysbrach's statue of Sir Hans Sloane, erected by the grateful Apothecaries in 1737. Older still is a cedar of Lebanon near the Embankment entrance. A companion cedar died a few years ago, and the verdict of the head gardener was suffocation—a fate that awaits the survivor. Nearly everything in the garden is sorely tried by the smoke-laden fogs of the metropolis. Herbs that cure sickness are themselves liable to illness. The medicinal plants in the garden are scientifically arranged, the classification adopted being the Natural System perfected by Dr. Lindley, who was *præfectus horti* and professor of botany to the Society for seventeen years, commencing with 1835.—*Citizen.*

PROCEEDINGS UNDER THE PHARMACY ACT, 1868.

Edinburgh Appeal Cases.

In the High Court of Justiciary, Edinburgh, on Saturday, October 26, before the Lord Justice Clerk, Lord Young, and Lord Trayner, appeals were heard against the judgments delivered by Sheriff-Substitute Sym, on Thursday, September 26 (see *ante*, p. 292), in the cases of the Pharmaceutical Society against J. M. Turnbull, 6, Rose Street, Edinburgh, and William Hume, 1, Lothian Street, Edinburgh (see *ante*, p. 269).

Counsel for the appellant, Mr. Salvesen and Mr. T. B. Morison; agent, Mr. P. Morison, S.S.C. Counsel for the respondent Turnbull, Mr. A. J. Young and Mr. Trotter; agents, Messrs. Cuthbert and Marchbank, S.S.C. Counsel for the respondent Hume, Mr. Dundas.

Mr. Morison said: The question of law can be stated as follows:—"Did the respondent by designating himself "scientific instrument maker and technical chemist," infringe Sections 1 and 15 of the Pharmacy Act, 1868?" The Sheriff says—"I was of opinion, having regard to the manner in which the word 'chemist' was qualified in the circular complained of, and to what I thought a sound construction of the Pharmacy Act, 1868, that the respondent had not contravened sections 1 and 15 thereof by publishing the said circular, and I assoilzied him from the second charge." The circular referred to is a trade circular, in which he designates himself, as the question of law puts it, "a scientific instrument maker and technical chemist," and the question is whether that is an offence under Sections 1 and 15 of the Act passed in 1868 for the protection of the public—to secure that the public should not have the opportunity of buying poisons except from qualified persons, and to secure also that no person except the persons qualified under that Act should adopt the name or title of chemist. That is stated in the preamble. Section 1 defines offences against the Act. Section 3 defines chemists and druggists as people qualified under the Act. The 15th Section defines the acts for which offenders against the Act shall be liable to pay a penalty. The question is whether by issuing this circular, Mr. Hume took, used or exhibited the name or title of "chemist."

Lord Trayner: The whole question is whether addition of the words "scientific instrument maker and technical chemist" excludes him from the terms of the Act?

Mr. Morison: That is so. Your Lordship will see a special mention of the words Pharmaceutical Chemist. The meaning of that is that there are two qualifications, the qualification of an ordinary chemist and druggist, and that of a pharmaceutical chemist, who has passed a higher examination: therefore a chemist and druggist, even though registered as such under the Act, if he assume the name pharmaceutical chemist without the higher qualification would be liable to penalty.

Lord Trayner: A registered chemist is entitled to retail and compound poisons, and a pharmaceutical chemist can do no more?

Mr. Morison: That is so.

Lord Trayner: So far as concerns the purpose of the Act a chemist and pharmaceutical chemist are the same thing?

Mr. Morison: No doubt, except in this respect that the public know a pharmaceutical chemist has the higher qualification, the examination being a more difficult one. The words in the 15th Section applying to the question of law in this case, omitting the alternatives, I think are these, that "any person who shall take, use, or exhibit the name or title of chemist" shall be liable in the penalty of £5; and I read that as equivalent to this, that no unqualified person shall take, use, or exhibit the name or title "chemist." There is no limitation of that, and for any person to say that a limitation of the word "chemist" will evade the Statute is, I think, reading a restriction into the Statute which does not appear. I read this Statute as a universal prohibition against the use of the word "chemist." In the present case there is no doubt about the fact that the respondent took the word "chemist" in calling himself a "technical chemist." I think he used it and exhibited it, in putting it on his trade circular and in issuing that circular to the public.

Lord Trayner: He advertises himself as a "chemist" in the technical sense. That is rather a severe construction on his title.

Lord Young: "Manufacturing chemist" is a title that is sometimes taken.

Mr. Morison: I do not know about that. I have a number of others.

Lord Young: I remember asking a man who was representative of a manufacturing chemist what he manufactured, and the answer I got was "Soda water." A simple thing.

Mr. Morison: There was no harm if he was a wholesale dealer.

Lord Young: This man, I think, came from Dublin.

Mr. Morison: Of course this Act does not extend to Ireland. But if he was a wholesale dealer he would have been outside the Statute under Section 16.

Lord Trayner: That suggestion is of importance. Manufacturing chemist is a title taken by a very large number of people. It is used by manufacturers of soap, vitriol, and other chemical compounds used by chemists.

Mr. Morison: These are wholesale dealers.

Lord Trayner: I do not say they are retailing or compounding poisons, but they are advertising themselves as manufacturing chemists within the prohibition.

Mr. Morison: Not necessarily.

Lord Trayner: If "manufacturing chemist" does not bring them within it, would "technical chemist" bring them within it?

Lord Young: I have a directory in my hand, and the first title under chemical is "chemical dealers—see opticians." Then chemical manufacturers, there is no end of them; they seem to manufacture all sorts of things.

Mr. Morison: These are not struck at by the Act. There is no offence in using the words chemical dealer or chemical manufacturer. But the point is that the word "chemist" has a technical significance in the Act.

Lord Young: "Chemical manufacturer" would not be against the Act, but "manufacturing chemist" would be.

Mr. Morison: It might be; but not in a wholesale business, under Section 16. Designations used in connection with wholesale business would not constitute an offence, but the word "chemist" in the 15th Section of the Act of Parliament technically means a person qualified under the Act, and the safety of the public rests upon this—that wherever they see the word "chemist" used or exhibited as a name or title they know the person so exhibiting it has a peculiar qualification. Such a proceeding is not uncommon in other professions—doctors, dentists, law agents, and veterinary surgeons. The meaning of this Section is that there is a universal prohibition against the use of the word "chemist" in connection with retail business. Now there have been no cases in Scotland like the present; but there have been a number of cases in England mostly in the County Courts. I can give your Lordships the names of the infringements which have been penalised in England. For instance, "export and shipping chemist" was held to be an infringement, and "analytical chemist."

Lord Young: By whom?

Mr. Morison: His Honour Judge Hughes, in the Stockport County Court.

Lord Young: That is no authority.

Mr. Morison: There is one case in the High Court.

Lord Trayner: An analytical chemist dispenses nothing; he simply analyses what is sent to him for that purpose.

Mr. Morison: I think the proper title is chemical analyst.

Lord Trayner: No.

Mr. Morison: At all events, "analytical chemist" has been penalised in England. Then there is "botanic chemist."

Lord Trayner: You would have him described simply as "herbalist"?

Mr. Morison: That, at any rate, would not be an infringement of the Act. But if one qualification evades the Act, then any qualification would serve the same purpose, and a person, for instance, might call himself a "registered chemist."

Lord Young: The legal question is brought before us here, and we must consider and determine it; but I should like to know two things. The first is—What is the cause of this prosecution?—No harm apparently has occurred: then on the other side—What good does putting "technical chemist" on that circular do; and what harm would it do to take it out?

The Lord Justice Clerk: He might call himself dealer in photographic chemicals.

Lord Trayner: That is a different matter.

Lord Young: If the parties think it an important legal question to be decided, we have no alternative; but the case struck me strongly in both these respects—first, what induced the prosecution, no harm having occurred or being in the least degree likely to occur from anything indicated; secondly, what good does it do to use the word "chemist"? Why should he not strike it out?

Mr. Morison: The word "chemist" induces the public to buy poisons from him.

Lord Young: Has anyone done it?

Mr. Morison: There is a regular book kept in connection with the respondent's sales of poisons.

Lord Young: Has any harm, of your knowledge, come to anyone—harm of any kind?

Mr. Morison: Not in connection with this particular shop.

Lord Young: Is it not rational to wait?

The Lord Justice Clerk: He is quite within his right—having called himself a chemist—to keep a book to record the sale of poisons, and to sell poisons in any quantities for scientific purposes to people he knows. Is that not so?

Mr. Morison: No; he has no qualification for selling any scheduled poisons.

Lord Young: He was convicted of having sold something of a poisonous nature, and he does not object to that conviction. It is a matter of business with Mr. Hume.

Lord Justice Clerk: How must such a man proceed who wants to sell poisons?—He must have a qualified chemist on his premises.

Mr. Morison: That is so. Mr. Hume carried on a regular sale of these poisons. His poison book dates from a considerable time back, and he had a considerable retail business.

Lord Justice Clerk: It was an open, honest trade. He believed he had a right to carry it on.

Mr. Morison: That is so.

Lord Young: And he stops doing what he admits he was rightly fined for doing?

Mr. Dundas: Yes, in the sense of conviction.

Lord Young: And stops doing it?

Mr. Dundas: I do not know how to answer that.

Lord Trayner: He is not going to carry on a business that he is informed is illegal?

Mr. Dundas: No.

Lord Young: You have answered the question now.

Mr. Morison: The policy of the Act is that the use of the word "chemist" becomes dangerous in a case like the present, because it induces the public to go for poisons for improper purposes.

Lord Young: I suppose people wanting to get a poisonous drug from a chemist will hardly go to a scientific instrument maker?

Lord Trayner: In this case someone did, and Mr. Hume is regularly selling poisons.

Lord Young: That is what I meant by the question. How did he sell the poison on that occasion? It was to some photographer, wasn't it?

Mr. Morison: No, to an unknown person. The assistant who sold the poison did not know the person who asked for it.

Lord Young: But he sold the poison to photographers?

Mr. Morison: No.

Mr. Dundas: It was something supposed to be useful for cleaning silver plate.

Mr. Morison—referring to the provision for labelling in the 17th Section—A person not qualified under the Act would know nothing about these things; that is one protection the public get in having poisons dispensed by qualified men. Again, an ordinary prescription containing no poison may be made up by an unqualified person; but the only guarantee the public have that such a prescription is properly dispensed is the title "chemist," because any person might take a prescription containing no poison to a shop like Mr. Hume's, and it is quite legal for an unqualified person to dispense it, but, in that case, there would be no guarantee that the person making up the prescription had the skill for this work indicated by the qualification under the Act. So that I submit there is sound reason for requiring that no person but a chemist shall take, use, or exhibit the word "chemist" as a name. I submit that is the fair reading of the section, and that it is an infringement for the respondent to call himself "scientific instrument maker and technical chemist." If you allow one qualification you may allow another qualification. He may call himself a skilful chemist or any kind of chemist—even a registered chemist. There is a case in the Court of Queen's Bench, Pharmaceutical Society against Wright. I have a certified copy of the judgment. In that case the offence charged was that the respondents sold a bottle of paregoric (which is a preparation of opium), and that the name Knowles and Wright was on the outside of the said shop, and that "Knowles and Wright, Shipping Druggists, 76, South Castle Street, Liverpool," was printed on the label. Wright was convicted under the 15th Section. It was considered that the use of that term was an infringement of the Act. The defence was that the person charged did not actually

use the term, but Mr. Justice Mathew and Mr. Justice Cave both agreed to convict the accused.

Lord Young: It only impresses us so far as we agree with it. It is no authority—it is merely suggesting good reasoning—a sensible view for our adoption.

Mr. Morison: It is an illustration.—Mr. Justice Mathew said: "This appeal, it seems to me, must be allowed. The respondent was prohibited from taking, using, or exhibiting the name or title of chemist or druggist. It appears that up to November, 1880, the respondent was infringing the Act of Parliament, but after November, 1880, it transpired that the business went to a person named Knowles, into whose service the respondent went, and it was carried on subsequently as detailed in the tenth paragraph of the case. It is admitted by the respondent that the label referred to, describing the firm as Knowles and Wright, shipping druggists, was within his knowledge the only one in use in the shop both prior to and since November, 1880, and that the respondent was the person designated as 'Wright' in the said label. It seems to me, on that statement, that it is perfectly clear that the respondent was permitting his name to be used and exhibited in this business as a chemist. I see no other conclusion that it is possible to arrive at, after the statement in the tenth paragraph, but that he sanctioned the nse of his name as a chemist, which is a clear infringement of the Act. Therefore the appeal must be allowed."

And Mr. Justice Cave: "I am of the same opinion, that from the facts the proper inference to draw is that the respondent was using the name and title of druggist. It seems to me that what was done here is entirely within the mischief of the Act, and nnless he wished to evade the provisions of the Act, he should not have used those labels. I am of opinion that the appeal must be allowed." Another illnstration in the High Court is the case in which the Royal Veterinary College prosecnted a shoeing smith, not possessed of the qualification specified by the Veterinary Act, who had for twenty-five years described his place of business as a "veterinary forge." This was held by Mr. Jnstice Hawkins to be a contravention of the Act (Roy. Vet. Coll. *v.* Robinson, 1892, I. Q.B. Div., p. 557). I submit that, in like manner, the words "technical chemist" imply that Mr. Hume is a chemist skilled in the technique of a chemist's business. The public might think he was technically a chemist, that is, a chemist in the sense of the Act. The evils the Act intended to prevent are imminent where this word is exhibited by an unqualified person.

Lord Trayner: The argument in the second case is quite the same, only the respondent called himself a photographic chemist. Do you want to interfere with the Sheriff's decision on the first charge?

Mr. Morison: Yes, I do.

Lord Young: We had better hear Mr. Morison in Mr. Turnbnll's case. He was charged with keeping open shop for the sale of poisons, and also with using the title "photographic chemist."

Lord Trayner: "Photographic" above one window and "chemist" round the corner.

Mr. Morison: So that a person looking at the shop could only see the word "chemist."

Lord Justice Clerk (examining a photograph of the shop): We can see both words at once here.

Lord Trayner: In this case no poison book was kept. There is only one case spoken of to in which poison was sold—threepennyworth of corrosive sublimate.

Mr. Morison: We have only one sale, but we have also a catalogue.

Lord Trayner: The Sheriff found, as a matter of fact, that the assistant had sold threepennyworth of corrosive sublimate, although he had been warned not to sell it.

Mr. Morison: The offence charged is that he kept open shop for the sale of poisons. My case is that he kept the shop open for this particular sale, and that one sale alone would be sufficient to convict him of the offence of keeping open shop. But I think the offence goes a good deal farther. The fact I think of importance for me is, that he would sell poisons to persons engaged in photography, whoever they were, amateurs or professionals, and that is retail sale. He also kept the shop open on the days libelled. Then your Lordship will find that in his catalogue there are a number of poisons mentioned as being sold at so much per oz., or per lb.

Lord Young: It is nnlawful for an unqualified person to do anything he is not qualified to do; but is there any law to prevent selling poisons by the ounce or ponnd?

Mr. Morison: No, provided the person who sells them is qualified, and Mr. Turnbull had not the necessary qualification.

Lord Trayner: And the Act is meant to prevent people selling or compounding poisons retail.

Lord Justice Clerk: Where is the law regulating the sale of poisons by the ton?

Mr. Morison: The quantity has nothing to do with it.

Lord Justice Clerk: If any trader sells a ton of oxalic acid, can he be prosecuted for that unless he has some statutory qualification for doing it?

Mr. Morison: If it is to a consumer he would be prosecuted, bnt if to a retail dealer to be sold over again, then that would not be an offence. But the object of the Act is that the public shall not get poisons except from the hand of a man qualified to sell them. The intention of the provisions in the 17th Section is that the pnblic shall not get poisons except from people who have the qualification. If poison is sold wholesale to a retail dealer it does not reach the public at all through the wholesale dealer, because it is retailed over again.

Lord Justice Clerk: And the retail dealer is a person qualified to receive the poisons and to deal with them by retail.

Mr. Morison: That is so. This respondent Turnbull says he sells poisons to persons engaged in photography. That is not wholesale dealing in the sense of the Section. I wish to refer your Lordships to the facts which were proved regarding this particular sale (referring to judgment see *ante*, p. 292). The essential fact is that the respondent kept open shop where there was a lot of poisons ready to be sold, and the nature of the sales is not that of wholesale dealing.

Lord Trayner: Spence led the shop assistant to believe the corrosive sublimate was for photographic purposes by first purchasing photographic plates.

Mr. Morison: It does not matter.

Lord Trayner: Yes, if you wish to try this case you should have gone in and asked "Can you give me any corrosive sublimate?"

Mr. Morison: That would have put him on his guard.

Lord Young: It would have been acting fairly with him, and that is not what you wanted.

Mr. Morison: It wonld have given him unnecessary advantage.

Lord Young: You prefer that way of putting it?

Mr. Morison: A person who wanted the poisons for an illegal purpose might also ask first for photographic plates.

Lord Young: He was exposing nobody in the world to the slightest danger.

Mr. Morison: The Act——

Lord Young: Yes, the Act should be looked to, but can yon suggest any danger the respondent exposes anyone to by selling photographic poisons? Was he facilitating suicide or murder?

Mr. Morison: I think so, because he has not the qualification necessary to dispense poison. He keeps his shop with a couple of girls who know nothing about poison, and might make mistakes.

Lord Young: People who want to commit murder or suicide by poison do not bny it by the ounce or the pound. It is different going in to buy it for cleaning plate, or by the ounce or the pound for photographic purposes. It may be the letter of the Act, and the Act may in this respect require some modification.

Mr. Morison: This poison is only 3*d.* an ounce.

Lord Young: An ounce or a pound—it would, all the same, be sufficient to kill people.

Mr. Morison: A recent case has been brought under the notice of the Society where this very poison was sold by a dealer and used for suicidal purposes.

Lord Young: By a lunatic, probably.

Mr. Morison: I think the facts which constitute the offence are these. The accused kept an open shop, and was willing to sell poisons to persons engaged in photography. That constitutes the offence of keeping open shop for the sale of poisons. It was kept open, at any rate, for this particular retail sale, and there is authority for holding that this constitutes the offence. The case of Bremridge against Tomlinson was a case which came before the Court of Appeal, and the Lord Justice Clerk said, "When I read the clauses founded on, I find no ground for holding that they do not strike at the person who performs the active sale. The word 'sell' appears to me to apply to the person doing the act of sale in a retail business, whoever may be the person or persons for whose behoof he acts. The words 'or keep open shop for the retailing, dispensing, or compounding,' set forth an offence by itself, for

which the penalty of the Act might be inflicted with proof of an actual sale."——Now, in this case I have gone beyond what is actually necessary—in his Lordship's view—to constitute the offence. I have proved one retail sale—because the Sheriff is with me—and in England this offence is constituted by one retail sale. There are several cases in the County Courts, and at least two cases came before the Court of Queen's Bench. In Armson's case the only sale proved was one of a preparation of opium, and the accused was convicted. In Piper's case, also, one sale of chlorodyne by the shop assistant was proved, and the court convicted the master of the offence of keeping open shop, showing that one retail sale is sufficient to convict for keeping open shop. If more is needed it is found in the admission of the respondent that he will sell poisons to persons engaged in photography.

Lord Young: What is the error of law?

Mr. Morison: That the Sheriff has refused to hold one retail sale of poison coupled with the facts I have read, as sufficient to constitute the offence of keeping open shop.

Lord Young: That is not law; it is fact. One sale may or may not be enough, but the Sheriff has held upon the facts here that it did not satisfy him, in fact, that open shop was kept for the sale of poison.

Lord Trayner: The question of law is whether the facts stated by the Sheriff constitute, on the part of the respondent, the offence of keeping open shop.

Lord Young: I do not think that is correct under the Statute. This is an appeal against a judgment—none the less an appeal against a judgment that it is an appeal against a case stated. Now, by the Act the party who is dissatisfied with the Sheriff's judgment upon a question of law may ask for a statement of the facts which raise the question of law, but the Sheriff cannot put questions to us to be answered by us. This is not like a case under the Court of Session Act. The Sheriff can only pronounce his judgment and state the facts which bring out an error in law of which you complain. Now, what is the error in law? He says that, upon the facts proved, his verdict is that the respondent did not keep open shop. These facts may or may not, according to the circumstances, constitute keeping open shop, but keeping open shop is a question of fact, on which the Sheriff is *primâ facie* conclusive.

Mr. Morison: I think he puts it not as a question of fact, but a question of law. Your Lordships will see that from his opinion "that it was not a wholesale, but a retail transaction. But I was of opinion that while this transaction would have justified a prosecution of the assistant for the offence of 'selling poisons' without legal qualification, it did not constitute, on the part of the respondent, the offence of 'keeping open shop for the retailing, dispensing, or compounding of poisons.'"

Lord Young: That is on the facts proved here with respect to the one sale. I am of opinion in point of fact he did not keep open shop, or that it is not proved he did. Could a judge have directed a jury in point of law—if there had been a jury—by saying—"I direct you in point of law that if it is proved to your satisfaction he sold retail once, that that amounts to keeping open shop, and you are to find accordingly if you follow my law?"

Mr. Morison: Yes, my Lord, I submit so.

Lord Young: I should not for one moment.

Lord Trayner: I think the magistrate has put to us, and is entitled to put to us—"the fact is so and so; in my opinion that does not amount in law to contravention of Statute";—and he asks us to say whether he is right or wrong in that legal opinion. I think if a judge were satisfied there was one single act of retail dealing he might very well direct the jury that it was a breach of Statute, or direct them that it was not a breach of Statute. It requires more than one act; it requires a course of dealing, "keeping open shop."

Mr. Morison: I remember the Sheriff referred to a case where a person charged with "frequenting the streets with intent to steal" was proved to have been only once in the street, and your Lordship quashed a conviction on the ground that one visit to the street did not constitute "frequenting." That is the view of the Sheriff here—that one sale, coupled with the facts I have read, did not constitute the offence of keeping open shop. I submit that is a question of law, and that your Lordships should answer it in the affirmative.

Mr. Dundas for the respondent Hume: The question, and the only question, is whether Mr. Hume is guilty of an offence within the meaning of Sections 1 and 15 of this Act, in so far as on the date mentioned he did "unlawfully and contrary to the 1st and 15th Sections of the said recited Act, take, use, and exhibit the name or title chemist' or 'technical chemist' on and in connection with a printed advertisement."—Is it a contravention of the Act that Mr. Hume on a certain day published this catalogue? We have the important words in the catalogue printed in the case. It has on the cover—"Illustrated catalogue of photographic apparatus, chemical preparations, and other requisites used in the practice of photography, sold and manufactured by William Hume, scientific instrument maker, and technical chemist," and the address. The whole book is full of interesting pictures of cameras and other apparatus of photographers. The only mention of either chemicals or poisons is at page 40, where there is a page devoted to a description of the various chemicals used in photography and useful to photographers, including some poisons scheduled in the Act. It would be harsh if that were held to amount to an offence against this Act, and I shall show that such a decision would lead to strange results in other cases, which should be kept in view. It does seem to me the prosecution proceeds under something of a misapprehension of the meaning and purpose of the Pharmacy Act of 1868, because it has been held by your Lordships in previous cases that the object of that Act was simply to protect the public—to keep the public safe from unqualified persons making up and compounding and selling drugs for the use of man—a prescription business. That is a very proper object, but unless you are tied up to it by the words of the Act, your Lordships would not hold with my friend Mr. Morison, that the Act aimed at a universal prohibition of the use of the word "chemist." Now that is perhaps enough to meet the question—Does the Act mean a universal prohibition of the use of the name or title "chemist," and does the word "chemist" in this catalogue imply an infringement of the Act?

Lord Young: The words are "take, use, and exhibit the name or title 'chemist.'"

Mr. Dundas: The preamble of the Act puts it exactly as I say. The object is that chemists and druggists—the people engaged in making up and dispensing drugs—should be competent, but that is not an absolute prohibition against the use of the word "chemist. In the same way Section 1 strikes at selling or keeping open shop for the sale of poisons, or assuming or using the title of "chemist and druggist," or chemist or druggist or pharmacist or dispensing chemist or druggist in any part of Great Britain unless such person shall be registered. Then chemist is defined.

Lord Trayner: The whole question is whether this respondent has violated the Statute by assuming or using the title of "chemist"?

Mr. Dundas: I take it so. My friend has put it that the Act is an absolute prohibition of using the word "chemist." Mr. Hume's position is that he is not a druggist, not a pharmacist, not a pharmaceutical chemist, but he is certainly a chemist. The Sheriff has found that. He finds that the respondent has a thorough knowledge of chemistry. I have numerous certificates to that effect, one stating that he is qualified as a lecturer on chemistry. He is not unskilled, yet he is not a pharmacist; he does not keep and never has kept any prescription poisons—that is, poisons used in making up prescriptions. He never makes up, and would not make up any prescription or anything to be administered to man or beast. It is not his business; he has never done, and would never do that. Surely the distinction seems to be between what is chemistry and what is pharmacy, because it is in the region of pharmacy that the Pharmacy Act has force. Pharmacy is simply the art of drug-making, drug-compounding, and drug-dispensing. Chemistry is a different thing. I have tried to inform my mind from dictionaries as to the meaning of the word, but there is great doubt.

Lord Young: There is great doubt as to the derivation.

Mr. Dundas: Some say it is derived from an Oriental word meaning black; others say it is derived from a Greek word. At all events it is different from pharmacy. It is not drug-making, but the science dealing with the chemical properties of matter.

Lord Young: Did you look up "technical"?

Mr. Dundas: I did not think of that.

Lord Young: It is a pity. I do not remember seeing the word prefixed to chemist before, and I turned up the dictionary just now. "Technical" is the word, and it is given here in a way that is useful to the argument—"of or pertaining to the mechanical arts or to any particular art, science, profession, handicraft, business or the like." Look at this catalogue. You see there the mechanical art, the profession, and the craft or business which he is professing, and that word at the end—technical chemist—may mean chemist with respect to this art of making and dealing in photographic apparatus.

Mr. Dundas: I take it that it does. I was going to submit that view to your Lordships.

Lord Young: It does not mean that he is a practical chemist for manufacturing drugs.

Mr. Dundas: Absolutely not.

Lord Young: He assumes all the knowledge of chemist necessary for the practical art he has put out in this catalogue.

Mr. Dundas: He makes scientific instruments, and supplies chemicals for the art in question. That is the reading, I think, of the word.

Lord Young: Looking to the meaning and purpose of the Statute this question is a violation of it. Is it within the danger of it?

Mr. Dundas: I think not.

Lord Young: That is the language of Mr. Justice Hawkins—"within the danger of the Act."

Mr. Dundas: See where this judgment might lead if a different view from that of the Sheriff-Substitute was taken. The word "chemist" is used in all sorts of ways and by all sorts of people. There is "chemist and druggist" within the meaning of the Act. But there is another sort of chemist, analytical chemist. Every oil work has its own chemist. Is he not to call himself chemist?

Lord Young: Soda-water chemist.

Mr. Dundas: Your Lordships may look at the 'Edinburgh Directory.' Opticians come in with this term "chemist"; that is a new class. It would reach gentlemen of the highest ability in the land—Dr. Stevenson Macadam and gentlemen occupying a corresponding position in England are all chemists. If this Act strikes at the word "chemist," unless you are a pharmaceutical chemist, it is far-reaching, and would lead to absurdity. It would mean that a chemist is a druggist, which is contrary to the fact. Lord Young put a question I ought to answer as to whether Mr. Hume attaches importance to the use of the word? My answer is that he attaches importance to being allowed to call himself technical chemist. He is a chemist, and is proud of being one, and he has proved in this case to be a man of thorough' chemical knowledge. He considers that the use of the words "technical chemist" gives his establishment a higher status.

Lord Young: What would it cost him to get a qualification if he has all the knowledge?

Mr. Dundas: I do not know. He does not want to be made a druggist.

Lord Justice Clerk: He contemns that.

Mr. Dundas: I suppose so.

Lord Justice Clerk: The Pharmaceutical Society, I suppose, would call upon him to pay fees.

Mr. Dundas: He has been a chemist for something like thirty years. He does not desire to become a pharmaceutical chemist. The County Court cases I have not studied. They are no authority here, and one at least, I think, was a bad decision.

Lord Trayner: The case of the Queen's Bench "Shipping Druggist" comes very close to this one.

Mr. Dundas: That is not an authoritative case of the Supreme Court. From the account of it in my friend's book, the offence was selling paregoric, which is a prescription medicine to be swallowed. It is therefore a drug, and therefore not to be sold except by an authorised person. The title claimed was "shipping druggist." Surely a person, if he professes to be a "shipping druggist," and sells drugs for the inward use of man, is bound to come under the Pharmacy Act?

Lord Trayner: "Shipping druggist" does not mean "retail druggist."

Mr. Dundas: It should not, but he sells paregoric.

Lord Trayner: The two things are separate and distinct. Put aside the violation of the first branch of the Section as to compounding or retailing drugs. But the second is that he is not to use the phrase "chemist or druggist" unless registered. This gentleman did not take the title of druggist, but qualified it by "shipping druggist." It was held to be a violation. Is that not analogous to you who call yourself a technical chemist, or analytical chemist?

Mr. Dundas: It is not so close, because the whole sphere of the Act is drugs. If a man calls himself a druggist he is under the Act.

Lord Trayner: It just as much applies if a man calls himself a chemist

Mr. Dundas: The first thing a man is not to call himself is "chemist and druggist"; the next thing is "chemist or druggist," that means, I think, that a man is not when he carries on the business of chemist or druggist to evade the Act by putting "chemist" over the shop. These words, I confess, give one some thought, but that, I think, is the meaning. One might have evaded the Act by leaving out "druggist" and putting only "chemist" above the door. That is what the Act, I think, struck at. It seems an uncalled for reading of the Act to say it strikes at any use of the word "chemist," which is really the question I have to meet.

Lord Young: The word which is here—"technical"—taking it in the sense I read it in the dictionary, which is clearly the sense used here, I think, could not be applied to druggist at all.

Mr. Dundas: No.

Lord Young: Druggist means medicine.

Mr. Dundas: It means pharmacy.

Lord Young: Drugs to be swallowed by those who require them, and still more those who do not require them and are the worse for them—therefore "technical druggist" would not do. "Shipping druggist" rather appears at first sight to be obviously within the mischief of the Act, because he is without the qualification for selling drugs to be shipped. But there are drugs which people expect to take with safety—with no poison in them, not too much poison in them. Possibly upon further reading there may be a very narrow distinction between the two, but looking to the reality of the mischief of the thing which the Act has to guard against, there is *primâ facie* considerable distinction between chemist and druggist.

Mr. Dundas: In one sense my friend can put his point in a moment. If he can say that the use of the word "chemist" is unlawful, I must be guilty. But that is not the way to look at the case. If you think the Act did not mean to prohibit the use of the word "chemist" except by the chemists and druggists under the Pharmacy Act, a different result would follow. The word "chemist" is capable of infinite degrees of meaning, and it ought not to be said that a man could not be called a chemist unless he was willing to be enrolled as a Pharmaceutical chemist. Following up the idea as to whether the prosecutor's views are reasonable, one does not, in the case of Mr. Hume, see where the danger comes in—where is the danger in allowing him to publish this catalogue and call himself a technical chemist?

Lord Young: I do not see what good it will do to put that phrase on the catalogue; but he knows best.

Mr. Dundas: I see the advantage of calling one's self a technical chemist.

Lord Young: If the title "chemist" will attract people, he is not entitled to use it.

Mr. Dundas: Attract them to see his photographic apparatus, otherwise he might be thought simply to deal in cameras. Anyone might sell a camera without knowing anything of the higher arts of photography. Mr. Hume attaches importance to the fact that he is a skilled chemist, but not in drugs; he desires to be called a technical chemist. As to the other point of the case, the first charge which the Sheriff found proven is not before your Lordship, and is scarcely relevant to the case; but your Lordship understands how this gentleman from the Pharmaceutical Society came in and asked for chemicals, representing, without actually saying so, that he desired them for the purpose of cleaning silver plate. The name was entered in the book, the man got the stuff away, and hence the prosecution. Since the conviction Mr. Hume has not sold retail any poisons within the Act, and would not do so unless the law set him free and made it plain that he is entitled to do so. That is really all I have to say. It is a point of very great importance to my client, and to many others besides, and my contention is that the publication of this catalogue with the phrase "scientific instrument maker and technical chemist" was not an offence within the meaning of the Act. Before my friend can succeed in his appeal he must show that there is a universal prohibition by this Act against the use of the word "chemist."

Lord Justice Clerk: In whatever way it may be used?

Mr. Dundas: That is what I mean.

Lord Trayner: It is curious to find in this poison book that the Pharmaceutical Society (36, York Place), got from this gentleman a considerable quantity of poison for laboratory purposes.

Lord Justice Clerk: The Society should have been charged "art and part."

Lord Trayner (reading): 4 oz. arsenium, 8 oz. oxalic acid.

Mr. Dundas: I was not aware of that. I am obliged to you for pointing it out.

Lord Young: One of the definitions of the word "drug" is: "any commodity that lies in hand and is not saleable; an article of slow sale, or of no demand in the market."

Mr. Dundas: That is my whole case. I submit my friend's contention would lead to most unfair results, and not within the meaning of the Statute. I have explained my view of the Statute is that it deals with pharmacy and drugs, and not chemistry.

Mr. Trotter (for the respondent Turnbull): I submit that the Sheriff's judgment is right, and that this appeal should be dismissed. My client calls himself a "photographic chemist," and has a shop in Rose Street. He deals in chemicals used for the purpose of photography, and amongst these chemicals are poisons scheduled in the Pharmacy Act of 1868, but he deals with these poisons only so far as they are required for photographic pusposes. He issued a circular, which was produced in the inferior court, and, no doubt, he states that he deals with the poisons used for photographic purposes only in wholesale quantities. Your Lordship will find an excerpt from respondent's catalogue annexed to the printed statement.

Lord Trayner: We all remember the facts.

Mr. Trotter:—The first question raised is as to the meaning of keeping open shop. That is the first question the Sheriff raises; therefore the question turns on the construction of the first Section of the Pharmacy Act, 1868. Prior to this Act there were two classes of persons apparently who held themselves out as chemists and as persons competent to dispense drugs to the public. They could do that in two ways: first, by assuming the title of chemist or druggist, or by keeping open shop for "retailing, dispensing, or compounding poisons." These are the two ways in which you told the public you were competent to dispense drugs. Now that throws material light on the meaning of Section 1. We have, first, selling, keeping open shop, and then taking the title of chemist. My contention is that on sound construction of "keeping open shop," it must be proved that I keep open shop for the purpose of selling all manner of poisons, and holding myself out as a party qualified for dispensing drugs. That is not what is proved here, or what my client did. All he did was simply to furnish to persons engaged in photography, and to chemists, chemicals used for the purposes of photography. That is all. There is just one point omitted which Lord Young remarked upon during the debate,—the Sheriff-Substitute's judgment is final upon the question of fact raised here. The question of fact was whether or not my client was guilty of keeping open shop. The Sheriff found the charge not proven, and being a question of fact that question cannot be opened up in the Court of Appeal. There is another point in the case, apart from those I have mentioned, namely, that the gentleman to whom this substance was sold is a qualified chemist, and I maintain this is a wholesale transaction, because the party to whom the poison was sold was a qualified chemist. Then, my Lords, there is this other point, that my client just deals in wholesale quantities. Any transaction upon which he enters is wholesale, and, as has been already pointed out, the Act does not strike in any way at wholesale transactions.

Lord Justice Clerk: Is it maintained seriously that the sale of corrosive sublimate in ounce packets at 3*d.* each is a wholesale transaction? It is not sold because it is poison to kill people. There may be enough sold retail to kill a hundred people, but is the sale of 3*d.* worth of a substance a wholesale transaction?

Lord Trayner: I think, Mr. Trotter, your point is rather this. If he had sold 3*d.* worth of corrosive sublimate to a member of the public who was going to use it one way or another—that is retail; but if he sells it to an experienced chemist who is presumably going to use it for chemical purposes, that is not retail. In short, he is selling it to a man who is not going to retail it, but to use it in prescriptions, or use it in the laboratory.

Mr. Trotter: That is the point I mean. The second question raised is regarding the title of chemist. If my friend, Mr. Morison, is correct in his construction, I do not see what practical use the party who framed the Section had in view when he put into it the word "dispensing." When the Legislature were at such pains to describe the different names and titles which a party qualified in pharmacy can assume, it was to show what was required to qualify for dispensing.

Mr. Salvesen, for the appellant: This is a prosecution in the public interest, and as such it is regarded by those instructing me as of very great importance, because it will regulate the questions which will apply to the whole trade of chemists throughout Scotland. In England the matter has already been settled in favour of the Pharmaceutical Society, and it would be unfortunate if in the case of a British Statute this Court should adopt a different view of the meaning of the Act from that which is unquestionably taken by the English Courts.

Lord Young: What is the Pharmaceutical Society?

Mr. Salvesen: It is the licensing and examining body.

Lord Young: What is its authority?

Mr. Salvesen: The Statute of 1868.

Lord Young: It is a statutory body.

Mr. Salvesen: A statutory body charged with the enforcement of the Act of 1868. It has also a royal charter——

Lord Young: A royal charter! That is a different thing.

Mr. Salvesen: And it is established for the purpose of seeing that the provisions of the Act of 1868 are properly complied with.

Lord Young: Is it paid by the public?

Mr. Salvesen: No.

Lord Young: What is the interest of the members of the Society who take that trouble?

Mr. Salvesen: They have a statutory duty to perform.

Lord Young: Why do they undertake it?

Mr. Salvesen: They are created by this Statute for the purpose.

Lord Young: Is it a society in the interest of the licensed chemists and druggists?

Mr. Salvesen: Partly.

Lord Young: And consists of those who want to keep out people from what they, no doubt rightly, think they ought to have the exclusive privilege of dealing in.

Mr. Salvesen: Four-fifths of the chemists do not belong to the Society, but a certain proportion do.

Lord Young: I do not suggest a word against the legitimacy of this procedure, but is it not a vast Trade Protection Society?

Mr. Salvesen: If your Lordship examines the provisions of the Pharmacy Act under which it is constituted——

Lord Young: I quite understand the public interest that people shall not get medicines that are not safe dealt out by people that are not to be trusted to make them so.

Mr. Salvesen: I shall say a word as to the origin of the prosecutions. Attention was called by the British Medical Association to the fact that, owing to the increase of amateur photographers, there were shops established over the country where scheduled poisons could be obtained without any of the restrictions imposed in the case of chemists and druggists.

Lord Young: For photographic purposes?

Mr. Salvesen: Yes, but the purpose for which poison is sold may be entirely different from the purpose to which it may be applied. If you seek poisons of this kind for photographic purposes at an ordinary chemist's, the chemist will be committing an infringement of the Act unless he complies with Section 17 of the Act.

Lord Young: It is, perhaps, beside the question, but the whole purpose of my remark is this. I quite see the interest of the licensed chemist to prevent those things which contain poison from being sold for photographic purposes or for purposes of cleaning plate except by themselves; but I do not see any earthly interest the public have in it.

Mr. Salvesen: I am trying to explain that the object of the Pharmacy Act of 1868 is to prevent crime as well as mistake, and accordingly Section 17 is a Section intended to prevent or detect crime, because it provides, in the sale of scheduled poisons (and there are only fifteen) that the person selling them must know to whom he is selling them or be introduced to the party by another person he knows. He must enter the buyer's name and address in a book, put his own name and address on the packet he supplies, and give effect to other statutory provisions, all intended to detect or prevent crime. If these prosecutions are to fail, a man who wants poison for improper purposes can simply go to an unauthorised dealer, and say I want 3*d.* worth of corrosive sublimate for photographic purposes, and there would be no record of the transaction. In short, these prosecutions are intended to put an end to these dealers selling scheduled poisons.

Lord Young: And the licensed chemists are, no doubt, very much interested in that!

Mr. Salvesen: Very likely, my Lord. But these gentlemen could procure a qualification quite readily, and continue their professions subject to the provisions of the Pharmacy Acts. They would have to comply with these formalities so as to identify the sale of poisons.

Lord Justice Clerk: Could they get the power to sell without qualifying themselves for compounding drugs?

Mr. Salvesen: No.

Lord Justice Clerk: That is the difficulty. A man may be skilled in chemistry, but have no training whatever in the compounding of drugs. So that if Mr. Hume is to sell the large quantity of material required chemically for photographic purposes he must either himself be qualified or put some other qualified person into the shop?

Mr. Salvesen: Yes.

Lord Young: And that is for the protection of the public against murder or suicide!

Mr. Salvesen: No doubt.

Lord Young: Are there numerous cases of murder and suicide committed with drugs obtained from photographers?

Mr. Salvesen: I do not know how numerous they are.

Lord Young: Has there been one?

Mr. Salvesen: I understand there have been cases of suicide.

Lord Young: Oh yes, I know a case of suicide through swallowing nails—a lunatic has done that.

Mr. Salvesen: Perhaps the Act is a foolish Act; but it has to be interpreted by the Court.

Lord Young: Of course.

Mr. Salvesen: And the preparations these gentlemen sell are the most violent poisons in the whole Pharmacopœia—cyanide of potassium, oxalic acid, and bichloride of mercury. These are the stock-in-trade of Mr. Hume, which he sells to people presumably for technical purposes. He does not inquire minutely as to the purchaser, and he has not appealed against his conviction. The question is one of very large importance, because it affects the continued sale of poisons in a great many shops throughout the country. Mr. Turnbull and Mr. Hume are very respectable members of society. One has nothing against them except this conviction, which is entirely irrespective of the individuals.

Lord Young: I suppose they have these things not only by the pound, but by the hundreds of pounds, which they sell in ounces to photographers, and it is as plain as can be that it is in the interest of the licensed chemists that these photographers should only get them at a chemist's shop.

Mr. Salvesen: They will sell a pennyworth of oxalic acid, enough to poison a whole family; and now amateur photography is so much developed that it represents a large section of the community, who may purchase poisons quite free of the restrictions of the Pharmacy Act.

Lord Trayner: I understand the question we have to determine is whether a man who calls himself a "technical chemist" or "photographic chemist" comes under the provision of Section 1.

Mr. Salvesen: That is so.

Lord Trayner: Suppose you speak to that. It does not appear to be a question, so far as the construction of the Statute goes, whether this is of great public interest or not. It is to us a question whether the Act has been contravened.

Mr. Salvesen: I think I called attention to this myself because Mr. Dundas seemed to say it was a necessary result of my argument that if Dr. Macadam called himself an analytical chemist he would be struck at by the provisions of the Statute. I do not know that is so.

Lord Trayner: That is on the line of one of the authorities in the Inferior Court.

Mr. Salvesen: It is not necessary for my argument that it should be so. Your Lordship sees the connection in which the prohibition appears in Section 15, which commences: "All persons keeping open shop, or who shall take, use, or exhibit the name or title of chemist," and so on, not being qualified under the Act. It might be a very fair construction of the Section to say that it applies only in the case of persons keeping open shop for the retail of poisons. Now, Mr. Hume and Mr. Turnbull come within that category. No one would suggest here that this would prevent Dr. Macadam putting on his card "Analytical Chemist." The harm appears in putting it above a shop door where poisons coming under the Pharmacy Acts are sold in a pure state, and it is because of that combination of circumstances these prosecutions are raised. The Pharmaceutical Society would never prosecute anyone for simply calling himself analytical chemist.

Lord Trayner: If he called himself over the door "Analytical Chemist," would you object?

Mr. Salvesen: Yes, for the same reasons. I do not need to press my argument so far as my friend seems to think. The mere name put by a gentleman on his card—by a person who does not sell poisons at all—would not be an offence against the Statute. Mr. Morison has pointed out that the Statute may be evaded by retail dealers, by simply affixing an adjective, whatever the nature be, to "chemist" or "druggist."

Lord Young: Not whatever be the nature of the adjective, but this adjective.

Mr. Salvesen: But as against that, when you find it used in connection with a retail business where drugs of that nature are sold, the ignorant public would not probably understand the difference.

Lord Young: Irrespective of the business.

Mr. Salvesen: Yes, if used simply on a card it might be different, but used in connection with a business where you can go in and get poison by depositing a penny on the counter. You may have analytical on one side of the shop and chemist on the other.

Lord Young: Technical. Technical is connected with mechanical art. What is mechanical art?

Mr. Salvesen: I do not know how far the general public consider the derivation of the word.

Lord Young: Without reference to the derivation of the word, that is its meaning in the dictionary.

Mr. Salvesen: Adjectives are often used inappropriately, but the public do not consider that if they see the word "chemist."

Lord Young: Take it in that sense. He says: "I make and sell photographic apparatus, and everything connected with that, and I am a chemist connected with that mechanical art."

Mr. Salvesen: In the same way botanic.

Lord Young: That is what he says is the meaning in this catalogue.

Mr. Salvesen: A botanic chemist is a gentleman who sells and compounds all poisons extracted from drugs.

Lord Young: But you do not extract these from photographic machinery, but botanic plants. There is a difference. Botany is not mechanical, and "technical," according to the meaning I put on it, is connected with a mechanical art, which botany is not.

Mr. Salvesen: My argument would be the same if he called himself a mechanical chemist.

Lord Young: That is mechanical productions by a mechanic who sells the oils and other things to keep the machinery in order, and is chemist to that extent.

Mr. Salvesen: But if he sells the poisons in question he could not evade the Act.

Lord Young: And in the interest of the public, to prevent murders and suicides, that name should be struck out?

Mr. Salvesen: I think so. If he derives an advantage——

Lord Young: I am not expressing an opinion against you, but I want to elicit the strongest argument against these views.

Mr. Salvesen: He can only have an illegitimate interest in the use of the word "chemist," because if it has an advantage it is the advantage of attracting to his shop to purchase poisons, people who would otherwise go to an ordinary chemist and druggist and get the poisons there. In regard to the case of Turnbull, it raises a question of law. The Sheriff-Substitute says—"I was of opinion that it was not a wholesale, but a retail transaction. But I was of opinion that while this transaction would have justified a prosecution of the assistant for the offence of 'selling poisons' without legal qualification, it did not constitute on the part of the respondent the offence of keeping open shop" under Section 15. The respondent is said to have instructed his assistant not to sell except to persons engaged in photography, and that he is not responsible. I submit that is entirely unfounded. A master is responsible for the sale of liquor. Take the public-house illustration. Though the sale is made against the express instructions of the master, if it be made in the ordinary course of employment the master is held liable. Now this sale was made in the ordinary course of employment—it was an ordinary retail transaction.

Lord Justice Clerk: Suppose it was, were not the instructions carried out practically? A man who goes in there proceeds to buy articles as if he were a photographer—buys no articles except those which are used by a photographer, and follows it up by purchasing other articles also used by photographers. Is that not leading the assistant to think he was selling to a person who was engaged in photography?

Mr. Salvesen: Suppose it were so; I say the Sheriff is wrong.

Lord Justice Clerk: I thought you were raising an argument about obtaining it from the assistant.

Lord Young: He obtained it by false pretences; I do not say for illegitimate purposes.

Lord Justice Clerk: He made a representation that he was engaged in photography, or that the chemicals were for somebody else so engaged.

Mr. Salvesen: That may be inferred from his asking for the plates.

Lord Justice Clerk: There could be no other reason for spending 2*s.* 3*d.* on photographic plates, as they were not necessary to make out a case of selling poison.

Lord Young: Then that is false pretence.

Mr. Salvesen: It may be so, if your Lordship pleases, The customer was quite unknown to the assistant, so that any person

could get the poison if he asked first for photographic plates, and then for the poison. That raises the question sharply whether it was not an infringement of the Act. I submit that the large class of people engaged in amateur photography will get any amount of these poisons so long as they make a pretence of wanting them for photographic purposes, without any record being kept of the transaction; and in the event of anything happening there is no means of tracing the poison to its source.

Lord Justice Clerk: He does not keep a book, like Mr. Hume, in which the addresses of customers purchasing poisons are entered?

Mr. Salvesen: No.

Lord Trayner: Mr. Hume is not bound to do so.

Mr. Salvesen: He did it on his own account.

Lord Justice Clerk: But no record is kept in the case of Turnbull.

Mr. Salvesen: An unknown person making a pretence of wanting poison for photographic purposes can get it from Mr. Turnbull if he pays 3*d*.

Lord Justice Clerk: The Sheriff says not. He says if you had brought your prosecution properly you would have got a conviction.

Mr. Salvesen: Mr. Turnbull's instructions are only to sell poisons to persons engaged in photography.

Lord Justice Clerk: You would have got a conviction against the assistant for selling poisons without a legal qualification.

Mr. Salvesen: I did not want to go against the assistant. I prefer to take the chief offender.

Lord Justice Clerk: I said that to meet your contention that you had not a remedy for preventing the sale of poisons.

Mr. Salvesen: I have a copy of the catalogue which Mr. Turnbull has issued to the public, showing that he sells oxalic acid 1*d*. per oz., bichloride of mercury 3*d*. an oz., and cyanide of potassium—the most deadly poison of all—also at 2*d*. an oz. The restriction he put on his assistant would not afford any of the safeguards against the mischiefs contemplated and provided for by the Act.

Lord Justice Clerk: Your contention is that if a man keeps a shop and issues a printed circular in which he states that certain things are to be bought in his shop, it is an indication that he keeps open shop for that purpose.

Mr. Salvesen: Yes, and that, coupled with the single sale, means keeping open shop.

Mr. Dundas: His argument is narrower than that of Mr. Morison, which was broad and bold that the use of "chemist" in all circumstances was struck at. Mr. Salvesen narrows it to coupling the use of the word "chemist" with some adjectives that are dangerous. Now, that seems to wander outside the charge in question. What I am here to defend is the use of the phrase "scientific instrument maker and technical chemist." The use of that phrase, apart from any act done under it, is not a contravention of any Act. If we go into the charge, your Lordships would have to take into account the careful manner in which Mr. Hume acted.

Lord Justice Clerk: We are not.

Mr. Dundas: Therefore the only question is whether it is a contravention of the Act to publish this catalogue with this word on it. My friend says that upon seeing the word "chemist" on the shop, people would be deceived, and would go there to buy drugs, or that others would go there to purchase poisons for the purposes of crime. I think that wildly improbable. The shop, as everyone knows, has the appearance of a photographic shop; you see cameras and other appurtenances in the window.

Lord Young: The other case has "photographic chemist" outside the shop.

Mr. Dundas: "Scientific instrument maker and technica chemist" is on Mr. Hume's list. The same words are on the shop. Mr. Salvesen's point was that anyone seeing "chemist" would say, "Here is a druggist," and would go in.

Lord Young: I thought you just used these words on the catalogue. That was your impression when you addressed us before.

Mr. Dundas: That is so, but the only charge is the publication of this catalogue.

Lord Trayner: The statement is that you violated the Statute by taking the name of technical chemist in connection with the printed list.

Mr. Dundas: That is the whole charge. My point of view is that this Society is going outside its sphere, although I will not say it is vindictive in its prosecution. It exists to look after drugs and see that they are properly dispensed. With scientific chemistry it has nothing to do, and with this case it should not have interfered.

Mr. Young, for Mr. Turnbull:—In regard to the use of the designation "photographic chemist" I adopt the argument that has been addressed to your Lordships on behalf of Mr. Hume. There are just two things I should like to mention in connection with my client's case in this connection. First of all, it is found as matter of fact that there is no intention on the part of my client to mislead the public as to the kind of business he did. Then, as a matter of fact, before the prosecution was brought, he offered to the Society, if it felt aggrieved at the title he used, to change it and to put up another sign on his shop to the effect that he was a dealer in photographic chemicals. But the Society did not listen to that, and went on with the prosecution.

Lord Young: If you had put up "Dealer in Photographic Chemicals" it would have suggested to anyone who wanted to commit suicide—knowing that photographic chemicals would kill—to apply to you for these chemicals, which they could get without having their name recorded, and that is a practical danger to which the public are exposed, and which it is the duty of this Society to prevent.

Mr. Morison: He first promised to make the change, and then declined.

Lord Trayner: We cannot enter into that discussion. The question is whether the use of the word "chemist" violates the Statute.

Mr. Young: I should say it does not, upon the ground explained by Mr. Dundas for Mr. Hume. In regard to the first charge, I think the Sheriff, in coming to the conclusion he did on the facts, had in view these circumstances—first, that the catalogue issued by my client expressly explained to the public that the articles held by him, which fell under the Pharmacy Act, were dealt with only in wholesale quantities. I think I am entitled to refer to that catalogue, because it was founded on by Mr. Salvesen.

Lord Justice Clerk: It was put in evidence.

Mr. Young: It was put in evidence, and at the head of the list of articles my client was prepared to sell, we have the intimation that nothing falling within the Pharmacy Act will be dealt with unless by wholesale transactions. Now he was entitled by the Act of 1868 to go into wholesale transactions with any of these articles, and his right to do so is expressly conceded by Section 16. That being so, the Sheriff found, as matter of fact, that the assistants in the shop were directed by Mr. Turnbull to follow his instructions in regard to wholesale sales, and they were not to deal with anyone save a photographer.

Lord Young: Most assistants are directed to follow their employers' instructions, are they not?

Mr. Young: Instructions in parting with the chemicals falling under the Statute. Now if it so happens that on this one occasion these instructions were departed from, there is, I submit, no evidence that Mr. Turnbull was guilty of keeping open shop for the purpose of selling by retail the poisons referred to. On that matter I submit the Sheriff has adopted the right view.

Judgment was reserved.

Energy of Living Protoplasm.—In the *Bulletin* of the Imperial University of Tokyo, Herr O. Loew gives a detailed synopsis with regard to the present state of our knowledge of the mode of formation, the structure, and the functions of the protoplasm of living cells, both in non-chlorophyllous and in chlorophyllous plants. He calculates that some microbes may give birth to a trillion of cells from a single one in the course of twenty-four hours. A great number of details are given with regard to the nutritive properties for bacteria of different organic substances. These are classified under four heads, viz., those which are good, moderate, and bad sources of carbon, and those from which bacteria are unable to obtain any carbon. In chlorophyllous plants neither the nitrogen nor the sulphur is combined with oxygen in the albumin; a reduction of the nitrates and sulphates must, therefore, have taken place, as in the lower fungi. Asparagin was found to be one of the most widely distributed of the intermediate substances in the production of protoplasm. As a rule, its increase in the seedling runs parallel with the decrease of the carbo hydrates. The access of air is indispensable for the formation of asparagin and of protoplasm, but not for the action of peptonising ferments.

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WHAT IS A CHEMIST?

The decisions of Sheriff-Substitute Sym in regard to some of the charges of infringement of the Pharmacy Act, 1868, brought against unregistered vendors of scheduled poisons in Edinburgh, raise questions of such importance in connection with the Pharmacy Act that the appeal against those decisions cannot fail to be regarded with great interest throughout the kingdom. For that reason a full report of the proceedings is given in a supplement to this number of the Journal, and although the judgments delivered by the Sheriff in these cases have only recently been published (see *ante*, p. 292), it may be convenient on this occasion to place before our readers a statement of the main facts brought before the Edinburgh Sheriff Court.

At the original hearing William Hume, trading as "scientific instrument maker and technical chemist," was charged with keeping open shop in contravention of the Act, and a sale of potassium cyanide being proved, he was subjected to a penalty for that infringement of the Act. A second charge against Hume was that he contravened the Act by using and exhibiting the title of "chemist," in a trade circular, where the above description appeared. In regard to this charge, the Sheriff held that it was not proven, because the word "chemist" was associated with the qualifying adjective "technical," and had not, as he considered, the significance of the title which the Pharmacy Act was intended to restrict the use of.

In the other case, J. M. Turnbull, describing himself as "a photographic chemist," was charged with infringement of the Act by keeping open shop, etc., and the sale, by an assistant, of an ounce of corrosive sublimate was proved. The defence that this sale was a wholesale transaction was not accepted by the Sheriff, but being of opinion that the assistant who sold the poison should have been prosecuted instead of his employer, the charge against him was held to be "not proven." In regard to the second charge in this case, the Sheriff held that, as in Hume's case, the assumption of the title of "chemist" was so qualified by the addition of the word "photographic" as not to constitute a contravention of the Act.

These were the questions brought before the Court of Appeal, and while counsel for the Pharmaceutical Society argued that the Pharmacy Act was intended to be an absolute prohibition of the use of the title "chemist," in connection with retail trade, by any but registered persons, the counsel for the respondents contended that the prohibitory effect of the Act, in that respect, extends only to retail trade of a pharmaceutical nature. The arguments on both sides are so fully reported that this brief sketch of the points to be decided need not be extended here, especially as the judgments are deferred. The comments of the judges, however, will be found highly interesting, and in some respects especially instructive to our readers, as showing the difficulties encountered in attempts to arrive at the precise intention of the Pharmacy Act and to interpret its provisions.

THE PHARMACOPŒIA AS A GUIDE.

From time to time we have had occasion to publish reports of cases under the Sale of Food and Drugs Acts, in which chemists and druggists appeared as defendants. It is needless to say we hold the opinion that individuals registered under the Pharmacy Acts should never, by either act or inadvertence, render themselves liable to pose in such an equivocal position. Pharmacists should, in fact, be beyond suspicion in regard to the purity and strength of the medicines they supply. And from a professional standpoint it seems particularly undesirable that cases should arise in which the offence charged is the sale of some preparation—such as sweet spirit of nitre or milk of sulphur—which is not in accordance with the British Pharmacopœia standard. The defence in such cases—usually a successful one—is almost invariably that the preparation is not a pharmacopœial one, and was not asked for under an official name or synonym. Now, in connection with such cases, the question arises as to whether their occurrence is altogether consonant with strictly professional ideas, and if not, the further question suggests itself whether the existing state of affairs can be regarded by pharmacists as altogether satisfactory.

Some light may be thrown upon the matter by a brief consideration of the purpose of the successive editions of a national medicine book. Introduced in the first instance to serve as a uniform standard and guide, no pharmacopœia can entirely attain its object in that respect unless medical men and pharmacists as a whole continue loyal to it, and prescribe and dispense medicaments in complete accordance with its requirements. Assuming that position to have been attained in the course of years, differences in practice are bound to prevail on the publication of a new edition of the pharmacopœia. Owing to alterations of formulæ in many cases, a period of transition will follow, during which two formulæ will prevail for what is intended to be the same preparation. But this ought to be but a temporary hindrance to progress, as both medical men and pharmacists ought to facilitate by every valid means in their power the substitution of the new preparation for the old, as a general rule. Of course, if the new preparation be found unsatisfactory, it will become necessary to replace it in turn, but the more generally and frequently it is used the sooner will its

deficiencies be revealed. Moreover, any action in the matter must be taken by the duly constituted authorities, and not depend upon the caprice of individuals. Otherwise the purpose of the compilers of the pharmacopœia will miscarry as regards the main object of the book.

To quote examples, there is little reason to doubt that the spiritus ætheris nitrosi and sulphur præcipitatum of the B.P. were intended fully to replace the kindred articles formerly in use in medicine, and the same holds good with respect to other official preparations. That they have not done so altogether is held to justify the chemist and druggist in supplying the older preparations when the trivial names are employed by customers. Since, however, such cases constitute a minority, it must be assumed that on the whole the newer formulæ are regarded as satisfactory, and they ought, therefore, to be accepted generally, for the right cannot be conceded to any individual to modify or ignore official standards to suit his own convenience Some other reason than the unsatisfactory nature of the article as compared with its predecessor must exist for the apparent disinclination to fall into line. To allege that patients and customers object to the official articles is not a sufficient reason, for such objections are in truth few and far between, and often mean little or nothing. It is to be noted, however, that the articles supplied are usually less expensive than the official preparations, and bear a greater relative profit when retailed. This fact probably supplies the key to the situation, though it is with extreme reluctance that one may care to accept it as such, and nothing should be left undone by pharmacists generally to remove such a reproach from their class, even though the offenders be but few. For it is the pharmacist's duty to help to maintain the standards that have been laid down by authority, and whilst doing so to supply the best article of its kind in every case. In view, therefore, of the existing variation in custom and of the possibly early publication of a new edition of the British Pharmacopœia, pharmacists will do well to consider how they can best help to make it fully effective when published, as a universal standard throughout the British Empire. They may thus prevent further complications of the nature of those that have been referred to, and effect a result that is extremely desirable, for the sake of their own credit no less than the advancement of medical science.

LIVERPOOL CHEMISTS' ASSOCIATION.

It is with the greatest satisfaction we note that this Association, the oldest of its kind in the kingdom, proposes taking steps to induce the junior members of the trade in Liverpool to cast in their lot with their seniors (*see* p. 383). It is suggested that on payment of a nominal annual subscription of one shilling, junior pharmacists who are not yet on the Register of Chemists and Druggists shall be admitted as associate members of the Association. A special attraction will be offered by the museum and library of the Association being brought up to date, and it is intended to do whatever is feasible to induce as many students as possible to interest themselves in all matters relating to pharmacy and the sciences connected with it. Similar arrangements prevail in Sheffield and other places where local pharmaceutical associations are established, but we believe nowhere are the terms offered to induce students to join so advantageous on the whole. It is to be hoped that the decision of the Council of the Association may be fully confirmed in due course, and that evidence of the wisdom of the step may speedily be forthcoming.

SUBCUTANEOUS INJECTIONS OF CAMPHOR.

According to Dr. Fr. Schilling, of Nuremburg (*Münch. Med. Woch.*, September 17, 1895), a 10 per cent. solution of camphor in olive oil constitutes a valuable remedy for collapse, such as that which occurs in some cases of acute pneumonia. In this country ether, ether and brandy, or liquor strychninæ are used for the same purpose by hypodermic injection; in Germany tincture of musk is also used hypodermically. To the last remedy Schilling objects that it is unreliable in point of strength, and of late years oil of camphor has gained a good repute in that country. Schilling has observed that large doses of camphor are well borne when given hypodermically. In adults he injects at once ten grammes of the 10 per cent. solution. Half the amount is injected into each forearm. He has never seen undesirable after effects either in the skin, lungs, or brain. Care is to be taken not to inject the solution into a vein. After reviewing the literature, the author points out that all previous observers betray a horror of large single doses, fearing the collapse which follows an overdose, for, like all nerve-stimulants, in large doses camphor proves to be a nerve-depressant. The danger would appear to have been over-estimated, and is the result of basing inferences as to human therapeutics exclusively on experimental evidence. In the case of a youth, aged 16, suffering from pneumonia, brain symptoms, coma and rigidity due to the disease were present when Schilling injected 1 gramme of camphor dissolved in 10 of olive oil. The symptoms were not at all aggravated. Increased doses of camphor were administered on the succeeding days; the brain symptoms disappeared and the heart's action greatly improved.

CHEMISTRY IN THE LAW COURTS.

The unusual pressure on our space this week has prevented us publishing a complete report of the case in which a grocer's assistant, named Stewart, was fined at Dundee for the illegal sale of a proprietary medicine containing poison. There would, however, be no reason to regret this, our report being sufficiently full and comprehensive, but for the fact that the reports published in other papers are incorrect, the legal representative of the Pharmaceutical Society being represented as having given utterance to some remarkable statements respecting the chemistry of the poppy plant. The Sheriff-Substitute remarked that every poppy sold contains opium, and Mr. Morison took considerable pains to enlighten him upon the subject, pointing out that opium as such does not exist in the poppy plant, but is only formed when the unripe capsules are wounded. The whole discussion, however, was both irrelevant to the case and wide of the mark. For, we imagine the question to be considered, at a proper time and place, is not whether poppies and their preparations contain opium, but whether they contain morphine. It is conceivable that opium might be produced almost or entirely destitute of morphine, but it would still be poisonous in itself. Hence the necessity for scheduling it separately. Morphine, however, enters into the composition of many articles in the preparation of which opium has not been used. Possibly if, in the discussion referred to, morphine had been spoken of instead of opium, conviction might the more readily have found its way into the legal mind. But, as already stated, the whole discussion was totally irrelevant, as it could have no possible bearing upon the question before the Court.

ANNOTATIONS.

EVENING MEETING IN LONDON.—In the Journal for September 7 last, Mr. J. S. Ward drew attention to the fact that *Andrographis paniculata*, Nees., had been offered on the London market as chiretta, and an illustrated description of the plant was given. Professor H. G. Greenish has since been studying the internal structure of this false chiretta, and the results of his investigation will be embodied in a paper to be read before the Pharmaceutical Society on Wednesday evening, November 13, when the chair will be taken by the President, Mr. Michael Carteighe, at eight o'clock.

PHARMACEUTICAL FOOTBALL AND CRICKET CLUB.—The fourth annual smoking concert in connection with this Club will be held at the Holborn Restaurant, on Friday, November 15, at 8 p.m. Professor Henry G. Greenish will preside, and all old students of the School of Pharmacy and friends of the Club will be welcomed. Tickets (1s. 6d. each) may be obtained from the honorary secretary Mr. H. T. Durant, 17, Bloomsbury Square, W.C.

NEW GOLD SUBSTITUTE.—A new alloy, which, according to the *Journal de l'Horlogerie*, has recently been discovered, is said to exactly resemble the precious metal after it has been polished, and it can be drawn, beaten, and soldered in the same manner as gold. It retains its colour and lustre even when exposed to the action of ammoniacal or nitrous fumes. It is composed of an alloy of 96 parts of copper and 6 parts of antimony. The antimony is added to the melted copper when the two metals are melted, and a small quantity of magnesium and calcium carbonates are added.

THE FIRST OPERATION UNDER AN ANÆSTHETIC IN ENGLAND.—The *British Medical Journal* recalls Sir Russell Reynold's account of the first operation in this country performed under an anæsthetic. The operation was performed in University College Hospital, and it is interesting to note the connection with it of an eminent pharmacist now deceased. "Liston had consented to try the anæsthetic. I can see him now as he said to the students, 'Gentlemen, we are going to try a Yankee dodge for making men insensible.' . . . . At length Peter Squire said, 'He is quite ready now, sir.' Liston's knife flashed in the air; I took out my watch to count the time, and the leg was on the floor in twenty-six seconds. Liston turned to the students and said, 'This Yankee dodge, gentlemen, beats mesmerism hollow.'"

MODERN POLYPHARMACY.—The following formula from a Continental contemporary recalls the "buckshot" prescriptions of the old school of prescribers. "Hemol, ferratine, hæmogallol, hemoglobin, of each 3 grammes; Blaud's pill, 10 grammes. Precipitated sulphur and carbonate of magnesia, 2·6 grammes. Divide into 100 pills, coat with chocolate." This is calculated to rout the most resistant anæmia.

PRESERVATION OF BOOKS IN THE TROPICS.—A correspondent of the *Kew Bulletin* states that, in the Madras Museum, all books have been effectually protected from the ravages of white ants and other insects for a number of years, by the use of the following composition:—Corrosive sublimate, 1 oz, and carbolic acid, 1 oz. (or thymol, ¼ oz.), dissolved in methylated spirit, 2 pints. The mixture was carefully and freely applied about the bindings and amongst the leaves of books by means of a soft brush, and no disagreeable effects have been noticed by anyone handling the volumes.

POST OFFICE REGULATIONS IN PORTUGAL.—In a recent report to the Foreign Office (No. 1634) all persons in Great Britain having friends in Northern Portugal are warned on no account to send anything, however trivial, by letter or book post without having the words "*pour être soumis à la Douane*," written on the outside of the letter or parcel. Everything is subject to duty in Portugal, in many instances to 200 or 300 times the value of the article, and every parcel before being delivered is opened at the post office. If dutiable goods are found, and the above-named words do not appear on the package the recipient is subject to pay a fine of from two to ten times the duty, in addition to the duty itself, even should he know nothing of the origin of the parcel. Should he refuse to receive the parcel he is obliged, nevertheless, to pay the fine. The contents are invariably sold for the benefit of the Customs authorities. Since the officials receive four-fifths of the fine, it is not surprising to learn that this law is being rigorously carried out.

REMINGTON'S 'PRACTICE OF PHARMACY.'—The third edition of this important work was published by Lippincott and Co. last year, and reviewed in the PHARMACEUTICAL JOURNAL for December 22. We have now received what appears to be a reprint of the same edition, published by Burroughs, Wellcome and Co. The work having been electrotyped by the original publishers, the changes are of course not great, the only important difference so far noted being the omission of three pages of information respecting machines and processes for making compressed tablets. This matter has been replaced by detailed descriptions of different kinds of "tabloids" made by the publishers, and by a slight extension of the section treating of gelatin capsules. The average reader would probably prefer that this change had not been made.

BORIC ACID ANTISEPSIS is criticised by Señor M. Oliviéro in *El Memorandum*, from a point of view which should be as surprising to his Spanish readers as it will be to most English pharmacists He says that it is ridiculous to speak of the antiseptic power of boric acid when the large crystals are used, for the simple reason that "these pearly crystals, so taking to the eye, are built up of smaller ones stuck together by means of glue or albumin" (*sic*). As a proof of this, he adds that if calcined, these crystals give a distinct smell of burnt horn, showing the presence of gluey organic matters. The notion of combining with an antiseptic the materials ready to form a "culture broth" dear to the disciples of the late M. Pasteur, is considered by Señor Oliviéro a refinement in pharmacy such as he would never have dreamed of, and he concludes by deciding that boric acid in bold crystals can no longer be trusted as an antiseptic. This method of "facing" boric acid cannot prevail to any great extent on the Continent, and it is doubtful if it has been heard of in England, or even if it be possible to obtain crystals by such a method.

THE IMPOSSIBILITY OF A NATIONAL PHARMACY LAW IN AMERICA.—Americans, says *Merck's Market Report*, cannot expect ever to pass a national pharmacy law, for they are dependent upon more than forty separate legislatures. Even if the same draft were introduced in all the States, the effect of the numerous inevitable amendments, substitutions, and alterations would probably be the production of something vastly different in each case. Though less skill and perseverance are required to secure the enactment of a law in any of the States than in the case of the British Parliament, in the latter instance all efforts can be united in the same direction and success may be assured by one stroke.

PROCEEDINGS OF SOCIETIES.

CHEMISTS' ASSISTANTS' ASSOCIATION.—At the meeting of this Association held on the 24th ult., there were about eighteen members present, when the President (Mr. E. W. Hill), took the chair. After Messrs. Ness and Walker had been elected members, a series of short papers, mostly composed of dispensing notes, were read.

Chlorine in Potable Waters.

Mr. J. C. Fell first contributed a note on the "Determination of Chlorine in Potable Waters." The author said he had been led to test the accuracy of the statement made by Mr. E. J. Parry in a paper read before the Association in 1893, that it was advisable to concentrate the sample before titrating with silver nitrate solution, since at the time he expressed a doubt as to the necessity of the precaution. He had therefore compared the results obtained with three samples of water by titrating the same quantity of each, both in the original and concentrated states. These figures were so nearly concordant that it was obvious that concentration was quite needless, accurate results being readily obtainable by working with the sample in the original condition.

In the discussion which followed the author stated that he was in the habit of titrating the water in an amber-tinted flask placed upon a porcelain slab or piece of white paper, but the general expression of opinion was in favour of using a porcelain basin, the change of tint being observed through a piece of amber glass.

Dispensing Notes.

Following this, Mr. G. Roe read a series of "Dispensing Notes.' The first was a prescription containing :—Lanolin, ℥i.; glycerin, ℥i.; aq. rosæ, ℥ii. Lanolin and glycerin are incompatible, and hence this ointment had caused considerable trouble, which the author had overcome by gently warming the lanolin on a water bath and adding the mixed liquids drop by drop. The product was in every way satisfactory, but its therapeutic efficiency seems doubtful, since the combination is not one which would be readily absorbed by the skin. In answer to a query, it was stated that adding the glycerin to the lanolin and rose-water mixed had not proved successful. The President mentioned cases in which he had dispensed similar ointments containing hazeline, any difficulty being avoided by the addition of a little olive oil, but the proportion of liquid was not so great as in the above instance. Mr. Roe next drew attention to a mixture containing quinine sulphate, citrate of iron and ammonium, and citric acid. Dispensed in the ordinary way, the colour of the mixture only gradually changes to green. He had therefore first heated a solution of the citrate and half the citric acid, and added it to the acid solution of quinine, thus ensuring an immediate reaction. This method met with general approval. The author's other problems included the familiar incompatible mixture containing liquor. hydrarg. perchlorid., potass. iodid., and decoct. cinchonæ, and notes on salicylate and carbonate of bismuth, the object of the latter being to determine why these salts should vary so much, being sometimes heavy and at others light, in a similar manner to the carbonates of magnesia.

Several other members had noticed the same fact, and it was generally ascribed to the varying strength or temperature of the solutions used in preparing the compounds, although Mr. R. H. Jones mentioned that it might be due in the case of the salicylate to its chemical composition, some salts being acid, and others basic. Some discussion then ensued on the best method of suspending bismuth subnitrate in a mixture. Mucilage of tragacanth will not answer, as the bismuth salt throws out the tragacanth in lumps, and several speakers were in favour of using the compound tragacanth powder instead. Chian turpentine pills also claimed attention. Mr. Robbins did not consider any excipient necessary, though pills made thus would probably "fall," and Mr. Jones' plan of using sulphur and lycopodium seems the best, especially as the former was associated with the drug in the formula originally proposed by Clay. Mr. Roberts had obtained good results by using one grain of liquorice powder, and four of Chian turpentine. Mr. Roe stated that the remedy is still in regular use at the Women's Hospital in Soho Square, being prescribed alone as well as in combination with hamamelin or calcium sulphide.

Mr. W. R. Roberts drew attention to the following prescription :—Sodii bicarb., ℥ss.; glycerin boracis, ℥i.; sol. cocain. hydrochlor., 2 per cent.; acid carbolic, ♏v.; aqua, ℥i. This could not be dispensed as written, owing to the alkali causing the precipitation of the cocaine alkaloid. Ten grains of sodium chloride was therefore substituted for the bicarbonate. A second was :—Strontii bromid., grs. xxxvi.; syrup codein., ℥i.; potass. citrat., ℥i.; aquæ ad., ℥viii. A white precipitate of strontium citrate was the result.

Gelatin Pastilles.

Mr. H. H. Robbins gave the result of his experiences in making "Gelatin pastilles," which he considered were now of considerable importance to the retail pharmacist, owing to their greatly extended use. A quarter of an ounce of French or German gelatin is soaked in half a pint of water for twelve hours, and then dissolved by gentle heat; the consistence of the basis is then regulated to the required standard by adding more gelatin if necessary. Orange flower water has not been found satisfactory as a flavouring agent. Raspberry, strawberry, almond, otto, maraschino, and plum had been tried, the latter being found most satisfactory. The President alluded to the difficulty experienced in making chlorate of potash pastilles, owing to recrystallisation of the salt if any excessive degree of heat were used.

Mr. T. M. Taylor described his experience in making chloride of ammonium pastilles, using glycyrrhizin to disguise the nauseous taste, and alluded to the difficulty of getting the mass into a conveniently solid state.

Mr. J. C. Strother thought this was due to the variety of gelatin used, and, in addition, to the presence of organic acids. Lemon flavouring, he remarked, was quite inadmissible, owing to the heat necessary in making the pastille. The consensus of opinion was in favour of using German or French gelatin, which does not need any subsequent clarification.

Antiseptic Gauzes.

Mr. Roberts drew attention to a paper recently published in an American contemporary on the "Examination of Antiseptic Gauzes," from which it seems that the proportion of the disinfecting agent very seldom comes up to the amount claimed by the makers. Samples of so-called 20 and 10 per cent. iodoform gauzes gave on analysis only 2 and ·896 per cent. respectively, and in some instances it was found that an aniline dye, auramine, had been used to imitate the iodoform colour. The fraud can be easily detected as the colour is readily dissolved out by water. Several members alluded to the variability of the different makes of antiseptic dressings, both in appearance and composition.

The last items included a discussion on mixtures in which iron perchloride solution and potassium iodide are prescribed together, which should not be dispensed owing to the liberation of iodine, and a note on the best way to disguise the taste of sodium salicylate.

PLYMOUTH, DEVONPORT, STONEHOUSE AND DISTRICT CHEMISTS' ASSOCIATION.—The third annual business meeting was held at the Foresters' Hall, Octagon, Plymouth, on Wednesday, October 23, the President, Mr. C. J. Park, in the chair. The minutes of the previous meeting having been adopted, the following new members were elected : Messrs. Reade and Johnson, Royal Naval Hospital, Stewart (Kingsbridge), and Barge Inne (Plymouth). Mr. J. K. Bond, B.A., B.Sc., was also elected an honorary member, making the total number of members 104. Mr. Bond kindly presented the Association with a copy of Proctor's 'Pharmacy.' The annual report showed that a mutual trade defence section had been organised, and nearly the whole of the members of the Association have joined it. The balance sheet showed that there was a balance in hand of £1 4*s*. The reports were adopted.

The election of officers for the ensuing year resulted as follows :—President, Mr. C. J. Park; Vice-Presidents, Messrs. J. G. Netting and R. H. Rendle for Plymouth and Devonport respectively, and R. D. Doble of Tavistock, for Stonehouse and District; Committee, Plymouth, Messrs. A. D. Breeze, J. D. Turney, F. W. Hunt; Devonport, Messrs. P. A. Kelly, H. Davey; Stonehouse, Mr. F. Maitland, C.C.; Junior Representatives, Messrs. H. O. Westcott and Fairweather (Secretary); Hon. Treasurer, Mr. J. H. Bailey; Hon. Secretary, Mr. James Cocks; Auditors, Messrs. J. Maurice and J. Barge.

Congratulatory remarks were made on the great success of the conference and dinner held the previous week, and on the motion of the Chairman, seconded by Mr. J. Harvey Bailey, it was resolved that a vote of thanks be sent to Mr. M. Carteighe (President of the Pharmaceutical Society), Mr. Allen (member of the Council), Mr. Holmes (Curator), and Mr. R. Bremridge (Secretary), for their attendance on those occasions.

Mr. F. Maitland moved that the following resolution be sent to the Council of the Pharmaceutical Society : "That this Association most heartily approves and supports the action of the Pharmaceutical Council in regard to the proposed amendment of the Companies Acts, which will make it illegal for a person trading as a company to do that which is now illegal for him to do as an individual." This was agreed to.

Mr. J. D. Turney reported to the meeting the result of the recent examination in materia medica as follows:—First, W. Barber; second, G. Fairweather; third, T. Darke; fourth, Sleep, the first three taking the prizes.

Votes of thanks were accorded the executive officers for their services during the past year, and also to the other members of the Committee.

Mr. R. H. Rendle proposed that the members of the present Council be appointed as a Parliamentary Committee, with power to add to their number for that special purpose, and this was agreed to.

It was decided that, as a memento of the recent conference, steps be taken to try and get all the members of the Association to become members of the Pharmaceutical Society.

Suggestions for the New B.P.

At the close of the business proceedings, Mr. James Cocks (Secretary) read some suggestions for the new Pharmacopœia. It was suggested that an ammoniated tincture of benzoin might be found useful by medical men, and, as the result of experiments, the following formula was proposed:—Tinct. benz. co., 9 parts; liq. ammon. fort., 1 part. Modified formulæ were also proposed for ung. resinæ (resin, 8 parts; yellow wax, 4; soft paraffin, 18), and ung. picis (tar, 5 parts; yellow wax, 1½ or 1; soft paraffin, ½ or 1).

A general discussion followed. As regarded tr. benz. co., it was thought that the experiments should be carried further. The ointments were admitted to be more elegant than those now official, but their absorption qualities were questioned.

Mr. Roper thought the authorities would allow a little olive oil to soften the wax in preparing ung. picis.

Mr. George Breeze considered lin. saponis co. contained too much spirit, and that with 50 per cent. it would be more readily absorbed, also that in preparing tr. nucis. vom. it was more expeditious to soften the extract with hot water.

At the close a unanimous vote of thanks was passed to Mr. Cocks for his paper.

Liverpool Chemists' Association.—The opening meeting of the winter session was held in the Royal Institution, Colquitt Street, on Thursday, October 24, under the presidency of Mr. J. Smith. After the usual routine business had been transacted, the President informed the meeting that it had been decided at a recent sitting of the Council to admit such junior members of the trade as were not on the Register of Chemists and Druggists as associate members of the Association, on the payment of the nominal sum of one shilling. They would be entitled to the use of the Library and Museum and to all the rights and privileges of membership, with the exception of those of voting upon matters concerning the government and internal working of the Association and of sitting as members of the Council. It was the desire of the older members of the trade and of the Liverpool Chemists' Association to induce as many students as possible to interest themselves in all matters relating to pharmacy, and to increase their knowledge of it and the sciences relating to it by every possible means. With this end in view the Council had decided to bring the Museum up to date, and had devoted a sum of money to providing for the Library the most recent editions of works of reference for the use of the proposed associate members.

Mr. A. C. Abraham, who was supported by Dr. Symes and others, pointed out that this resolution of the Council could only be confirmed at an annual general meeting of the Association, and it was therefore left over until the annual meeting in January next.

The following gentlemen were elected members:—Messrs. P. H. Marsden, T. H. Swinton, C. W. Dobson, and Herbert Evans.

The Production of Acetylene.

Dr. Symes then proceeded to describe the production of acetylene from calcium carbide, and illustrated his remarks by putting into operation a small apparatus for producing the gas. This, he said, was given off when any carbide, particularly those of the alkaline earths, was placed in water. Maquenne used barium carbide made by reducing barium carbonate with metallic magnesium in the presence of carbon, whilst Wöhler preferred calcium carbide obtained by heating calcium zinc alloy with carbon in a graphite crucible. Sodium and calcium chloride with carbon yield calcium carbide when strongly heated, but it was reserved for M. Moissan to devise a way of obtaining it readily, and at little cost, by heating calcium oxide and gas carbon in the electric furnace. The carbide so formed (samples of which were passed round for the members' inspection) was a heavy, somewhat crystalline-looking body, of a metallic lustre, and inodorous when dry, but soon gave off the peculiar smell of acetylene in a moist atmosphere, and when placed in water, readily at ordinary temperatures forming acetylene in the proportion of 400 parts of the gas for every part of carbide used. The acetylene flame was very smoky, but this could be remedied by the use of a glass argand chimney, and the temperature of the flame was much less than that of coal gas, whilst it was at least ten times greater in its illuminating power. Particular interest was attached to this easy way of procuring fairly pure acetylene on a large scale, for apart from its value as an illuminant, it was possible, at least, by laboratory methods, to make from it ordinary ethyl alcohol by passing the gas into a solution of cupric ammonium chloride, collecting the precipitate formed, reducing this with nascent hydrogen, treating the ethane obtained with H_2SO_4, so as to form sulphovinic acid or ethyl acid sulphate, and then distilling this with water, when ethyl alcohol and sulphuric acid result. The manufacture of alcohol from acetylene by some commercially possible process would doubtless soon be an accomplished fact, as it was said to be already on the Continent.

Mr. T. H. Wardleworth said that recently he was told by an American electrical engineer that there was a large amount of calcium carbide produced as a bye product by electric supply companies, and they intended to go into the acetylene gas business.

Election of President.

After Dr. Symes had been thanked for his interesting notes and demonstration, the President said the meeting had now to elect a president for the ensuing year, and he would take upon himself to propose as his successor, Mr. M. Conroy, a gentleman who he was sure would be acceptable to the members of the Association, and who would guide its affairs during the approaching important year with credit to himself and honour to the Association.

Mr. Conroy was unanimously elected President for the year.

Revision of the B.P.

Mr. J. Smith then called upon Mr. A. C. Abraham to read a paper upon the "Revision of the British Pharmacopœia" (see p. 369).

The paper was listened to with evident interest, and at its conclusion a vote of thanks was accorded the author.

Federation of Local Associations.

Mr. J. Smith next brought before the meeting the subject of the federation of local pharmaceutical associations, and after reading the rules and resolutions adopted at Bournemouth, he went on to say that if interest in the organisation was to be sustained it was necessary that it should be the subject of occasional discussion and exchange of opinion. Chemists were, and had been, a very imperfectly organised body, and their material interests had suffered severely in consequence. The very system that had become the bane of pharmacy—trading by joint-stock companies—was itself an illustration of the value of organisation; and the way in which many chemists had been crippled by the trading companies illustrated the weakness which accompanies the want of organisation. It might not be too late even now to recover some of the lost ground, or at any rate to prevent further encroachments, but it must be by joint action. It had been said that the Federation could only do what the Council of the Pharmaceutical Society can do, but it could do much more. The Society occupies an administrative position, and even now is sometimes charged with fulfilling its functions in a trade-union spirit. If a vigorous policy was to be prosecuted, which would probably bring chemists into conflict with powerful interests, it was desirable that some portion of the necessary work should be undertaken by a body occupying a less responsible position than the Council of the Society. Until the conference of the West of England chemists at Plymouth, when the President of the Pharmaceutical Society recommended that local associations should form committees to assist the Council of the Society in dealing with parliamentary and other matters, the only scheme of the kind advocated was that embodied in the "Federation of Local Pharmaceutical Associations. It was impossible to say what questions affecting the interests of retail pharmacists might arise during the next year or two, and it was, therefore, impossible to say what the Federation would be required to do, but presumably the members of the executive committee, and also all other delegates from local associations, would regard themselves as a vigilance committee, which would be expected to keep a watchful eye on all matters affecting the interests of the retail pharmacists. They would also serve as a means of communication between the different associations, and be able to bring about united offensive and defensive action, and to assist the Council of the Society in

legislative work. It was evident, from the utterances of Mr. Carteighe at Plymouth and Sheffield, that the Council meditated vigorous action. Mr. Carteighe had indicated the lines on which it would be attempted to amend the Pharmacy Act. The Federation therefore might do good service by clearing the ground before the Bill came before Parliament. Another matter which might engage the attention of the Federation was the devising of some method by which the Register could be kept in a condition somewhat approaching completeness. After some criticism of the rules drafted at Bournemouth (*Ph. J. Supp.*, August 10), Mr. Smith concluded by expressing the hope that the Federation would soon feel itself in thorough working order, and as time went on, prove itself a useful instrument for strengthening the hands of the Pharmaceutical Society, and for promoting combined action amongst those on the Register of Chemists and Druggists.

Oil of Lindera Sericea.

At the close of the meeting Mr. Wardleworth, the secretary, exhibited specimens of the oil and fruit of *Lindera sericea*, a lauraceous plant from Japan, the oil of which is largely used, under the name of "Kuro-Moji oil," as a perfume for oils and soaps. The oil is obtained from the leaves, and varies in colour from that of spirit of turpentine to a dark yellow; specific gravity, ·901 to ·892. The odour recalls that of coriander, with an after-taste of eucalyptus. Kwasnick (in *Berich. der deutsch. chem. Ges.*, xxiv., 81–82) obtained two terpenes from it, dextro-limonene and dipentene, as well as two oxygenated bodies, inactive terpinol and lævo carvol. A very fine herbarium specimen was also shown by Mr. Wardleworth, and a drawing of the plant by a native Japanese artist. The leaves were drawn so as to exhibit every minute detail in a most skilful and painstaking manner by the clever artist. The reason the various samples of oil differed so much in their characters was, Mr. Wardleworth said, because they were drawn over in very crude stills by small cultivators, in an exceedingly primitive fashion from the fresh leaves. Messrs. Schimmel, of Leipsig, state in their circular that the oil is yielded by the wood, but Mr. Wardleworth said they were evidently labouring under a misapprehension, judging from the information he had procured on the matter direct from Japan.

Leeds Chemists' Association.—The annual meeting of the Association was held at its room at the Church Institute on October 28, 1895, Mr. R. Reynolds, President, in the chair.

Mr. W. D. Pollitt, Honorary Secretary, presented the following report:—"The Council could have wished to report more movement during the past year, but can only claim to have maintained in good order the home of the Society, with its library and collection of materia medica. The use made of the library by members and associates has been steady, and it is unquestionable that it supplies a real want. The Council is not aware of the present existence of a demand for class-teaching in the subject of materia medica, sufficient to justify the organisation of a class. In the subjects of chemistry and botany adequate provision is already made by the Yorkshire College, the School of Science and Art, and other institutions. In the absence of any attempted legislation bearing specially on pharmacy, the social surface has remained calm, but the sense of injustice felt by the individual pharmacist was probably never deeper. It follows that our organisations, both national and local, have a claim to support from all registered chemists, to be in readiness for combined action against some of the grosser abuses which the law now permits. The Association is indebted to the Pharmaceutical Society and to the British Pharmaceutical Conference for copies of the publications issued by those societies during the year.

"The Treasurer's account shows a balance in hand of £1 10s. 11d.

"Although the matter has not been connected with the Association it is noteworthy that during the year, Mr. E. Yewdall, Vice-Presi-, dent, successfully appealed to a higher authority against the claim of a local Inspector of Weights and Measures, who wished to apply the City stamp to even the smallest of grain-weights used in dispensing, although they had been verified and stamped elsewhere.

"We record with regret that one of the founders of the Association, Mr. Edward Thompson, who evinced his interest in its welfare for many years, has, at a venerable age, joined the majority."

The President offered a few remarks on the report. He said that it appeared as if the condition of "masterly inactivity," which the retiring Committee frankly admitted, had come to an end. The trade journals had informed them of the visit made by the President of the Pharmaceutical Society to the West of England, and of his announcement that the Society's Parliamentary Committee had in hand the draft of a new Bill. The indications of some points likely to be dealt with were then noticed.

Mr. G. Ward moved, and Mr. S. Taylor seconded the adoption of the Report and Treasurer's Account, and the motion was carried.

The following were elected officers and Council for the ensuing year:—President, Mr. George Ward, F.I.C.; Vice-President, Mr. E. Yewdall; Treasurer, Mr. P. Jefferson; Hon. Secretary, Mr. W. D. Pollitt; Council, Messrs. Anning, Branson, Hardman, R. Reynolds, S. Taylor, and Worfolk; Auditor, Mr. E. Brown.

Mr. S. Taylor informed the meeting of the sudden death, on October 24, of Mr. J. Hellowell, who very usefully held the office of Honorary Secretary for several years, and moved a resolution of regret and of condolence with Mr. Hellowell's widow and family.

The thanks of the meeting were tendered to the President, Treasurer, and Honorary Secretary for their services during the past year.

Cambridge Pharmaceutical Association.—The annual meeting was held on Friday, October 18, with the President, Mr. Alderman Deck, in the chair, and a good number of members present. The Treasurer's and Secretary's reports for the past year were read and adopted. The following officers were elected:—President, Mr. A. Deck, F.C.S., Local Secretary of the Pharmaceutical Society; Vice-Presidents, Mr. A. Wall, F.C.S., M.A., Mr. A. S. Campkin, J.P.; Hon. Treas., Mr. H. J. Cooke; Hon. Secs., Mr. E. S. Peck, 30, Trumpington Street, Cambridge, Mr. S. F. Barker; Committee, Messrs. Addison, Church, Greenwood, McAvoy, Parker, and Plumb.

The President then gave his inaugural address upon "Pharmacy in the Forties," after which

Votes of thanks were passed to the President and the late Hon. Sec., Mr. C. S. Addison, for their services in the past.

Western Chemists' Association (of London).—At a committee meeting held on October 23, the following gentlemen were elected officers for the ensuing year: President, Mr. J. C. Hyslop; Vice-President, Mr. J. W. Taplin; Hon. Treasurer, Mr. J. H. Mathews. Hon. Secs., Mr. H. Cracknell, Mr. A. Dyson.

Nottingham and Notts. Chemists' Association.—The first meeting of this session was held in the Masonic Hall on the 23rd ult., Mr. T. Mason, Vice-President, in the chair, and there was a very gratifying attendance of both members and associates. The prizes gained in the dispensing class last winter having been distributed,

Mr. Lumby read a paper on the late proposed Shop Hours Bill of Sir John Lubbock, and he adversely criticised the details of the Bill, and characterised it as the work of a political party bent on "baby" legislation.

A very good discussion ensued, the feeling being strongly in favour of legislation to shorten the hours of shop duty, and ultimately a resolution giving general support to the Bill was carried unanimously. It is proposed to continue these meetings monthly or oftener throughout the coming winter.

SCOTTISH NEWS.

Sale of Poisons by Grocers.—The *Dundee Advertiser* refers to the prosecution of a grocer's assistant for selling Powell's balsam (see p. 382), as follows:—"Sheriff Campbell Smith was bound to convict in the pharmacy prosecution before him yesterday. The Act was passed for the purpose, *inter alia*, of preventing patent medicines containing poison being sold by grocers, it being contemplated that persons who wanted poison, when they failed to get it in a proper way, might acquire the habit of extracting it from patent drugs easily obtainable. The question of the amount of poison in a specific article does not enter. If it did, then the Sheriff's remarks on the many articles that contain poison and are sold by grocers might apply—only, of course, these latter are not patent drugs. The particular offence before the Sheriff was a trifling one, but it does not follow that there was no necessity for legislation or for these prosecutions."

Cleaning Marble.—Pure beeswax, 10 parts; Japan gold size, 2 parts; spirits of turpentine, 88 parts. Apply in small pieces with white flannel (*Pharm. Era*, xiv., 174).

MISCELLANEOUS NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

PROCEEDINGS UNDER THE SALE OF FOOD AND DRUGS ACT.—At the Bingley Police Court, on Wednesday, October 23, John Bradley, grocer, Harden, was summoned at the instance of Inspector A. Randerson, of the Food and Drugs Department of the West Riding County Council, for selling quinine wine containing only 0·52 grain quinine sulphate to each ounce, liquorice powder containing only 5·5 per cent. of sulphur per ounce, and impure bees-wax. The defendant stated that he had bought the articles from a Bradford firm, believing them to comply with the requirements of the Pharmacopœia.—The magistrates were unanimously of the opinion that the offences were not intentional on the part of the defendant, but said it would be advisable in future for defendant to obtain a warranty with the goods.—A penalty of 5*s.* and costs was imposed for each offence.

CARBOLIC ACID POISONING.—Dr. Gordon-Hogg held an inquest on October 25, at Willesden, respecting the death of an elderly widow lady named Fanny Larrance, of Churchill Road, Willesden. From the evidence adduced, it appeared that deceased was found dead in her bed on October 23, and by her side on a dressing-table was a bottle containing carbolic acid.—Dr. Mecham found traces of poison in the stomach sufficient to account for death, and the jury returned a verdict of "Suicide while of unsound mind."—The Coroner remarked that he was constantly having cases of suicide with carbolic, and it was astonishing what quantities were taken—sometimes as much as three-quarters of a pint, and he strongly condemned the readiness with which it could be bought by children or anyone from the oilman in any sort of bottle.

DEFICIENT TINCTURE OF IODINE.—On October 24, Messrs. Crane and Co., of Lambeth Walk, described as chemists, but not on the Register of Chemists and Druggists for 1895, were summoned by the Lambeth Vestry for selling tincture of iodine deficient in strength of iodine to the extent of 40 per cent., and of potassium iodide to the extent of 50 per cent. One of the defendants' assistants, who said he was not a qualified chemist, stated that he made some tincture of iodine about a fortnight before the inspector called. He made a pint, but calculated the ingredients for half a pint. It was entirely his mistake, and the defendants had no knowledge of the matter.—Mr. Hopkins ordered the defendants to pay a fine of £5 and costs.

ALLEGED MUTILATION OF MEDICINE STAMPS.—At the Northampton Borough Police Court on Monday, Evan Charles Ashford, chemist, Northampton, was charged on remand with feloniously affixing a mutilated Inland Revenue stamp to a package of medicine, with mutilating an Inland Revenue stamp for the purpose of making an improper use of it, and with feloniously having in his possession a mutilated stamp for the purpose of making an improper use of it. The evidence was to the effect that the defendant sent to chemists in London, Wellingborough and Rushden (Northamptonshire) packages of proprietary medicines with half stamps pasted on them instead of whole ones, the deception not being discovered until the labels on the boxes and bottles were removed.—Defendant pleaded not guilty, but reserved his defence, and was committed to the Assizes, bail being allowed, the defendant in £400, and two sureties in £200 each.

IMPORT DUTIES IN THE DUTCH EAST INDIES.—According to Reuter, the Second Chamber of the States General has adopted the Budget of the Dutch East Indies for 1896, but has rejected by fifty-eight against fourteen votes, the Bill increasing by 2 per cent. the duty on manufactured articles, beer, mineral waters, and pottery imported into the colonies.

THE OLIVE CROP.—It is reported that the drought in the South of France during August had a serious effect upon the olive crop, owing to its having favoured the attacks of the Keiroun worm. The fruit is now largely rotted, and is falling. The crop will be reduced by at least one-half.

THE EXPORT OF ALCOHOL.—It is stated in *La France* that two foreign Powers will ask the French Government to take the initiative in an international conference to secure the abolition of bounties on alcohol for export.

CHEMISTS IN PLYMOUTH AND DISTRICT will regret to hear that Dr. Dunn, the headmaster of the Plymouth Technical Schools, will leave the neighbourhood at the beginning of next year, he having been appointed Principal of the Northern Polytechnic, Holloway Road, London, thus necessitating his resigning his position at Plymouth. Dr. Dunn has taken considerable interest in the doings of the Plymouth, Devonport, Stonehouse, and District Chemists' Association, of which he is an honorary member. In June last, under the auspices of the Association, he held an examination for students in practical chemistry.

NEW PHARMACY AT EXETER.—Messrs. Holman, Ham, and Co. (established 1765), manufacturing and dispensing chemists, of 74, High Street, Exeter, have opened a retail branch at the old St. James's Parsonage, at the top of St. Sidwells, Exeter, and it is to be known as the St. Anne's Pharmacy. The premises have been converted into a shop suitable for a chemist's business by Messrs. Ham and Passmore, from plans by Mr. J. M. Pinn, and it has been fitted up by Mr. S. Howlett, of London. The branch will be under the management of a qualified chemist, who has been senior assistant at Messrs. Holman, Ham and Co.'s head establishment.

PHARMACEUTICAL FOOTBALL CLUB *v.* MELROSE ROVERS.—This match was played at Wormholt Farm, Shepherd's Bush, on October 26, and after a very close game the former won by 2 goals to 1.

NORTH OF ENGLAND SCHOOL OF CHEMISTRY AND PHARMACY.—The second annual "smoker," organised by the students of the above School, was held in the Crown Hotel, Clayton Street West, on Wednesday evening, October 23. There was a very large attendance of students, "passed" and present, the company numbering over eighty. Mr. G. F. Merson, Principal of the School, presided. The toast of the evening, "Success to the Students of the School," coupled with Mr. Merson's name, was neatly proposed by Baillie John Sharp (late of Musselburgh), and most heartily responded to by the company. Mr. Merson suitably replied. Harmony was provided by the several gentlemen, and all present spent a most enjoyable entertainment.

IRISH NEWS.

THE ALUMINIUM FACTORY AT LARNE.—The building at Larne, County Antrim, for the British Aluminium Company is rapidly approaching completion. The machinery is being supplied by Messrs. Victor Coates and Company, Belfast. The cost of the edifice will, it is said, be £16,000.

ANALYTICAL APPOINTMENT.—Dr. E. J. McWeeney has been appointed analyst to the Richmond District Lunatic Asylum, Dublin, at a salary of £30 per annum. The duties include regular and irregular visits to the asylum; with the object, no doubt, of giving no rest to the bacteria, bacilli, and other such-like foes of both sane and insane humanity,

DEATH OF THE MARQUIS OF WATERFORD.—The tragic death last week of the Marquis of Waterford will doubtless have occasioned deep regret to Irish pharmacists generally, and particularly to those who took an active part in the operations which attended the passing of the Amendment Act of 1890. The deceased Marquis took up the cause of the pharmacists most warmly, and was mainly instrumental in having several amendments, safeguarding their interests, introduced into the Bill; so that when the measure became law it was very different in many respects from the Bill as it was brought up to the Lords from the Commons.

MR. J. R. CORRIGAN, M.P.S.I., sailed from Dublin on Thursday, last week, *en route* for Cape Town. Previous to his departure, he was presented by the choir and some members of the congregation of St. Kevin's Church, with a handsome tribute of their regard for him: Mr. Corrigan having been an active member of that congregation, as well as Hon.-Secretary of the Select Vestry, and of the Young Men's Christian Association, and having also taken a prominent part in the rendering of the church music.

FOREIGN NEWS.

Sophistication of Vanilla.—An enterprising tradesman named Gaston Barathon has been carrying on a little business, both exclusive and profitable, which, however, has lately been brought to an abrupt termination. This ingenious person conceived the idea of buying up old and worthless vanilla at a nominal price and artificially renovating it in such a manner as to make it appear like the best Mexican variety. His process was very simple. It consisted in restoring the glossy appearance by steeping the pods in tincture of benzoin and a judicious application of powdered glass did duty for the crystalline efflorescence. The renovated article was then sold at the rate of 120 francs the kilo, twice the value of the genuine vanilla. Unfortunately his business was interrupted by legal proceedings, and M. Barathon found himself prosecuted for adulteration and also for arrogating to himself an imaginary gold medal, which he pretended had been awarded him at the Antwerp exhibition. For these offences he was condemned to a penalty of 1000 francs and six months' imprisonment, during which he will have leisure to reflect on the unprofitableness of misdirected talents.

Extermination of Rats and Mice.—In the Department of the Pas de Calais a curious means, suggested by Dr. Danysz, of the Institut Pasteur, is now being adopted for the purpose of exterminating the rats and field mice which are overrunning the agricultural districts, and causing serious loss to the farmers. The method in question consists in placing around the haunts of the rodents grain and bread impregnated with a special virus: this sets up a specie of typhus, the fatal effects of which are communicated rapidly, as these animals are in the habit of devouring the dead bodies of each other. The results have been so successful that a subvention has been voted in the various communes in that department in order to continue the method. Dr. Danysz is now occupied in giving practical advice in the various villages infested with the vermin.

Test for Saccharin.—The following is a characteristic test proposed by M. Papasogli, and published in the *Répertoire de Pharmacie* for the purpose of distinguishing saccharose from glucose and lactose. To an aqueous solution of cane sugar a few drops of 5 per cent. solution of nitrate of cobalt are added, and then a slight excess of 50 per cent. caustic soda solution. The liquid develops a beautiful violet amethyst colour which lasts for some little time. Glucose and lactose treated in the same manner produce a blue coloration which soon disappears, giving place to a slight tint of a dirty greenish hue. The presence of saccharose in a solution containing glucose can be thus detected even when the latter predominates to the extent of 90 per cent.

Relative Poisonous Power of Acetylene.—The result of some researches prosecuted by M. Gréhaut, of the Laboratoire d'Histoire Naturelle, with the object of determining the relative poisonous power of acetylene gas as compared with coal gas, was communicated this week to the Académie des Sciences. These experiments are rendered interesting by the fact that acetylene (prepared from carbide of calcium by the action of water on that substance) has been proposed as a substitute for coal gas on account of its vastly superior illuminating power, and the possibility of its being manufactured at a very low price. Indeed, in the United States a company already exists for the purpose of supplying acetylene for domestic lighting. M. Gréhaut finds that while acetylene mixed with air to the extent of 20 per cent. is, when respired, unattended with dangerous consequences, a toxic effect is produced by the absorption of an atmosphere contaminated with coal gas in the same proportion. The conclusion arrived at was that the respiration of the coal gas is more deleterious than acetylene. M. Berthelot confirmed these statements by his own experience some years ago, when he found that by subjecting birds to the influence of an atmosphere containing notable quantities of acetylene, they did not appear to be affected to any great degree.

Poison for Antipyrine.—An error, which in all probability will be attended with fatal consequences, was committed this week by a pharmacien living in the Rue de la Roquette, Paris. It appears that a woman living in that neighbourhood, who was in the habit of taking antipyrine as a remedy for neuralgic pains, sent her young daughter with a written order to fetch some cachets of that substance. After waiting a quarter of an hour in the pharmacy she was handed a bottle to take back with her, and this on being unwrapped was found to have no label affixed. The patient, however, although surprised at receiving a liquid instead of the cachets ordered, drank it, thinking that the pharmacist had deemed the remedy best to be taken in solution. A few seconds afterwards she was taken ill, and soon became unconscious. A doctor was at once sent for, and in the meantime the pharmacien was communicated with, and he ordered draughts of strong coffee. Other remedies were applied but without avail, and the life of the patient is despaired of. The husband lodged a complaint with the Commissaire de Police, and the latter at once proceeded to interrogate the pharmacien, who denied having delivered the poison, and would not be convinced of his error even when taxed with having prescribed the strong coffee as an antidote. The small quantity of liquid remaining in the bottle was dispatched to the Municipal Laboratory for analysis, and in the event of the case being proved, the unhappy pharmacist will probably suffer imprisonment, besides having to pay a fine to the Government and a heavy indemnity to the family of the victim.

PROCEEDINGS UNDER THE PHARMACY ACTS.

Sale of Poisons by Grocers in Scotland.

Pharmaceutical Society v. *Stewart.*

At the adjourned hearing of this case at Dundee, before Sheriff-Substitute Campbell Smith, on Wednesday, October 23, James Stewart, grocer's assistant, Overgate, Dundee, was again charged with illegally selling Powell's balsam of aniseed, he not being registered under the Pharmacy Act (see *ante*, p. 361).

Mr. Wilkie, who appeared for accused, said before his Lordship asked for any amendment of the complaint he would like to say he was instructed by his client to tender a plea of guilty. He would be prepared to argue, and argue strongly, against the complaint, but as a matter of expediency he tendered a plea of guilty. He had no principle to fight for. It was purely an accident. He did not wish to sell poisons in any quantity, and he was not going to make a question of it. He therefore asked his Lordship to accept the plea, and he would have something to say in mitigation of the penalty.

Mr. T. B. Morison, who appeared on behalf of the Pharmaceutical Society, said the Society considered the case as one of some importance, and he understood it had been represented to his Lordship that the Society had been taking this proceeding oppressively. He wished, therefore, to give any statement of that kind an emphatic disclaimer.

The Sheriff said what he represented was simply that, saying there was opium in a certain article sold, if that was to be a relevant offence, would be sufficient for the prosecution of any girl who sold a poppy, and if the mere presence of a poisonous ingredient was sufficient, it would involve every publican and grocer in the country.

Mr. Morison explained that the common poppy flower contains no opium, and a somewhat involved discussion then followed with regard to the relevancy of the quantity of poison present in the article sold, Mr. Morison quoting an English case similar in nature to the present prosecution—the Pharmaceutical Society *v.* Armson. In reply to the Sheriff he said the quantity of opium involved in that case was the same as in this, namely, one grain or its equivalent—one-tenth of a grain of morphine. He also produced a bottle of the balsam similar to that in question, which bore a poison label, and the inscription, "This preparation, as made since 1824, contains amongst other valuable pectoral ingredients a very minute and harmless quantity of opium." The complaint charged the respondent with selling a quantity of opium. He submitted that that established a relevant complaint, and it was nothing to the point to say that poison might be developed in certain natural products.

After further argument, the Sheriff said the accused was willing to plead, and after hearing Mr. Morison and hearing the opinion, or part of the opinion, in the English case cited, he thought he might allow him to plead. He thought it right to say, however, that, in his opinion, this was an irrelevant indictment—an irrelevant complaint—and he said so on the ground that to say there was an ingredient of poison in any article without saying if that ingre-

dient of poison was in such a quantity as to be dangerous to health or life was an irrelevant libel. The English case stated nothing to the contrary, because in that case it was proved that there was a sufficient quantity of morphine in the bottle that might have been dangerous to the life of a child. As a matter of fact, that would have been proved, and the English procedure decided upon the relevancy or sufficiency of a charge after the facts had been established. That was different from what might exist in Scotland, although that might happen there also. He might say, if a case of the same kind came before him again, he would require to have it proved that the quantity of poison was such as might have done injury to health. According to his understanding of this legislation, the purpose of it was to protect the health of the community and the life of the lieges, and not to constitute a monopoly in favour of any society. The offer of a plea of guilty rendered it inexpedient that he should dismiss the complaint as irrelevant, but he held a strong view about the law, and a pretty strong view also about any profession being allowed to levy fines upon the public for offences that did no injury to the public.

Mr. Morison said the Privy Council compelled the Pharmaceutical Society to take these proceedings. So far from the latter having any desire to levy fines, he would like to explain that the prosecutions were carried on at a loss to the Society. He moved for a penalty, and also for the expenses of the prosecution.

Mr. Wilkie said the offence was purely of a technical character. The bottle was sold entirely by accident. Until within three years ago grocers were in the habit of selling "patent" medicines whether they contained poison or not. It was conceived at that time that there was no offence in selling poison merely as the ingredient of a "patent" medicine. There was a prosecution, however, two years ago, and that settled the law. Since then accused's employers had recalled all the medicines containing poison. The fact of the bottle being left was the result of an overlook. The agent of the Pharmaceutical Society called at the shop, asked the lad to supply the bottle, and the lad, knowing no better, did so.

The Sheriff, in giving judgment, said this was a plea of guilty of a technical offence. He had great difficulty in seeing in what the offence consisted, but trying to administer the law, and trying to understand the law, he must assume that it consisted in something. The lad sold a bottle of stuff to a man who asked for it, and he was prosecuted for doing so. He confessed that he was utterly unable to understand what good this prosecution would do to the Pharmaceutical Society, and what interest any Society superintending a branch of trade in the country could have in maintaining and insisting on a prosecution like this. There might have been causes for the passing of the Act and for instituting processes of this kind in regard to chloral, chlorodyne, and other poisons—dangerous things—and that they should not be dealt in by inexpert persons. There were many other things that ought to be dealt with by skilled people only, but articles with a slight tincture of poison in them were so common, and as a rule so harmless, that the Act might be worked in a way to cause far more oppression than any good it might do. Looking at the whole circumstances of the case, he thought justice would be met on both sides by imposing a fine of 1*s.* and modified expenses of £1 1*s.*, or as an alternative five days' imprisonment. Subsequently, however, the latter part of the sentence was revoked as the Sheriff found imprisonment was not specified as a penalty under the Act.

Pharmaceutical Society v. *Finlayson.*

At the Sheriff Court House, Dundee, on Friday, October 25, the complaint of the Pharmaceutical Society of Great Britain, made through the Registrar under the Pharmacy Acts, against James Finlayson, grocer, High Street, Arbroath, came before Sheriff-Substitute Campbell Smith.

Mr. J. M. Hendry, solicitor, Dundee, appeared for the complainer, and the respondent appeared himself.

The respondent was charged with keeping open shop for the retailing, dispensing, or compounding of poisons, he having sold on June 1 to an agent of the Registrar a quantity of morphine as an ingredient in a bottle of "Budden's compound balsam of horehound and coltsfoot," and also a quantity of morphine and a quantity of chloroform as ingredients in a quantity of "Collis Browne's chlorodyne."

The respondent pleaded guilty, and said this was a case somewhat similar to what appeared before the same court on Wednesday. He knew nothing at all about the contents of the bottles no more than the man in the moon. The outside wrappers were sealed. He brought them sealed and he sold them sealed. There was no mark of poison on them. If he had broken the law he hoped the Court would be very lenient with him, and deal with him as was done with the case on Wednesday.

The Sheriff: Is there any law on the subject of guilt without knowledge.

Mr. Hendry: There is no case as far as I know. I wish to say that Mr. Finlayson was warned not to sell these medicines. Had he desisted there would have been no proceedings.

Respondent: I beg your pardon, I got no notice.

The Sheriff: You ought to have a good idea that chlorodyne is a dangerous kind of drug. Has anybody in Arbroath or elsewhere been poisoned by balsam of horehound?

Mr. Hendry: Not that I am aware of. This case differs from Stewart's case. Mr. Finlayson is owner of the shop, and is charged with keeping open shop as well as selling poisons.

The Sheriff: Is the balsam of horehound dangerous?

Mr. Hendry: It is said to contain ten times as much morphine as Powell's balsam of aniseed.

The Sheriff: I do not know whether a man is bound to know the contents of what he sells. It seems to me that the Act of Parliament is quite insufficient for its purpose, if we assume it to have any purpose except to protect apothecaries, unless it prevents manufacturers of these things from selling them to grocers and other people who have no licence to sell them again.

Mr. Hendry: The manufacturer of chlorodyne was prosecuted for selling it without declaring it to be poison, and he now labels all the bottles he sells "Poison." Budden's balsam bears a label declaring that it contains a small quantity of morphine, and in accordance with the Pharmacy Act is labelled "Poison." I do not think there can be any defence or justification for limiting the penalty here; especially if my information is correct that respondent was previously warned.

The Sheriff: Has the chlorodyne killed anybody?

Mr. Hendry: I don't expect it has.

Mr. Finlayson (replying to the Sheriff): A bottle of balsam of horehound is labelled to be sold at 1s. 1½d., but I sell it for 10d. and have ½d. profit on the transaction. I pay 5s. for a licence authorising me to sell "patent" medicines. "Patent" medicines are hardly worth keeping.

The Sheriff: This is a more serious case than the one before the Court on Wednesday. That was the prosecution of a boy for selling an article belonging to his master, regarding which he knew nothing, and regarding which very little is known. I, for my part, do not know that any human being was ever poisoned with balsam of aniseed, or that it is a likely agent to be resorted to by anyone wanting to poison himself, or herself, or to poison any other person. I think, still, that to state that opium is a poison, to state that it is an ingredient in a certain thing, is to say very little about it. The case on Wednesday was one of the most paltry I have seen, but this one is of a more serious character. Chlorodyne, it is a matter of common knowledge, is an agent that may be used with poisonous results. The purpose of the Act, I apprehend, is in the first instance to apprise grocers and unlicensed persons of the risks they run in selling poisons, and in the second place to put down the sale of them in the interests of the profession of a pothecaries—those who have a right to deal in them under the Act, and who are supposed to have skill in them. It is quite right for apothecaries to protect their trade by all reasonable and proper means, but it is rather an abuse of the system when it leads to the prosecution of boys and respectable people for doing some wrong whereof they are not told anything. The sentence will be a penalty of 5*s.*, with £1 1*s.* of expenses.

OBITUARY.

HARTLEY.—On October 20, Walter E. Hartley, Chemist and Druggist, late of Willesden. (Aged 33.)

MANGALL.—On October 21, Walter Mangall, Chemist and Druggist, Bradford. (Aged 46.)

THORP.—On October 22, Joseph Thorp, Chemist and Druggist Walsall. (Aged 62.)

HELLOWELL.—On October 24, John Hellowell, Chemist and Druggist, Leeds. (Aged 53.)

STANFORD.—On October 28, Frederick William Stanford, Chemist and Druggist, Peckham. (Aged 41.) Mr. Stanford had been an Associate of the Pharmaceutical Society of Great Britain since 1877.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

FIRST EXAMINATION RESULTS.

A Meeting of the Board of Examiners for England and Wales was held on Friday, October 25.

Certificates by approved examining bodies were received from the undermentioned in lieu of the Society's examination:—

Buckeridge, Guy Leslie .....Oxford.
Harris, Sydney.....Bournemouth.
Leins, Heinrich .....London.
North, Frederick James.....Newark.
Oldfield, Henry Keeler.....Manchester.
Perkins, Thomas Richard .....Romford.
Simpson, Henry Higson .....London.

The report of the College of Preceptors on the examination held on October 8 was received, 299 candidates had presented themselves for examination, of whom 152 failed.

The following 147 passed, and the Registrar was authorised to place their names upon the Register of Apprentices and Students.

Airth, William .....Morpeth.
Alexander, George .....Plumstead.
Anderson, David Smith Bruce .....Dunfermline.
Anderson, John Robert .....Whitby.
Andrew, Thomas Anthony.....Loftus.
Bailey, William .....Newark.
Barr, John.....Greenock.
Beeley, William Hedley .....Sutton in Ashfield.
Berg, Albert Edward .....Exeter.
Bintcliffe, John William .....Holywell Green.
Black, Arthur Edmund .....Newport.
Blair, William John .....Greenock.
Blythe, George William.....Bow.
Branford, Percival Ernest .....Farnham.
Brier, Ernest .....Elland.
Broadburn, Edwin Arnold.....Nottingham.
Brown, Hugh .....Gateshead-on-Tyne
Brown, Percy John .....Chester.
Buchanan, John Loudon .....Ayr.
Buckley, James Alfred .....Oldham.
Burman, William.....Sheffield.
Burridge, Bertie E. R.....Portsmouth.
Byron, Edward Thomas.....Atherton.
Cameron, William Alexr. James ...Forfar.
Carr, William .....Preston.
Christopher, John Martin ..... Stamford.
Clarke, Henry Jackson .....Stockton-on-Tees.
Cochrane, Alexander .....Grangemouth.
Cree, John Thomas .....East Kirkby.
Cruickshank, John Grant .....Elgin.
Davies, David .....Llanybyther.
Davies, David Pryce .....Machynlleth.
Davies, John.....Llanfarian.
Dawson, Tom .....Lancaster.
Dickson, John Morrison.....Edinburgh.
Dickson, Robert .....Greenock.
Dobson, George William .....Skipton.
Downey, John S.....West Hartlepool.
Drake, John Furley.....Bury St. Edmunds.
Drummond, William ....Galashiels.
Duncan, John George.....Newcastle-on-Tyne.
Dundas, Robert Elder .....Edinburgh.
Dunlop, Thomas Johnston.....Stalybridge.
Evans, James H. Everett .....Liverpool.
Evans, William Ellis .....Carnarvon.
Ewing, John Gaul .....Strichen.
Farquharson, James H. .....Bo'ness.
Ferguson, Robert .....Blairgowrie.
Foggitt, Benjamin .....Thirsk.
Ford, John .....Congleton.
Furness, Claude Arthur .....Chesterfield.
Gardner, Hermann C. Thomas .....Forest Hill.
Geeves, Charles Masters.....Catford.
Gemmell, David .....Ardrossan.
Gerrie, John .....Insch.
Godkin, Archibald Aston .....Burton-on-Trent.
Goldthorpe, William Thomas .....Rothwell.
Goulden, Thomas Arthur .....Manchester.
Graham, Christopher Bulwan .....Aspatria.
Graham, Thomas.....Maxwelltown.
Griffiths, Arthur Llewelyn.....Llanidloes.
Halkyard, George William.....Manchester.
Hamilton, Robert..... ....Grangemouth.
Hands, Reginald Harry.....Chipping Campden.
Hass, Hermann Leo.....Limehouse.
Henderson, Walter James.....Keswick.
Hill, William Farra.....York.
Hinds, Howell .....Abergwili.
Hough, Bernard Grindrod .....Sale.
Houghton, George Smith .....Leeds.
Hudson, Charles .....Whitby.
Hutcheson, Robert .....Inverness.
Hyslop, David Scott.....Lockerbie
Ivinson, Charles Horace.....Wakefield.
Jaffray, Robert Glover.....Peterhead.
Johnston, George Forbes.....Burntisland.
Jones, Robert Eyton.....Liverpool.
Jull, Alfred Proctor.....Ealing.
Lawton, Ernest Aubrey.....Lockwood.
Leeming, Alfred Watson .....Stony Stratford.
Lewis, James Henry Stanley .....Audley.
Low, Robert Usher.....Chester-le-Street.
Lowe, John Hadfield ..... Blackpool.
Macfarlane, David Norris .....Glasgow.
MacNaught, Archibald Hamilton ..Greenock.
Martin, Robert Hamilton .....Inverkeithnie.
Medley, Guy .....Banbury.
Medley, William Thatcher .....Newport.
Meyer, William Holford ... .Hollingworth.
Middleton, Edward L.....Edinburgh.
Midgley, Charles.....York.
Morgan, John King .....Carmarthen
Morrison, James Alexander.....Aberdeen.
Moss, Stanley Browning .....Cirencester.
Mumford, Richard Francis J.....Cardiff.
Murdoch, John.....Dumfries.
Nicholson, Wilson .....Penrith.
Nightingale, William Arthur .....Alexandria.
Padgett, Edwin Austin .....Guiseley.
Palmer, George William Bernini ...Exeter.
Palmer, Sidney Thomas.....Leicester.
Parsons, Henry .....Blyth.
Phippen, Harry Garnet .....Newbridge.
Pinchen, Colin George .....Kilburn.
Pinfield, Henry Arthur .....Evesham.
Pinnington, Arthur.....Liverpool.
Priest, John Arthur..... Walsingham.
Purves, William James .....Hartlepool.
Quibell, John William .....Newark.
Ranby, Harry Soulby .....Horncastle.
Rayner, Horace Thurley.....Cranswick.
Reed, Charles Dickens ....Ludlow.
Reid, William Bowman ... .Forfar.
Roberts, Harold Atkinson .....London.
Robinson, James Stacey .....Blyth.
Robinson, Joseph Ellis .....Stockport.
Rogers, Francis Evans ..... .Bury St. Edmunds.
Rogers, Robert John .....Penzance.
Rowson, Frank.....Boston.
Scorgie, Charles .....Aberdeen.
Sim, Alexander Smith .....Silverhillocks.
Simpson, Eugene Gustave.....London.
Sixsmith, Jabez Edward .....Wigan.
Smith, Alfred .....Derby.
Smith, Harold ....Lockwood.
Straker, Thomas William .....Alnwick.
Sumption, William Carlyon .....Blackwood.
Sunman, William Joseph .....Luton.
Taylor, Herbert Peter.....London.
Tebb, Richard Scaife .....Hull.
Theakston, Thomas Walburn .....Harrogate.
Thomson, Robert.....Kirkcaldy.

Thorne, Harold .....Aylesbury.
Trayner, Francis Edward .....London.
Turner, Levi .....Mellor Brook.
Walker, William Henry .....Grange Town.
Watts, Alfred James .....London.
Wheldon, William Cropper .....London.
White, William Carter .....Sunderland.
Willan, Jessie .....West Green.
Williams, Frederick .....Newport.
Williamson, John Stanley .....Liverpool.
Willows, Wilfred Richard .....Cirencester.
Wilson, Thomas .....Earlestown.
Winship, Annie .....York.
Woolley, Percy.....Manchester.
Young, George.....Dundee.

The questions set at this examination were published in the *Pharmaceutical Journal* for October 12, p. 313.

The following is a list of the centres at which the examination was held, showing the number of candidates at each centre and the result.

	Candidates.				Candidates.		
	Examined.	Passed.	Failed.		Examined.	Passed.	Failed.
Aberdeen	11	6	5	Lancaster	8	2	6
Aberystwith	1	1	0	Leeds	14	10	4
Birmingham	11	2	9	Lincoln	5	2	3
Brighton.....	1	0	1	Liverpool	18	7	11
Bristol.....	3	0	3	London	35	16	19
Cambridge	2	1	1	Manchester.....	24	13	11
Canterbury.....	1	0	1	Newcastle-on-T....	15	10	5
Cardiff.....	7	3	4	Northampton.....	2	1	1
Carlisle	10	5	5	Norwich	2	2	0
Carmarthen	7	3	4	Nottingham	10	6	4
Carnarvon	2	2	0	Oxford.....	5	1	4
Cheltenham	3	2	1	Penzance.....	3	1	2
Darlington	4	3	1	Peterborough	5	2	3
Dundee	8	4	4	Plymouth	1	0	1
Edinburgh	19	10	9	Sheffield	4	2	2
Exeter.....	3	2	1	Shrewsbury	5	2	3
Glasgow	24	10	14	Southampton.....	8	5	3
Hull.....	6	2	4	Worcester	1	1	0
Inverness	2	2	0	York.....	9	6	3

THE ARMS OF THE PHARMACEUTICAL SOCIETY.

The following heraldic description of the Society's arms is published in response to inquiries on the subject that have been received from time to time:—

"On the Dexter Side a Figure intended to represent Avicenna, habited in a dark red Robe, with a white under Vest, his Shoes red, around his waist a Shawl, also red, fringed gold, and upon his head a white Turban; in his right hand a Staff, gold, entwined with a Serpent proper. And upon the Sinister a Figure intended to represent Galen, habited in a long white Vest and loose Robe, his Sandals red, and holding in his right hand a Steel-yard Or."

"Or, on a Cross Gules between a Dove holding in the mouth an Olive Branch in the First Quarter, an Aloe in the Second, a Staff erect entwined by a Serpent in the Third, and an Alembic and Receiver in the Fourth, all proper, a pair of Scales of the First: on a Chief Azure a Stag lodged also of the First. And for the Crest, on a Wreath of the Colours, a Mortar, therein a Pestle Or. And for the Motto 'Habenda ratio valetudinis.'"

LEGAL REPORTS.

Revocation of Patents for Medicines.

On Saturday, October 26, three petitions for the revocation of patents for medicine came before Mr. Justice Chitty in the Court of Chancery, in each of which Mr. Roger Wallace appeared for the petitioners, the Pharmaceutical Society of Great Britain.

Re *Wallace's Patent* (*No.* 15,525 *of* 1894).

The first patent was taken out by John Wallace (No. 15,525 of 1894) described as "a new medicine for the cure of influenza and other complaints." The following being the recipe:—

Vini ipecacuanha	℥ ii. min. x.
Sirupi papaveris.....	℥ ii. min. xx.
Sulphatis quiniæ	gr. ix.
Solutæ in acido hydrochlorico quantum sufficit et aqua ad.....	℥ ii. min. x.
Camphoræ solutæ in spiritu rect. ad saturandum	min. xxx.

Fiat mixtura: percolaretur.

Mr. Wallace said he believed there was no opposition.

Mr. Sinclair Cox said he appeared for the patentee, and would consent to the revocation of the patent if no costs were asked for. He submitted that his Lordship had a discretion with regard to the costs.

Mr. Wallace said costs had always been granted in these cases.

Mr. Justice Chitty said that was so. If there were any special reasons why this case should be treated differently from others it was for Mr. Cox to state them.

Mr. Cox said they did not wish to put the Society to any expense, and they had made an application to the Patent Office to cancel, which could not be done.

Mr. Justice Chitty said no, the Patent Office could not do that. The only way of cancelling the patent was by petition for revocation. He understood the respondent had not got a bargain from the petitioners that they would not ask for costs.

Mr. Cox said no, but he took up this position. The patent was obtained in good faith, but the patentee did not wish to hamper the trade which the Society represented to the extent of insisting upon it.

Mr. Justice Chitty said that was quite right, but of course the patent being obtained did hamper the trade.

Mr. Cox said the petitioners said it did, and of course they were in a position to say something about the trade, but the applicants were not persons who had been directly injured by the exercise of the patent. They were a Society which came forward to protect the trade. He quite admitted that they came forward in perfect good faith.

Mr. Justice Chitty said they were persons aggrieved, were they not, and entitled to apply?

Mr. Wallace said they had obtained the leave of the Attorney-General to present the petition. The Society was incorporated by a Charter, which specially directed it to look after the interests of the trade.

Mr. Cox said they were not persons who were directly aggrieved by the exercise of this patent. They were persons who very properly had the authority of the Attorney-General to petition in the public interest, or, at any rate, in the trade interest, but the respondent had told them at the outset that he was prepared to abandon the patent without putting them to the expense of fighting it, and he thought, therefore, he was in a favourable position to ask his Lordship to exercise his discretion with regard to the costs.

Mr. Justice Chitty said the respondent was in a favourable position possibly to ask the petitioners to forego the costs, but he did not see that they stood in a better position before the Court than anyone else who had a patent which he could not sustain. He, no doubt, had a discretion, but he did not exercise it wildly.

Mr. Cox said the only evidence was that filed by the petitioners, and if his Lordship heard that evidence he thought he would assent to his view.

Mr. Justice Chitty asked if he meant to say if the petitioners did not consent to forego the costs he should oppose the petition.

Mr. Cox said no, he did not oppose the revocation.

Mr. Justice Chitty said there was then an end of the matter. It was only a question of the costs of revoking a patent which could not be sustained. He could not make any difference between this and any other case.

Mr. Cox said he only put it in this way, that his client certainly had a patent which he did not propose to support, but it was not alleged that he had obtained by fraud or anything of that sort.

Mr. Wallace said no allegation of that kind was made, and he

might mention that they had kept the costs down to the lowest possible level. They had not employed any experts.

Mr. Justice Chitty said that would be very satisfactory to the respondent.

Mr. Cox said he only asked his Lordship to exercise his discretion.

Mr. Justice Chitty: There is no ground for my exercising a discretion adversely to the petitioners or favourably to the respondent in respect of costs. The respondent has obtained a patent which either he cannot support or will not support. There is no difference between those two propositions, and the patent must be revoked. He has attempted, therefore, it may be in the very best good faith, to obtain a monopoly which he cannot sustain. There is no other mode of putting an end to the patent except by a petition for revocation, which is a much cheaper process than the old one. Consequently the order is made with costs.

Re *Simmons' Patent* (*No.* 1241 *of* 1894).

This patent was taken out by W. H. Simmens for an embrocation or liniment, to be prepared by mixing eggs, olive oil, oleum terebinthinæ, malt vinegar, tinctura opii, spirits of hartshorn, lin. saponis, oleum origani, and spirit of camphor.

Mr. Wallace said he also appeared in this case, which was of a similar nature, and was for "an improved medicinal preparation applicable as an embrocation or liniment." It was of the same class as Elliman's embrocation, with the addition of tincture of opium.

Mr. Justice Chitty asked if anyone appeared to oppose it.

Mr. Wallace said he did not think anyone would appear because a letter had been written by the employers of the patentee, who wrote to say that they wanted the patent revoked and were not going to oppose, but they wished it done with as little cost as possible. They had the leave of the Attorney-General to present the petition, and had filed particulars of objection.

Mr. Justice Chitty: Very well, you will take the order as in the last case. Of course, there was an affidavit of service?

Mr. Wallace said yes, that was filed.

Re *Ingram's Patent* (*No.* 1639 *of* 1894).

In this case Mr. Peterson appeared and asked that the matter might stand over, that his clients might have an opportunity of reading the evidence. There had been some attempt at a settlement, but his clients had not yet seen the evidence, and wished to read it before deciding whether they should oppose or not.

Mr. Justice Chitty said there could be no objection to that, to which Mr. Wallace assented.

After some conversation the petition was simply adjourned for a week, when it will be in Mr. Justice North's paper. Should it be opposed it will be placed in the witness list for trial.

Powell *v.* Birmingham Vinegar Brewery Co.

On Tuesday last Mr. Justice Stirling gave judgment in this action, the trial of which occupied many days before the Long Vacation. The action was brought by Mr. Powell (trading as Goodall, Backhouse and Co.), a drysalter and wholesale chemist, of Leeds, for an injunction restraining the defendants from passing off, or attempting to pass off, or enabling others to pass off, sauce not manufactured by the plaintiff, as and for that of the plaintiff, by the use of the term "Yorkshire Relish." The plaintiff and his predecessors in title had for the last thirty-five years manufactured Yorkshire Relish, which had become well known owing to its having been largely advertised, it being stated that £400,000 had been spent on advertising during the last thirty years, and that the sale in 1893 amounted to six million bottles. In 1894 the defendants put upon the market a sauce of their own manufacture, which they designated Yorkshire Relish, whereupon the present action was instituted, the plaintiff alleging that customers would be deceived by the use of this name. A considerable body of scientific evidence was given as to the composition of the two sauces, the defendants alleging that their sauce was the same as the plaintiff's, and was therefore properly called Yorkshire Relish.

Professor Attfield and other analytical chemists gave evidence in support of the defendants' contention. His Lordship held that the term "Yorkshire Relish" was not descriptive of the article but was a fancy name; secondly, that though the name was not one to which the plaintiff had an exclusive title, still it nevertheless denoted in the market the plaintiff's sauce; and, thirdly, that the defendants had not taken sufficient precautions to prevent purchasers from being misled into buying their sauce when they meant to purchase the plantiff's. An injunction was granted as prayed, and the defendants were ordered to pay the costs. Upon the application of defendants' counsel the injunction was suspended with a view to an appeal.

COMMERCIAL NOTES.

Masticatories.

Of late years chicle and other chewing gums have come into extensive use in the United States, on the plausible argument that the saliva, so copiously secreted, is an important digestive fluid. It is said that over one million sterling is spent in New York for chewing gums. Since 1883 the imports of chicle gum (derived chiefly from *Prosopis dulcis* and other species) in Mexico and Texas have increased largely. This gum was received in the United States in 1887 to the value of £66,000. In the year 1893–94 there was an increase of 400 tons shipped from Mexico over the previous year. Chicle gum is, after vanilla, the most valuable druggist's article exported from the Republic of Mexico, now reaching in value £72,000.

Chewing gum is being vigorously warred against by some sensational writers, who assert that it is injurious to the eyesight and weakens the spine. A pretty girl masticating a wad of chewing gum is not a pretty sight, but it is ridiculous to assert that the practice is injurious. The Arabs have long chewed gum arabic. The habit of chewing "makin," or gum formed on the under surface of the juniper branches, is as general among the residents of Patagonia as the maté drinking in the adjoining republics, or the coca chewing in Peru and Bolivia. The kola nut is the masticatory of Central and Western Africa, as the vetch nut is of India and the East, or chewing tobacco by the seamen in Western Europe. Chewing gum in Germany is impregnated with various antiseptics as an effective agent for throat affections. Several species of *Pistacia* furnish the gum resin of commerce, known as mastic. The women of Scio, Smyrna, and Constantinople have almost always a piece of mastic in their mouth.

The largest consumption is in the seraglios of the East, where it is universally chewed by the women, like the chicle gum in the United States, and thence derives its popular name. It is thought to sweeten the breath and excite the appetite.

Even little children chew mastic, and a mother or sister will give her own special piece to a noisy young two-year-old to keep him or her quiet. It is very odd to an European, on paying a morning visit to a Greek or Armenian beauty, to see her take a large quid, of what appears to be dentist's modelling wax, out of her handsome mouth, and deposit it by her side on the divan, so that her flow of language may not be interfered with. But little mastic is imported into Europe, and that only of the inferior kinds for making varnish.

POISONING CASES AND INQUESTS.

Laudanum.—William Fletcher, aged 35, of Waterloo Grove Chorlton-on-Medlock, died on Wednesday, October 9, from the effects of an overdose of laudanum, taken as a cure for sleeplessness. Verdict: "Death from misadventure."

Hydrate of Chloral.—Samuel Walker, aged 29, of Northumberland Street, Liverpool, died on October 10, from the effects of drinking hydrate of chloral. Verdict: "Death from misadventure."

Opium.—Richard Hyde, aged 38, of 3, Portland Place, West Kensington, died on October 15, in the West London Hospital from the effects of opium, contained in pills, of which he had accidentally taken too many. Verdict: "Death from misadventure."

Poisonous Liniment.—Mrs. Bridget Tugwell, of Tetbury, died on October 11, from the effects of inadvertently drinking a poisonous liniment for her medicine. Verdict: "Death by misadventure."

Liquid Ammonia.—Mrs. Charlotte M. Kempthorne, of Camborne, died on October 19, from the effects of liquid ammonia, which it is supposed deceased had taken in mistake for medicine. Verdict: "Deceased died from taking some liquid ammonia, but whether from misadventure or whilst in an unsound state of mind there was no evidence to show."

Carbolic Acid.—John Pinfield, aged 53, of Chester Street, Hulme, died on October 24, in the Manchester Infirmary, from the effects of drinking carbolic acid in mistake for brandy. Verdict: "Accidental death."

NEW REMEDIES.

[*The notes given under this heading embody recent suggestions in therapeutics. They cover both new drugs and preparations, and old ones under new aspects. The word "parts" is used to represent parts by weight, both for solids and liquids.*]

PHENATE OF MERCURY IN OPHTHALMIC CASES.—Galezowski recommends phenate of mercury in diseases of the cornea, especially in herpetic phlyctenular keratitis. It is used as a wash, composed of distilled water, 100 grammes; phenate of mercury, 10 to 47 milligrammes. Also as an ointment, of lanolin, 10 grammes; phenate of mercury, 5 to 10 centigrammes. It forms an advantageous substitute for yellow ointment, being less irritating (*Therap. Gaz.*, xix., 478, after *Annales Occul.*).

BETANAPHTHOL-BISMUTH.—Engel considers, from the cases under his charge, that betanaphthol bismuth is the most reliable intestinal disinfectant, combining antiseptic with powerful astringent effects, while it can be given with impunity in doses large enough and for a sufficiently long time to cure diseases due to the presence of infectious material in the alimentary canal, in infants as well as in adults (*Therapist*, v., 69).

THYROID IN PSORIASIS.—Thibierge states that he has tried the thyroid treatment in eleven cases of psoriasis. The substance was given for various periods from a fortnight to two months in daily doses of from 2 to 8, and exceptionally 12, 16, and 20 grains of fresh uncooked thyroid, and in total doses of 72 to 288 grains. The usual effects were the same as in myxœdema. The loss of weight in the majority of the patients exceeded 6 kilos. in less than six weeks, and was not checked by excessive appetite after an initial period of anorexia. The therapeutic effects of the treatment on psoriasis were *nil* in three cases, including the one in which the largest doses were given, and thyroidism was most marked. In the other eight local treatment was required to get rid of the lesions. In Thibierge's opinion, the thyroid treatment is not a specific for psoriasis, and should be reserved only for refractory cases, in which ordinary methods of treatment have been tried in vain, and the effect should be carefully watched (*Epitome, Brit. Med. Jour.*, 2, 95, 35).

BREWERS' YEAST IN DIABETES.—Cassaët states that he has obtained good results in diabetes by the administration of brewers' yeast in a daily dose of 50 grammes, although the treatment could not be prolonged during the summer, because of the difficulty of preventing acetous or putrid fermentation. The immediate effect was the expulsion of a very large quantity of gas by eructation, followed on the first or second day by extremely fœtid diarrhœa, with abundance of gas. After a few days, tolerance was established, the patient feeling better than he had done for a long time. The weight of the three patients on whom the treatment was tried increased several pounds after the yeast had been administered for a fortnight. This gain in weight was particularly remarkable, as one of them was phthisical as well as diabetic, and another had diabetes of the gravest type. As regards strength as tested by the dynamometer, an improvement from 12 to 20 kilos. was noted in the right hand, and of 17 to 22 in the left. The urea remained stationary or increased, and the proportion of sugar diminished in one case by three-fourths, and in another by two-thirds, in the fortnight (*Epitome, Brit. Med. Jour.*, 2, 95, 36).

TO DISGUISE THE ODOUR OF ICHTHYOL.—Several Continental journals publish the following formulæ for disguising the odour of ichthyol in external applications:—(1) Oil of citronella, 2½ parts; oil of eucalyptus, 2½ parts; ichthyol, sufficient to make 100 parts. (2) Oleum pini sylvestris, 10 parts; ichthyol, 20 parts. For internal use the ichthyol may be administered with milk or chocolate, or made into a mixture by one of the following formulæ:—(1) Ichthyol, 5 to 8 parts; simple syrup, 20 parts; peppermint water, 80 parts. (2) Ichthyol, 3 to 6 parts; oil of peppermint, 1/10th part; absolute alcohol, 1 part; distilled water, to 100 parts.

CINNAMIC ACID IN TUBERCULOSIS.—Landerer has recorded the result of this treatment thus: From seventy-eight consecutive and unselected cases of lung tuberculosis, eighteen deaths occurred (20 per cent.). Out of eighty-four cases of tubercular disease of the internal organs, 21 per cent.

SOLUBLE BISMUTH PHOSPHATE IN GASTRIC CATARRH.—This is obtained by dissolving bismuth oxide and soda in phosphoric acid. It contains about 20 per cent. of bismuth oxide, and readily gives a perfect solution in water, even in the proportion of 1 to 2 or 1 to 3, but these concentrated solutions are not very stable. More dilute solutions will keep for some few days. The solution is almost neutral, saline in taste, precipitated by acids, bases, and by heat. It has been employed successfully in acute gastric catarrh and as an intestinal antiseptic in doses of 20 to 50 centigrammes three times daily. Bismuthol is a mixture of this salt with sodium salicylate (*Répert.* [3], vii., 470).

OIL OF CAJEPUT IN PNEUMONIA.—Foy states that in one apparently hopeless case of asthenic pneumonia he used oil of cajeput in six-drop doses in mucilage. The drug was given at short intervals, and in seven hours the cyanosis and other dangerous symptoms disappeared. The day following some quinine and nux vomica was added to the cajeput mixture. The patient resumed his ordinary work in a fortnight. This drug is as quick and powerful a cardiac stimulant as alcohol or ether, and in Foy's opinion is particularly suited for cases such as the above. It relieves the heart by dilating the arterioles without diminishing the sensitiveness of the respiratory centre (*Med. Chron.*, iv., 72).

THEOBROMINE AS A DIURECTIC AND TONIC.—Huchard prescribes theobromine as follows:—Theobromine, 10 grammes; for 20 cachets. Take 8 cachets the first day, 6 cachets the second and third days, 4 cachets the fourth day. Under this treatment there is a rapidly increasing diuresis, often reaching three litres; œdema and dropsy diminishing. Sometimes the maximum diuretic effect is produced by ordering four to six days after the last dose of theobromine, 40 to 50 drops of a 1 in 1000 solution of crystalline digitaline. Huchard uses the tonic properties of theobromine by prescribing it in small doses, to be taken regularly for several weeks with phosphate of soda thus:—Theobromine, 10 to 20 grammes; neutral phosphate of sodium, 10 to 20 grammes. For 40 cachets: One cachet to be taken just before each meal (*Med. Chron.*, ix., 71, after *Jour. des Prat.*).

ACONITINE IN NEURALGIA.—Hunsberger gives a record of eleven cases in which, with the exception of two, there was a history of traumatism. These two exceptions were the result of excessive use and exposure to cold. Hunsberger goes on to say that he has seen cases of this class in the early stages of congestion, when the benefits derived from the use of aconitine exceeded his utmost expectations. One two-hundredth of a grain should be given every hour until three, four, or six doses have been exhibited. In neuralgia of the sciatic nerve, aconitine should be given in small doses for two consecutive months, and again for the same period after a lapse of two weeks. This should be repeated as long as there is any likelihood of another attack. In severe attacks it may be necessary to give the drug at frequent intervals (*Therapeutic Gazette* [3], xi., 510).

ADONIS VERNALIS AND CODEINE WITH BROMIDE IN EPILEPSY.—De Bechterew recommends the following formula:—Leaves of *Adonis vernalis*, 2-3·75 grammes; boiling water, 180 grammes. Make an infusion. Add bromide of potassium, 7·5 to 11·25 grammes; codeine, 12 to 18 centigrammes. The dose is four to eight tablespoonfuls per diem in water or sweetened milk. De Bechterew has never seen a case of epilepsy absolutely refractory to this treatment, the fits invariably disappearing or diminishing markedly in number. He explains the result by the constrictive action of *Adonis vernalis* on the capillaries in general, and the cerebral capillaries in particular (*Med. Chron.*, iii., 460).

ARACHIS MEAL IN DIABETES.—Stern considers that the nuts of *Arachis hypogœa* when deprived of their oil form a meal which is a first-rate food in diabetes, besides having the advantage of being cheap. The theories advanced by modern investigators in the dietetic treatment of diabetes mellitus, go far to show that a suitable and wholesome diabetic food be easily digestible, abundant in fatty and nitrogenous, and yet deficient in saccharin and starchy, substances; therefore, we may consider this meal a rational and logical food-stuff (*Dub. Jour. Med. Sci.* [3], cclxxxv., 225).

NOTES AND QUERIES.

[The information given in this column includes both notes of practical interest to pharmacists, and replies to queries which seem to possess sufficient interest to readers generally. Readers requiring working formulæ for special preparations should intimate their wants to the Editor, who will be pleased to assist them to the best of his ability. The word "parts" invariably indicates parts by weight.]

Iodoform Gauze.

Van Nerom's method of preparing iodoform gauze is as follows (*Ann. de pharm.*, 1, 413):—Dissolve iodoform, 30 Gm., and resin, 10 Gm., in ether, 300 Gm., and soak 3 metres of gauze, loosely folded and rolled, in the solution. When the latter is all absorbed, remove the gauze and unfold to allow the ether to evaporate.

To Remove Nitrate of Silver Stains.

The following solution is recommended for this purpose:—Perchloride of mercury, 5 grammes; hydrochlorate of ammonium, 5 grammes; distilled water, 40 grammes. Moisten the stain with this by means of a piece of cloth and rub well.

Amylo Carbol.

This name is given to a new form of carbolated solution, consisting of a mixture of phenol, 9 parts; soap, 150; amylic alcohol, 160; water, 1 litre.

Castor Oil in Peruvian Balsam.

The addition of castor oil to balsam of Peru lowers the specific gravity of the mixture, and renders the fraud easy of detection. A simple and practical test in use on the Continent, consists in pouring the suspected balsam slowly and drop by drop on the surface of water. These drops fall to the bottom of the liquid. When the balsam is pure the drops are very spherical, if it be adulterated with castor oil they are on the contrary oval in shape with the point turned upwards. The extremity of the point is occupied by a little clear colourless vesicle or bladder about as large as a pin's head. This is the oil, and it rises to the top of the drop of balsam owing to the oil's tendency to float on the surface of the water. After several hours the oil swims on the top of the liquid. This may be hastened by using hot water. By simple decantation one may by this means find approximately the amount of castor oil added.

Glycerin of Iodo-Tannic Acid.

This preparation is prepared for vaginal application by dissolving tannic acid, 4 parts, in tincture of iodine, 4 parts, and glycerin, 15 parts, and afterwards filtering the solution.

PUBLICATIONS RECEIVED.

The Dynamics of Life. By W. R. Gowers, M.D., F.R.S. Pp. 70. (London: J. and A. Churchill, 11, New Burlington Street. 1894.) From the Author.

Programme of the City and Guilds Technical College, Finsbury, for the session 1895-96. Pp. 73. (City and Guilds of London Institute, Gresham College, Basinghall Street, E.C.) From the Honorary Secretary of the Institute.

Movement. By E. J. Marey, Member of the Institute and of the Academy of Medicine. Translated by Eric Pritchard, M.A., M.B., B.Ch. (Oxon.). Pp. 323, with 200 illustrations. Price 7*s.* 6*d.* (London: Wm. Heinemann, 21, Bedford Street, W.C. 1895.) From the Publisher.

Elementary Physiology. By J. R. Ainsworth Davis, B.A. Pp. 223. Price 2*s.* (London: Blackie and Son, Limited, 50, Old Bailey, E.C. 1895.) From the Publishers.

Liebig and Kopp's Jahresbericht über die Fortschritte der Chemie. Part IV. for 1890. Edited by F. Fittica. (Braunschweig: Friedrich Vieweg und Sohn. 1895.) From the Publishers.

Pasteur and His Work. By Professor Percy Frankland, Ph.D., B.Sc., Lond., F.R.S. Pp. 16. Reprinted from the *British Medical Journal*. From the Author.

Guy's Hospital Reports. Edited by E. C. Perry, M.A., M.D., and W. H. A. Jacobson, M.A., M.Ch. Vol. li. for 1894. Pp. 272, with five plates and several illustrations. Price 10*s.* 6*d.* (London: J. and A. Churchill, 11, New Burlington St., W. 1895.) From the Secretary of the Hospital.

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

Communications for the Current Week's Journal should reach the Office not later than Wednesday Morning. Telegrams can be Received on Thursday Morning. All Communications respecting Editorial matters must be Addressed "Editor, 17, Bloomsbury Square, London," and not in any case to individuals supposed to be connected with the Editorial Staff of the Journal.

All Instructions from Members, Associates, and Students of the Pharmaceutical Society, respecting the transmission of the Journal, must be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London, W.C.

Business communications—including advertisements, orders for copies of the Journal, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Cheques and money orders should be made payable to "Street Brothers."

Correspondents who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for illustrations should be done with pen and Chinese ink, and consist of clean, sharp lines, without shading by washes. They should also be prepared twice the desired size, so as to allow for reduction.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Queries addressed to the "Editor" will be replied to in the Journal as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries." The Editor cannot undertake to reply to queries through the post.

Reprints of articles cannot be supplied unless authors communicate with the Editor before publication.

LETTER.

Lin. Camph.

Mr. Fairfax Fearnley, of Headingley, Leeds, says:—'As the subject of making lin. camph. is exciting interest, I think it well to relate my method of making this very popular remedy: I first put the oil into a large 'sweets' bottle, leaving room for the camphor, which I inclose, cut into small pieces, in muslin pushed through the mouth of the bottle. When the full amount of camphor is inclosed, fix the stopper and tie the ends of the muslin over it, so that the camphor is suspended just within the top portion of the oil. Place on a top shelf in the shop, and the lin. camph. is usually made in a couple of nights, the whole of the camphor dissolving and with little trouble."

ANSWERS.

Holme.—We are informed by the Secretary that copies of the Journal for which he advertises frequently reach his hands without any indication of the name and address of sender. This was probably so in your case, in both the instances you mention. You should send particulars.

E. H. Dyer.—The main objection to making tincture of iodine by dissolving the potassium iodide in a little water, adding the iodine and then making up with rectified spirit, is that it would be illegal to sell or dispense the preparation so prepared.

R. Tocher.—We do not remember any reference to the property you mention, but many operators produce a semi-solid preparation from the B.P. formula.

W. J. T. L.—We understand the juice is usually expressed by means of a wooden press. Coblentz's 'Handbook of Pharmacy' (P. Blakiston, Son and Co., Philadelphia, U.S.A. Price $4.00) is one of the latest and best works on the subject of which it treats.

QUERY.

Banana Flour.—An American correspondent asks for information regarding the manufacture of banana flour and the process used for making beer from it. Can any reader oblige?

Communications, Letters, etc., have been received from Messrs. Brown, Clarke, Cocks, Cracknell, Dyer, Fearnley, Foster, Harrison, Hill, Holme, Hutton, Lomas, Maitland, Marshall, van de Moer, Petrie, Peck, Powell, Price, Reeve, Reynolds, Snowdon, Spinks, Stephenson, Thomson, Wardleworth.

ALCHEMY AND PHARMACY.

THEIR MYSTERY AND ROMANCE.

BY C. J. S. THOMPSON.

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(*Continued from page* 242.)

CHAPTER IV.

Alchemy—The Alchemists.

The word chemistry was used for the first time by Sindas, a lexicographer of the tenth century, and at that time meant an alloy of gold and silver. It is alluded to in connection with the Emperor Diocletian, of whom it is said that, irritated by a revolt of the Egyptians against the laws of the Empire, he had all their books of chemistry committed to the flames, so as to punish them for their rebellion, by preventing them from carrying on the lucrative business arising out of the melting and working of precious metals. There is little doubt the Greeks were acquainted with certain chemical operations, or what was termed the hermetic science, which was afterwards called alchemy in the first century of the Christian era.

The first two great lights that appeared were Al-Chindus, and Geber who discovered the red oxide and bichloride of mercury, nitric acid, hydrochloric acid, and nitrate of silver. Geber's 'Summa Perfectionis' and 'Liber Philisophorum' embody his researches on the purification and malleability of metals. In the ninth century, the Arab alchemist Rhazes flourished. In his great work entitled 'El Hharvi,' he alludes to realgar, orpiment, borax, mixtures of sulphur and iron with copper, and of mercury with acids, and arsenic. He further recommends physicians to use alcoholic preparations, and animal oils, etc. He states "The secret art of chemistry is nearer possible than impossible; the mysteries do not reveal themselves except by force of labour and perseverence. But what a triumph it is when man can raise a corner of the veil which conceals the works of God?" The knowledge displayed of chemistry and its application to the arts at that early period is wonderful, but books were few. The chief evidence of this knowledge is exhibited in the many specimens and art monuments in the museums of Spain, showing the skill of the Saracens and of the Moors.

A little later Mesné states "certain principles had been recognised as to the analytical classification of the bodies which compose organic matter."

In the year A.D., 1260 Albertus Magnus, formerly a Dominican monk, was made master of the sacred palace at the Court of Rome, and afterwards Bishop of Ratisbon. This great philosophical student was learned in all the then known arts of chemistry, and his manuscripts and works were copied by the thousand. All kinds of extraordinary powers were attributed to him, and it was commonly stated he could make gold, and was also a magician. Accused of "having dealings" with the evil one, he resigned his high position and returned to his cloistered cell to carry on his favourite researches and end his days. Next we come to Vincent de Beauvais, often called the Pliny of the middle ages. He, too, was accused of sorcery, and it is said "at midnight people would creep along the quays of the Seine towards his laboratory in St. Chapelle yard, to see if they could get a glimpse reflected in the river, of the magic furnaces in which De Beauvais was supposed to evoke his familiar spirit.

About the same time Raymond Lulli became known to fame. He also was a monk, and born in the island of Majorca, but having a roving disposition he wandered over Europe. He wrote several works on alchemy, among others 'Libilli Aliquot Chemici,' etc. Fabulous stories are related of his adventures, and he was cruelly stoned to death by the populace in Tunis in 1315. He left behind him a following of believers, who called themselves Lullists, who spread all over Europe. The genius of the West at this time was Arnauld de Villeneuve, who made several important discoveries in chemistry. His researches were particularly directed to the relation of chemistry to medicine. He is credited with having discovered sulphuric and other acids, and is said to have been the first to distil alcohol and spirit of wine.

Contemporary with these men of learning was our own Roger Bacon, whose love for his art nearly cost him his life, besides many years in prison. The discoverer of gunpowder and the telescope spent most of his life in experimental researches, with the result that he revolutionised the art of war, and gave to astronomers the power of exploring the heavens. He was a man of great ability, never justly appreciated by his contemporaries, and has been rightly named the father of experimental physics. He described most of the laws which regulate matter, and the regular motion of the planets. Although a man of undoubted knowledge, and great power of conception, he also was bitten with the mania of endeavouring to discover the philosopher's stone, his views respecting which he set forth in his work entitled 'Radix Mundi.' Following Bacon came Antonio Quainer, of Pavia, who was the first to manufacture artificial mineral waters.

It has been said by some that the discoveries made by the alchemists were mainly the result of chance, and they were mostly ignorant charlatans; but if they had little method in their research, and a great deal of their knowledge was wrapped up in absurd and superstitious theories, when we look at the result of their discoveries up to the fifteenth century, the most prejudiced must admit their labours were not spent entirely in vain. They demonstrated the existence of bismuth, liver of sulphur, and regulus of antimony, the distillation of alcohol, volatilisation of mercury, and preparation of aqua regia, sulphuric, and other mineral acids, and the purification of alkalies. They had the scarlet dye for cloth, the secret of which has now been lost and cannot be equalled, and their processes of glass-staining cannot be approached by those employed at the present day. It is said that Eck, a German alchemist of Sultzbach, ascertained the existence of oxygen three hundred years before it was demonstrated by Priestley. For these and many other discoveries we have to thank the early alchemists.

During the fifteenth and sixteenth centuries alchemy began to shake itself free from the wild theories and absurd practices which impeded its progress. Henry VII. issued a severe edict against alchemical practices, which put a stop to the impositions of a number of the charlatans. About this period John Baptist Porta discovered the means of reducing the metallic oxides, and of colouring silver, and Isaac and Jean Hollandus made great improvements in enamelling, and demonstrated the manufacture of artificial gems.

From the time of Paracelsus and the introduction of printing, the science received a fresh impetus, and a new

order of chemists came into being, whose conflict with the old order for many years is a matter of history.

The old theories of the alchemists were gradually exploded and surperseded, and many were driven to the most flagrant quackery to earn a living.

Cornelius Agrippa, who was one of the leaders of the new order, says :—"It would take too much time to recount all the follies, the idle secrets, and the enigmas of this trade, of the green lion, the fugitive stag, the flying eagle, the inflated toad, the crow's head of the black blacker than the black, of the seal of Mercury, of the mud of wisdom, and other countless absurdities of the time. Many of them travelled from fair to fair in order to make a little money by the sale of white lead, vermilion, antimony, and other drugs used by women for painting the face, and drugs, which the Scripture calls ointments of lust." Meanwhile the efforts of the practical workers were encouraged by administrators and princes, with the result that the application of chemistry and the technical arts became predominant, and metallurgy the leading spirit of the science.

A notable character in the time of Queen Elizabeth was Dr. Dee, alchemist and astrologer. The career of this man, who was more a charlatan than aught else, was one of extraordinary vicissitude. A Welshman by birth, he was educated at Oxford, and then travelled throughout Europe, claiming that he had discovered the elixir and the philosopher's stone. He was a man of overweening ambition, and delighted to hear himself called "Most excellent." In company with a man named Kelly it is said he discovered a quantity of the elixir in the ruins of Glastonbury Abbey, which they at once annexed and carried off to Poland in company with a nobleman of that country. After travelling from one Court to another, where he was said to perform wonderful feats with his elixir, he returned to England and settled at Mortlake, where Elizabeth often visited him and used to consult him on astrology, and he even ventured to predict her death.* He was a great favourite at Court in 1595, and the Queen made him Chancellor of Paul's, and Warden of Manchester, but he died in great poverty.

Of the ancient necromancers who have figured in history and romance, Merlin was, perhaps, the most extraordinary. The earliest mention of his name is in records of the eleventh century, although he appears to have flourished about the time of the Saxon invasion of Britain, in the latter part of the fifth century.

He is first mentioned in connection with the fortune of Vortigern, who is represented by Geoffrey, of Monmouth, as at that time King of England. Vortigern having lost all his strongholds in his struggle with the Saxons, at length consulted his magicians as to how he was to defend himself from his troublesome foe. They advised him to build an impregnable tower, and chose a suitable site for its erection. The builders set to work with might and main, but were astonished to find that as fast as they built in one day the next morning the earth had swallowed it up, and not a vestige remained. So the king called the wise men together again, when they arrived at the conclusion, that the only way to remedy the matter, was to cement the walls of the tower with the blood of a human being who was born of no human father.

Vortigern at once sent forth emissaries to scour the country in search of this *rara avis*, and at length by good fortune they came across Merlin near the town of Caermarthen in Wales, who claimed that his mother was the daughter of a king, but his father was an angelic being. The king's emissaries evidently took his word for it, as they speedily carried him before Vortigern. A great meeting of the magicians was called, at which the king presided, and Merlin, instead of being condemned as the victim, confounded the wise men, and told the king the ground they had chosen for his tower had a lake beneath it, at the bottom of which, on being drained, they would find two dragons of inextinguishable hostility. Under the form of dragons he appears to have figured the Britons and Saxons in his speech, "all of which," the historian tells us, "proved to be true."

But the greatest exploit with which Merlin is credited, according to tradition, is the erection of Stonehenge as a lasting monument to the three hundred British nobles massacred by the Saxons. It is supposed that these mighty stones had originally been set up in Africa, and from thence were transported to Ireland. Merlin commanded that they should be carried over the sea and erected on Salisbury Plain, but no workman could be found to move them. He therefore brought his magical power to bear on the huge stones, and by this means they were caused to take the form in which they now stand.

Of the other wonderful stories which romance has woven round the career of this strange individual, we can only say they are interesting, if not exactly true. As six hundred years elapsed between the time of Merlin and the earliest known records of his achievements, it is impossible to pronounce on their veracity.

Among the most famous of the early alchemists was St. Dunstan, who was born and died in the tenth century, but, if tradition speaks truly, was anything but a saint in character. He is said to have been a man of distinguished birth, who in his young days lived a life of great self-indulgence, even for those early days of peculiar morality. At length he was seized with a dangerous illness which threatened to terminate his career, but at the last extremity an angel suddenly appeared bringing a medicine which speedily restored him to health. Hastening to the nearest church to return thanks, he was stopped by the Devil with a pack of black dogs, whom, however, he speedily put to flight. In order to expiate his former irregularities, he now secluded himself in the abbey of Glastonbury, where he occupied a cell in which he could neither stand upright nor stretch his limbs in repose, and mortified his flesh exceedingly. Here he studied alchemy and magic, in which arts he soon became well versed. While in this cell he is said to have had the most extraordinary visitations, and among others the Devil was constantly thrusting his head in at the window and taunting the saint, who was immersed in his studies. At length one day, wearied out, Dunstan lost all patience, and seizing his red hot tongs from the little furnace in which he conducted his chemical operations, caught the Devil by the nose, and held him firmly, "while the bellowings of Satan," says the historian, "filled the whole neighbourhood for many miles round." This incident is frequently represented in ancient carvings.

Dunstan was a Benedictine monk, and next came forth and took a prominent part in political and religious matters. He seems to have been the king-maker of his time, and took a prominent part in the ruling of the kingdom during the reigns of Edwy and Edgar.

(To be continued.)

* Lilly's 'Autobiography,' 1774.

THE GROWTH OF MODERN CHEMISTRY.

JUSTUS VON LIEBIG: his Life and Work. By W. A. SHENSTONE, F.I.C. Pp. 219. Price 3*s.* 6*d.* (London: Cassell and Company, Limited, 1895.)

Though so short a time has elapsed since Liebig passed away from the scene of his many triumphs, there is little reason to doubt that, as his present biographer suggests, the prevailing impressions concerning him are those which vaguely associate him with "extract of meat" and agriculture. The fact too, that this is the first popular account of Liebig's life and work yet published, would seem to indicate that even chemists have been slow to recognise the great value and extent of his labours. Chemistry, agriculture, physiology, and education have all benefited in an enormous degree by the efforts of this contemporary of Wöhler and Dumas, and it is only because those sciences have progressed with such gigantic strides during the past twenty-five years, that the equally wonderful if less numerous advances of the previous half century occupy so comparatively unimportant a position in the minds of men. Liebig was born at Darmstadt in 1803. His father was a dealer in colours and, sometimes with the aid of his young son, manufactured certain of his commodities, according to the processes described in works embodying what was at that time known about chemistry. The youngster was unmistakably a dunce at school, where his already extensive knowledge of chemical operations was accounted as nothing. We are told that he excited to uncontrollable laughter the rector and all the scholars at the gymnasium he attended by stating, in response to the inquiry what he thought would become of him if he continued to manifest such lack of diligence, that "he would be a chemist." Such was Germany eighty years ago. England and France shared the honours of chemical work at that time, whilst in the country that has since made the technical applications of the science peculiarly its own, the idea of such a study being adopted as a career seemed "preposterous."

Like many other distinguished experimentalists, the young Liebig was at first placed as a pupil in a pharmacy. Within a period of ten months, however, "the alarmed apothecary of Heppenheim was so sorry with his bargain that he sent the lad home again to his father." An irregular course of non-pharmaceutical experiments in the pupil's attic was accompanied by a series of accidents, the last of which resulted in the window-sash being blown out. The youth was now about sixteen, and had devoured all the available literature on his favourite subject—'Macquer on Chemistry,' Basil Valentine's 'Triumphal Car of Antimony,' Stahl's 'Phlogistic Theory,' and numerous treatises and essays by Kirwan, Cavendish, and other writers. He had also experimented continually, and so had laid a good foundation for his future career. After studying for some time at the Universities of Bonn and Erlangen, under Kastner, Liebig returned to Darmstadt, "persuaded that he could not become a chemist in Germany." In 1822, however, he took his degree at Erlangen, and published his first paper. This embodied the result of an attempt to investigate the composition of fulminating mercury, and, together with other work he had performed, attracted attention to his capabilities, and led to the provision by the then reigning Grand-Duke of Hesse Darmstadt, of the necessary means to enable the young chemist to proceed to Paris and continue his studies.

A paper contributed by Liebig to the Academy of Sciences attracted the attention of von Humboldt, and the great traveller was the means of introducing him to Gay-Lussac, who took him into his private laboratory to work in conjunction with himself. Later, Humboldt secured Liebig's appointment as Professor in the University of Giessen, where he established a school which was destined to become famous on account of its achievements in pure and applied chemistry. "From the most modest beginning and the scantiest means came results which fill one of the most splendid pages in the history of chemistry." Appointed Extraordinary Professor of Chemistry at Giessen in 1824, and Ordinary Professor two years later, Liebig was called to Munich in 1852, and died there in 1873. He was essentially a pioneer in science, and, as pointed out by Mr. Shenstone, in the course of his life he "took the lead in no less than four great departures"—the first in organic chemistry, the second and third in the application of chemistry to agriculture and physiology, and the fourth to educational work.

Lavoisier had already attempted to analyse organic compounds, but it was left for Liebig to devise a practical method of organic analysis, and this he only accomplished after many years' thought and experimentation. His method resembled that of Lavoisier in that it consisted in completely oxidising the substance to be analysed, and then collecting and measuring the gas and water formed. But it was immeasurably more accurate than that of the famous French chemist, and in a somewhat modified form it remains in use yet. Modifications of this process, adapting it for the determination of nitrogen, chlorine, and sulphur in organic substances, were devised by Liebig or his pupils, and the elaboration of the process must be regarded as one of Liebig's greatest contributions to the science of chemistry.

The existence of the phenomenon of isomerism was first recognised through the labours of Liebig and Wöhler, both on the threshold of their careers; the results of the analysis of cyanic acid by the latter proving identical with those obtained by Liebig in working with fulminic acid, and thus affording a satisfactory clue to the existence of substances possessing the same composition but exhibiting different properties. Liebig and Wöhler now joined forces, and by their investigation of the oil of bitter almonds, established the conception of compound radicals, in addition to working out the chemical formulæ of the oil and of its oxidation product—benzoic acid. Benzoyl, C_7H_5O, they assumed to be common to both substances, and they subsequently discovered several new substances which might also be regarded as compounds of benzoyl. Later, they found that bitter almond oil originates from the amygdalin existing in almonds, as the result of the action of "a kind of soluble ferment," which they named emulsin. The formation of prussic acid and sugar in the process was also noted, and thus was made the discovery of the existence of the group of substances now known as glucosides. The last great joint research of the two friends was their noted investigation of uric acid.

Liebig devised an easy, safe, and inexpensive process for preparing potassium cyanide; discovered chloroform and chloral; investigated the compounds derived from ammonium thiocyanate; and determined the composition of a long list of organic substances. He also played a not unimportant part in the discussions of the great theoretical questions that presented themselves for solution after the establishment of the Atomic Theory, and rounded off his work in pure chemistry by his inquiry into the cause of the change of alcohol into vinegar. Fermentation was regarded by him as an essentially chemical phenomenon, in opposition to the opinion of those who considered it to be rather a biological one, and his theory of the ferments has not yet been replaced by a more satisfactory general hypothesis.

Of Liebig's contributions to the chemistry of agriculture and physiology, perhaps the most remarkable of his career, space will not permit detailed reference here. The chapters devoted to those subjects by Mr. Shenstone are, however, as full of interest as any that precede them, and constitute nearly half the volume. One chapter is devoted to the great chemist's educational and literary work, whilst the concluding one treats of his character and later

years. In spite of the non-technical method of treatment adopted by the author, this little biographical sketch appeals more to the trained chemist than to any other class of reader, and such chemists as are interested in the beginnings of the modern science can here read and comprehend how it grew, slowly at first but surely, and more rapidly as time passed on. They will realise that there were giants in those early days, and be grateful to Mr. Shenstone for his vivid delineation of the life and work of one of the greatest chemists of the early half of the nineteenth century.

PROCEEDINGS UNDER THE PHARMACY ACT, 1868.

EDINBURGH APPEAL CASES.

In the High Court of Justiciary, Edinburgh, on Saturday, November 2, judgment was delivered in the appeal cases, Pharmaceutical Society *v.* Hume, and Pharmaceutical Society *v.* Turnbull, which were heard before the Lord Justice Clerk, and Lords Trayner and Young on Saturday, October 26 (see *ante*, page 371).

The original cases were heard on September 19 in the Sheriff Court of Midlothian, at Edinburgh (see *ante*, page 269), and judgment was given by the Sheriff-Substitute on September 26 (see *ante*, page 292).

Statements of the Cases.

The following particulars were furnished to the High Court by Sheriff-Substitute Sym:—

Pharmaceutical Society v. *Hume.*

"This is a cause which originated by way of complaint under the Summary Jurisdiction Acts at the instance of the appellant against the respondent. The complaint charged the respondent (first) with the offence of keeping open shop for the retailing, dispensing, or compounding of poisons' on 23rd August, 1895, he not being a duly registered pharmaceutical chemist, or a chemist and druggist within the meaning of the Pharmacy Act.

"I found this charge proved, and in the circumstances imposed a modified penalty of 1*s.*, with £2 2*s.* as the expenses of prosecution. No appeal is to be taken against this judgment by either party.

"The second charge was that the respondent had also contravened sections 1 and 15 of the Pharmacy Act, 1868, by taking and using on 13th June, 1895, the name or title 'chemist,' in so far as he did use and exhibit . . . the name or title 'chemist,' or 'technical chemist,' on and in connection with a printed advertisement or price-list issued by him to the public, whereby he became liable in a penalty of £5.

"The facts with reference to this charge are—

"1. The respondent is not on the register established under the Pharmacy Acts.

"2. The respondent carries on business at 1, Lothian Street, Edinburgh. The nature of his business is explained in the circular or advertisement mentioned under head 3. It includes, *inter alia*, the sale of poisons (including poisons scheduled in the Pharmacy Act) wholesale, that is, in quantities intended to be resold in smaller quantities.

"No. 3 of process is a copy of a circular or advertisement issued by the respondent at the time libelled. It designs him as a 'scientific instrument maker and technical chemist.' It is the publication of this circular that is complained of in the second charge.

"4. It was admitted that the respondent has a thorough knowledge of chemistry. The respondent (who declined to take legal assistance) explained to me that he did not undertake to dispense drugs or compound prescriptions. His contention was that the word 'chemist' is capable of construction according to the circumstances and the context in which it is used, and that he used the term 'scientific instrument maker and technical chemist' with the view of distinguishing himself from a dispensing 'chemist.' He claimed a right to do so.

"I was of opinion, having regard to the manner in which the word 'chemist' was qualified in the circular complained of, and to what I thought a sound construction of the Pharmacy Act, 1868, that the respondent had not contravened Sections 1 and 15 thereof by publishing the said circular, and I assoilzied him from the second charge.

"Counsel for the Pharmaceutical Society was dissatisfied with my judgment upon the second charge, and asked a case for appeal.

"The question of law is:

"Did the respondent, by designing himself as a scientific instrument maker and technical chemist, infringe Sections 1 and 15 of the Pharmacy Act, 1868?"

Pharmaceutical Society v. *Turnbull.*

"This is a cause which originated by way of complaint, under the Summary Jurisdiction Acts, at the instance of the appellant against the respondent. "The complaint charged the respondent (first) with an offence within the meaning of Sections 1 and 15 of the Pharmacy Act, 1868, in so far as on May 27, 1895, he 'not being a duly registered pharmaceutical chemist or a chemist and druggist within the meaning of' the 'Pharmacy Acts, 1852 and 1868,' did, at his shop, 6, Rose Street, 'unlawfully and contrary to' the said Sections of the Pharmacy Act, 1868, 'keep open shop for the retailing, dispensing, or compounding of poisons,' and did *inter alios* sell by retail to Alexander Spence, residing at 133, High Street, Linlithgow, a poison, within the meaning of the said recited Act, to wit, a quantity of perchloride of mercury, being a preparation of 'corrosive sublimate,' whereby the respondent became liable in a penalty of £5 sterling.

"The complaint also charged the respondent (second) with another offence against the said sections, in so far as 'during the period between July 21 and September 5, 1895, or during part of said period,' he 'did unlawfully and contrary to' said sections 'take, use and exhibit the name or title of chemist, in so far as he did put up use, or exhibit . . . the name or title chemist above or in connection' with his shop at 6, Rose Street, Edinburgh, whereby he became liable in a penalty of £5 sterling.

"The respondent pleaded not guilty. The facts which were proved are as follows:—

"I. The respondent is not on the register of chemists established under the Pharmacy Acts, nor is any assistant in the shop aftermentioned on said register. The respondent occupies and keeps a shop at 6, Rose Street, Edinburgh, which was open to the public on May 27, 1895, and other days during the period libelled. He is a dealer in the articles used in photography at the said shop. On the outside of the shop is displayed a sign, which is the ground of the second charge. This shop sign gives his name, and designs him as a 'photographic chemist.' The word 'chemist' is over the front of the shop. The word 'photographic' is at the corner of the shop which abuts upon a side street. Thus the word 'chemist' can be seen from several points from which 'photographic' cannot be seen But the word 'photographic' is intended to qualify, and does qualify. the word 'chemist.' It was not proved that the respondent intended to mislead anyone as to the business which he did.

"II. Some of the articles used in photography are poisonous chemical substances, certain of which are scheduled as poisons in the Pharmacy Acts. A trade circular produced by the respondent (in which he is designed as 'photographic chemist') bears that he does not sell the poisons enumerated in the Pharmacy Acts except in wholesale quantities. His assistants are instructed only to sell those poisons to persons engaged in photography or to chemists, and on some occasions other persons have been refused these poisons on offering to buy them. On 27th May, Alexander Spence, designed in the complaint, who is a qualified chemist, but was quite unknown to the respondent and his assistants, went to the respondent's shop. The respondent was absent. Spence was acting on the instructions of the Pharmaceutical Society. He asked an assistant in the shop for certain photographic 'plates,' which were worth 2s. 3d., and he also asked how corrosive sublimate was sold. He was told that it was sold at 3*d.* per ounce, which is the ordinary retail price of corrosive sublimate, and he said he would take one ounce. He was asked no further questions, and paid 2*s.* 6*d.* (two shilling and sixpence) for his purchases, including the said 3*d.* Corrosive sublimate is a poison mentioned in the schedule to the Pharmacy Act. It is a dangerous poison, even in very small quantities. Spence took the one ounce, which he brought to the office of the Pharmaceutical Society, where it was analysed.

"The defence maintained to me upon the first charge was that the transaction which I have described in paragraph II. was a 'wholesale' transaction, and did not therefore fall under the prohibition contained in the statutory provision libelled.

"I was of opinion that it was not a wholesale, but a retail trans-

action. But I was of opinion that while this transaction would have justified a prosecution of the assistant for the offence of 'selling poisons' without legal qualification, it did not constitute on the part of the respondent the offence of 'keeping open shop for the retailing, dispensing, or compounding of poisons' without legal qualification, which has been held to be a different offence.

"I therefore found the first charge not proved.

"Upon the second charge, I was of opinion that, having regard to the manner in which the word 'chemist' was qualified in the respondent's shop-sign, and upon a sound construction of the Pharmacy Act, 1868, the respondent had not contravened Sections 1 and 15 thereof. I therefore assoilzied him from the second charge.

"The counsel for the Pharmaceutical Society was dissatisfied with my judgment on both charges, and requested me to state a case for appeal.

"The questions of law are:—

"1. Did the facts which I have stated constitute on the part of the respondent the offence of keeping open shop for the retailing, dispensing, or compounding of poisons, contrary to Sections 1 and 15 of the Pharmacy Act of 1868?

"2. Did the respondent, by the designation used in his shop-sign, infringe Sections 1 and 15 of the Pharmacy Act, 1868?"

Judgment of the High Court of Justiciary.

A verbatim report of the arguments in the cases will be found in last week's Journal, at page 371. The decision of the High Court of Justiciary was as follows:—

Lord Trayner: I have felt the decision of this case, Pharmaceutical Society *v.* Hume, to be attended with difficulty, but I have come to be of opinion that the appeal should be sustained. The Statute which the respondent is charged with having contravened was passed "for the safety of the public" and forbade anyone keeping open shop for *inter alia* the retailing of poisons or assuming or using the title of "chemist," unless qualified and registered as the Statute provides. The respondent has assumed and uses, both as a sign over his shop door and on his trade circular or advertisement, the title of "technical chemist," but he maintains that the title of "chemist" so qualified, taken along with the fact that in direct connection therewith, he designs himself as a "scientific instrument maker," is not within the statutory prohibition. I think it is. The respondent uses the title of "Chemist," and that in connection with premises in which according to his advertisement, poisons are sold in small quantities, and the public, for whose safety and protection the Act was passed, are more likely than not to regard the title "Chemist" without paying any attention, or perhaps understanding the qualification of "Technical." That the prefixing of a qualifying adjective to the title "Chemist" or "Druggist" does not take the person using such title out of the statutory prohibition has been decided in England, where "botanical chemist" and "shipping druggist" have been treated as contraventions of the Statute, the persons using these titles not having the statutory qualifications or right to assume the title of "chemist" or "druggist." Had these English decisions been to a contrary effect, I would not have dissented from them, they would then, I must admit, have been more in accordance with the inclination of my own mind. But I am, however, not questioniug their soundness, and it is not desirable that an Imperial Statute should be interpreted differently in different parts of the kingdom. I am prepared to follow them, and decide accordingly against the respondent. In doing so I am doing the respondent no wrong or even putting him to any serious inconvenience, while I am, I think, only affording to the public the protection which the Statute intended the public to have. I think the question put to us should be answered in the affirmative. For the reasons I have given in the case against Hume, I am of opinion that the second question in this case, Pharmaceutical Society *v.* Turnbull, should be answered in the affirmative. With regard to the first question, I differ from the view taken by the Sheriff-Substitute, and would answer it also in the affirmative. The shop in question was the respondent's shop, and it was certainly kept open *inter alia* for the sale of poisons in small quantities. That the actual sale in question was made by a shopman or servant does not affect the question. It was part of the shopman's duty or service to make such sales, and what he did within the ordinary scope of his employment must be regarded as the respondent's—his employer's—acts.

Lord Young: I appreciate the difficulties pointed out by Lord Trayner as attending these cases. I respect these difficulties. I take both cases together as has been done by Lord Trayner—indeed, I feel the difficulties so much that the inclination of my own opinion which I might have acted upon had I been alone would be not to interfere with the judgment of the Sheriff.

The Lord Justice Clerk: I have no vote in this court unless there, is a difference of opinion, and I do not understand that Lord Young dissents from the judgment proposed; but perhaps I may be, as in ordinary circumstances, allowed to express my opinion. I concur in the opinion of Lord Trayner. I think both cases are effectually struck at by the Act. I quite agree with the interpretation put upon the Statute by the English judges, but, even in the absence of any decisions in the English courts, my opinion would have been to the same effect.

The appeals were accordingly sustained.

Mr. Salvesen: On behalf of the Pharmaceutical Society I have to say that we do not ask that the cases should be remitted back for a conviction; and we do not ask for expenses against the parties.

The Lord Justice Clerk: That is very proper, because I am quite sure the appellants would agree that in this case there is nothing whatever against the character of either of these gentlemen. They were doing what they believed to be right. It is only a technical offence.

Mr. Salvesen: That is entirely our view.

Interlocutors.

Pharmaceutical Society v. *Hume.*

"Edinburgh, November 2, 1895. *Act.*, Salvesen *et* T. B. Morison; *Alt.*, Dundas.—The Lord Justice Clerk and Lords Commissioners of Justiciary having considered the case and heard counsel for the parties, answer the question stated in the case in the affirmative, reverse the determination of the Inferior Judge, in respect of which the case has been stated: find no expenses due, and decern.

"J. H. A. Macdonald, I.P.D."

Pharmaceutical Society v. *Turnbull.*

"Edinburgh, November 2, 1895. *Act.*, Salvesen *et* T. B. Morison; *Alt.*, A. J. Young *et* Trotter.—The Lord Justice Clerk and Lords Commissioners of Justiciary having considered this case and heard counsel for the parties, answer both questions in the case in the affirmative; sustain the appeal; reverse the determination of the Inferior Judge; find no expenses due, and decern.

"J. H. A. Macdonald, I.P.D."

Detection of Paraffin in Olive Oil.—Carpentier recommends the following method:—Ten grammes of the sample is saponified with alcoholic potash, and the resulting product dried at a temperature of 80° to 90°. It is then powdered and mixed with sand, and exhausted with petroleum ether in a Soxhlet tube. On evaporation of the petroleum ether the paraffin can be weighed, as the menstruum has no action upon the soap (*Bulletin des Chimistes Belges*).

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

MEETING OF THE COUNCIL.

WEDNESDAY, NOVEMBER 6, 1895.

Present:

MR. MICHAEL CARTEIGHE, PRESIDENT.

MR. JOHN HARRISON, VICE-PRESIDENT.

Messrs. Allen, Atkins, Corder, Cross, Gostling, Grose, Hills, Martin, Martindale, Savory, Schacht, Southall, Warren, and Young.

The minutes of the last meeting were read and confirmed.

The PRESIDENT announced that Mr. Hampson, Mr. Bottle, and Mr. Newsholme were unable to be present owing to ill-health.

DIPLOMAS.

The undermentioned, being duly registered as Pharmaceutical Chemists, were granted diplomas stamped with the seal of the Society:—

Dean, Arthur Shiers.
Ellington, Charles Sampson.
Glass, William Stephen.
Leslie, Robert.
Male, Elliott Wm. Graves.
Minet Noël, Joseph Alphonse.
Morris, Ernest William.
Skinner, Herbert.
Stoddart, Jas. Geo. Young.
Thompson, Thomas.
Wright, Charles George.

ELECTION OF MEMBER.

Pharmaceutical Chemist.

Herbert Skinner, of London, having passed the Major Examination and tendered his subscription for the current year, was elected a "Member" of the Society.

ELECTION OF ASSOCIATE IN BUSINESS.

James Dunning, of Ventnor, having passed the Minor Examination, being in business on his own account, and having tendered his subscription, was elected an "Associate in Business" of the Society:—

ELECTION OF ASSOCIATES.

The following having passed the Minor Examination, and tendered, or paid as Students, their subscriptions for the current year, were elected "Associates" of the Society:—

Allan, Alexander .....Glasgow.
Armitage, Nathaniel Newborn .....Armley.
Birnie, Alexander Stephen .....Aberdeen.
Bourdas, Isaiah junr. .....London.
Duncan, James.....Leeds.
Ellul, Lawrence .....London.
Fox, Frederick Harry.....Lincoln.
Gibson, John .....Hexham.
Goodwin, Ernest Henry.....Hammersmith.
Gregory, William Joseph .....Boston.
Harries, Benjamin .....Llandilo.
Hicks, Frederick Joel.....Camborne.
Hutton, John .....Edinburgh.
Ireland, Alfred Coltman.....Leicester.
Jackson, William Kendall.....Bradford.
Johnson, George Percy .....London.
Lewis, Moritz Aron.....Penzance.
Marshall, Phillipson .....Louth.
Martin, Walter Edwin.....Beccles.
Metcalfe, John Thomas .....St. John's Wood.
Oakes, Edwin York.....Bridgnorth.
Oldham, George Wm. Newitt .....Farnham.
Palmer, Frank Elijah.....Ipswich.
Pratt, Charles Andrews .....Chichester.
Pratty, Clement John Robert .....Rye.
Punch, James .....Sedbergh.
Rogers, Alford .....Llanelly.
Whittle, William Wilford .....Melton Mowbray.

ELECTION OF STUDENTS.

The following having passed the First Examination and tendered their subscriptions for the current year, were elected "Students" of the Society:—

Sutcliffe, Lot Bains.....Thorne.
Trayner, Francis Edward .....London.

RESTORATIONS TO THE REGISTER.

The names of the following persons, who have severally made the required declarations, and paid a fine of one guinea, were restored to the Register of Chemists and Druggists:—

Andrew Anderson, Stirchley, Worcestershire.
William Edwin Ward, 38, High Street, Fenton, Staffs.

ADDITION TO THE REGISTER.

The Registrar reported that—

William Juby Coleman, Brundall, Norfolk,

having made a declaration that he was in business before the passing of the Pharmacy Act, 1868, and this declaration having been duly supported, his name had been placed on the Register.

Several persons were restored to their former status in the Society upon payment of the current year's subscription, and a nominal restoration fee of one shilling.

THE LATE MR. LINFORD.

The PRESIDENT read a letter from Mrs. Linford announcing the death of Mr. J. S. Linford, on Wednesday, Oct. 30. Mr. Linford, he said, was one of those men who in early life were associated with Lloyd Bullock, Stephen Darby, and other advanced pharmacists, many of whom had done credit to the craft wherever they were placed; and he had reason to know that there was no one amongst them for whom they cherished a greater respect than Mr. Linford. He was a man of many parts. For many years he was a member of the Board of Examiners, and he was a man of wide reading and culture, extremely liberal and broad in his views and perhaps rather too generous to his friends for his own interest. He had reason to believe that some of the difficulties in his professional career were caused by his sacrificing himself in middle life to one of his friends. He felt sure the Council would authorise him to write a letter of condolence to Mrs. Linford, and to express, both officially and individually, his appreciation of the servioes which Mr. Linford had rendered to the Society. He was one of the early members, and the men of this generation would scarcely know how influential was the class of men who rallied round their old friend, Mr. Lloyd Bullock, many years ago, and who did so much to put pharmacy on a sound footing in this country. When some were disposed to stand aloof from it, these men, by their high character and integrity, obtained for pharmacists the respect of scientific and medical men.

Mr. CORDER said he had been associated with Mr. Linford for many years on the Board of Examiners, and he would like to endorse everything the President had said. For kindliness towards the candidates and courtesy towards his colleagues on the Board he was exceeded by none.

The suggestion was agreed to.

CAPE OF GOOD HOPE UNIVERSITY CERTIFICATES.

Arising out of the minutes of the last meeting, when a letter was read bearing on the Matriculation examination of the Cape of Good

Hope University, the PRESIDENT said the subject was referred to the Board of Examiners, who had reported the examination to be of a very high class, and he now accordingly proposed that this examination be added to the list of those, certificates of which the Board of Examiners is authorised to accept in lieu of the "First" examination.

This was seconded by Mr. Allen, and adopted.

THE LATE MR. BURROUGHS.

The PRESIDENT said he had received from Mr. H. Helbing, hon. sec. of the S. M. Burroughs' Memorial Fund, a letter on behalf of that body asking him, as President of the Pharmaceutical Society, to intimate to the Council that the subscriptions to the fund so far received amount to £860, and that it is the intention of the committee to raise the sum to £1000. The money (the letter added) would be applied to the foundation of a Burroughs' Scholarship, to be awarded bi-annually to students in pharmacy, and the executive committee would be glad if the Council would become trustee of the fund. The President proceeded to say that there was some hope of their founding a scholarship as a memorial, and that the needed further assistance would be forthcoming if they adopted such a form of memorial. A scholarship of at least £50 would thus be available. The committee had not yet decided whether the scholarship should be awarded at the same time as the Bell scholarships, but desired that the trustees should consult with the Council in the matter. In answer to the letter, he would formally propose that this Council should undertake the trust, and render all the assistance in its power in elaborating the details of the scheme.

This Mr. MARTINDALE seconded in a few words, and the motion having been put and carried,

The PRESIDENT, as Chairman of the Burroughs' Memorial Committee, said he would be glad to receive the financial support of the members of the Council, to the end that the scholarship might be of such a character as would make it a heritage of the future. Perhaps even the Manchester Scholarship was hardly sufficiently endowed, and he trusted that for this scholarship they would be able to raise a substantial endowment, and in that way give greater facilities for the acquirement of knowledge.

RESEARCH FELLOWSHIP.

The PRESIDENT reported that an application for the Research Fellowship had been received from Dr. Charles M. Luxmoore, and the Research Committee, having considered the matter, was in sympathy with the application. Dr. Luxmoore was a remarkable man, a pharmaceutical chemist and member of the Society, and had now become a D.Sc. of London. He was also the Society's Silver Medallist in the Pereira competition in 1884. He had occupied himself in the wisest possible way, shown himself capable of work of the highest order, and displayed a very unusual devotion to his studies. A number of prizes and honorary certificates, testifying to Dr. Luxmoore's industry and abilities, were available to whosoever cared to see them, and he was glad that this opportunity occurred to recognise his indomitable industry and pluck. He would propose that the Research Fellowship be conferred upon Dr. Luxmoore.

In answer to the question what Dr. Luxmoore was now doing, the PRESIDENT said he was lecturer on chemistry to the Hertford County Council.

Mr. MARTINDALE seconded the proposition. He said Dr. Luxmoore's career had been very remarkable, and some of the work he had done, especially that for which he obtained the degree of D.Sc. of the London University, showed that he had devoted himself with great ability to the highest branches of chemistry.

The resolution was carried unanimously.

M. BERTHELOT.

Mr. ATKINS asked permission to call attention to the recent appointment of a very distinguished chemist as a member of the French Government. He thought it was a matter of no small significance that a man whose work was so exceedingly solid and recondite had been recognised so far as to be appointed to an important position in the Government. He did not know that he need congratulate M. Berthelot on that appointment so much as the Government on having obtained his services. Literary men of high standing had been many times recognised in that way, but even in France it was a somewhat unique event that a man distinguished mainly for his scientific researches should have been similarly honoured. He personally regretted that M. Berthelot did not fill the same position he formerly occupied—that of Minister of Public Instruction—but had now received the portfolio of Foreign Affairs, still he was very pleased to see his scientific position thus recognised.

FINANCE COMMITTEE.

The SECRETARY read the report of this Committee, which was of the usual character, and recommended the payment of sundry accounts.

The PRESIDENT (as Chairman of the Committee), in moving the adoption of the report and recommendations, announced a legacy of £500 to the Benevolent Fund, from the late Mr. George Dudgeon of Nottingham.

The report and recommendations were adopted.

BENEVOLENT FUND COMMITTEE.

The report of this Committee included a recommendation of the following grants :—

£5 to a registered chemist and druggist (45), who was in business for fifteen years, but in 1893 had a paralytic stroke, and is now imbecile. The business was sold but did not realise enough to pay liabilities. Has a wife and six children, the two elder being in situations, but not able to assist him. (Carmarthen.)

£10 to the widow (65), of a member, who has had eight previous grants, amounting to £70. She is unable to earn anything from ill-health, and is dependent on her children. (London.)

£13 to the widow (60), of a registered chemist and druggist who died in July last. He had been acting for the last thirty years as assistant in various parts of London. Applicant is crippled with rheumatism, and is entirely dependent on the small earnings of her three children. (London.)

£13 to the widow (62), of a registered chemist and druggist, who has had ten previous grants amounting to £86. (Crewe.)

£12 to the widow (59) of a registered chemist and druggist, who had a grant of £10 in 1890. Applicant has also had two previous grants of £12 each. She is unable to work, and lives with her daughter, who has a small newspaper shop. (London.)

£10 to a registered chemist and druggist (72), who has had two previous grants of £10 each. He and his wife is entirely dependent on a small allowance made him by his sister. (London.)

One case was deferred for further information, and four others were not entertained.

The VICE-PRESIDENT (as Chairman of the Committee), having explained the reasons which actuated the Committee in refusing one of the applications, moved the adoption of the report and recommendations. He said there was nothing calling for special observation except perhaps the fact that out of eleven applicants, four were under the age of fifty. Four out of the number had had grants previously, but their condition rem ed as necessitous as

before; in fact they had become to some extent annuitants, but the Committee having investigated the cases, felt it was right to follow the course adopted by their predecessors, and to make the grants.

The report of the Committee was adopted unanimously.

Library, Museum, School, and House Committee.

Library.

The report of the Librarian had been received, including the following particulars:—

	Attendance.	Total.	Highest.	Lowest.	Average.
July	Day	273	19	1	10
	Evening	80	9	1	3
August	Day	54	5	0	2
September	Day	80	12	3	6

Circulation of Books.	Total.	Town.	Country.	Carriage paid.
July	153	80	73	17*s.* 10½*d.*
August	155	56	99	£1 3*s.* 8*d.*
September	106	45	61	17*s.* 9*d.*

Donations to the Library had been announced (*Pharm. Journ.*, Oct. 12, p. 311), and the Committee had directed that the usual letters of thanks be sent to the respective donors.

The Committee had recommended that the under-mentioned works be purchased:—

For the Library in London:—

Blyth, Poisons, 3rd. ed., 1895.
Allen, Chemistry of Urine, 1895.
Menschutkin, Analytical Chemistry, 1895.
Ostwald, Foundations of Analytical Chemistry, 1895.
Lassar-Cohn, Laboratory Manual of Organic Chemistry, 1895.
Roscoe, John Dalton and the Rise of Modern Chemistry, 1895.
Maisch, Organic Materia Medica, 6th ed., 1895.
Robinson and Cribb, The Law and Chemistry of Food and Drugs, 1895.
Coblentz, Handbook of Pharmacy, 1894.
Druce, Flora of Berkshire.

For the Library in Edinburgh:—

Green, Manual of Botany, 1895.
Bloxam, Chemistry, 8th edition.

The Librarian had reported that at the annual revision of the Library, the under-mentioned eight books were missing:—

Canning, Chemists' and Dispensers' Vade Mecum, 1882.
Cripps, Galenic Pharmacy, 1893.
Fritzsche Brothers, Essential Oils, by F. B. Power, 1894.
Extra Pharmacopœia, 7th ed., 1892.
Morley, Organic Chemistry, 1886.
Squire, Pharmacopœias of London Hospitals, 6th ed., 1891.
Tait, Heat, 1884.
Thorpe, Quantitative Chemical Analysis, 1873.

The Committee had ordered that the list of missing books be published.

The Librarian had presented a report on the annual meeting of the Library Association.

Museum.

The report of the Curator had been received, and included the following particulars:—

	Attendance.	Total.	Highest.	Lowest.	Average.
July	Morning	409	32	1	15
	Evening	41	8	1	2
August		27	5	1	1
September		105	20	3	8

Donations to the Museum had been received (*Pharm. Journ.*, October 12, p. 311), and the Committee had recommended that the usual letters of thanks be sent to the respective donors.

The Curator had presented a report on the annual meeting of the Museum Association.

The President, in moving the adoption of the report, said the greater part of it was formal. Perhaps the only subject which required reference was an application for assistance from the Exeter Technical and University Extension College. That application had been postponed until next month, but recently he, with the Secretary and Mr. Holmes, had had a conference with Mr. Gadd, an active member of the Council of the College, and a member of the Society, who took an active part in the promotion of pharmaceutical education in Exeter. They went over the premises, and should be able to report to the Committee next week that it was one of those institutions which he thought should be recognised. They had an excellent chemical laboratory, capital lecture theatres, and all the materials necessary for giving a proper pharmaceutical education, both in science and in its application. Without prejudicing the conclusion to which the Committee might come, he thought it was only due to the Exeter people to say that much. They had obtained assistance from the University Extension Society, some from the Town Council, and some from other sources, and by this combination of capital they had secured an institution which he thought would be of the greatest possible use to Exeter, and, if appreciated, would afford to the young people in the locality the means of preparing for their examinations.

The report was adopted.

The Meeting at Plymouth.

The President said that he and Mr. Allen, with the Secretary and Mr. Holmes, were invited to a celebration at Plymouth a fortnight ago. The Three Towns, which had arranged a conference, invited them not only to the conference, but also to a dinner, and generally showed the consideration and kindness which all their provincial friends now showed to the representatives of the Society. He believed, as he had said before, that the visit was useful. Such visits serve as one of the best means of keeping up an interest in things pharmaceutical in country districts, and though Plymouth was rather a long way off, any little inconvenience experienced in going so far was well repaid. He expressed, on the part of his colleagues and himself, their appreciation of the kindly regard shown them by all the members of the trade in Devonshire and Cornwall. Their reception was enthusiastic and loyal, and he believed the feeling throughout the provinces generally was one of kindly interest and regard. Just as a meeting which he attended some years ago was instrumental in forming a Three Towns Association, by means of which many misconceptions were brushed away, so he hoped the presence of himself and his colleagues on this occasion would help to maintain the spirit of self-denial, which was necessary both in the Pharmaceutical Society and in the local associations if they were to be successful.

Mr. Atkins said he had reason to know that the visit to which the President had referred had done a great deal of good in the neighbourhood. He had had a letter from a friend living west of Plymouth, in which he expressed the conviction that such was the case. Some years ago he told the President that he thought his peripatetic visit to the north was of great service, and he was quite satisfied that this later interchange of opinion was of the first importance. He was also very glad to learn that there was a prospect of some substantial work being done at Exeter. What the financial prospect might be he did not know, but if sufficient funds were forthcoming, and Exeter could be made a scientific centre, it would be a very great boon to the whole district between there and Salisbury. In some previous cases similar efforts had proved evanescent, but he hoped more success would attend this movement.

Mr. Allen said it was hardly necessary to add anything to what the President had said in regard to the visit to Plymouth, but he would like to say publicly that he retained the most pleasant recol-

lections of that visit. It appeared to him that, from the moment of their reception at the railway station until their departure, they were in the hands of friends who did all they could to make their stay as agreeable as possible. One felt that he was talking to those who had one common object in view, and whose conference was likely to be exceedingly helpful both to themselves and to the Society as a whole. He hoped that might not be the last time they would go to Plymouth, for any little personal inconvenience caused by such a long journey was amply compensated by the heartiness of the welcome they received.

Letter of Thanks.

The PRESIDENT said the Secretary had received a letter from Mr. Howard B. French, of Philadelphia, who was in London recently and visited the Society's premises. He thanked the Secretary for the gift of a medical and botanical map of the world, which he was about to hand over to the authorities of the Philadelphia College, and for photographs of the Presidents of the Pharmaceutical Society, which were now framed and hanging on the walls of the Library of the Philadelphia College of Pharmacy.

General Purposes Committee.

The report of this Committee included a statement that the appeal cases in Scotland had been decided in favour of the Society on all the points raised. It also reported that the Committee had received nominations for local secretaries, and recommended that the persons named in the list presented (see Supplement, p. iii.), be appointed for the ensuing year. The Committee also recommended that Aberystwith and Worcester be deleted from the list of centres for local examinations.

The PRESIDENT added that certain changes had been made in the local secretaries, to which reference should be made. At Bournemouth Mr. Toone wished to retire and had been succeeded by Mr. Bilson. The Council would, he was sure, desire to express its thanks and appreciation to Mr. Toone for the time he had given to the discharge of the duties of the position. Mr. J. T. Windle, of Chesterfield; Mr. A. Worts, of Harwich; Mr. T. B. Percy, of Truro; and Mr. J. F. Edisbury, of Wrexham, had also retired for various reasons, and to each of them he desired, on behalf of the Council, to express appreciation of the kindness they had shown in undertaking the duties in their respective localities. It might also be interesting to report that there was now a local secretary at Bootle. That appointment would greatly facilitate work in the neighbourhood of Liverpool.

Assistant local secretaries were also appointed (see Supplement, p. iv.).

Report of Examinations.

The following report of examinations was presented:—

October, 1895.

	Candidates. Examined.	Passed.	Failed.
England and Wales:—			
Major	15	9	6
Minor	116	47	69
Modified	1	1	0
Scotland:—			
Major	7	2	5
Minor	113	39	74
First Examination	299	147	152

Thirty-one Certificates by approved examining bodies were received in lieu of the Society's First examination.

First Examination.

The PRESIDENT also placed on the table the following list of centres at which examinations had been held during the past three years, with the number of candidates at each centre; and it was ordered to be entered on the minutes.

List of Centres and Table of Attendances of Candidates at each Centre.

CENTRES.	1893. Jan., Apr., July, Oct.	1894. Jan., Apr., July, Oct.	1895. Jan., Apr., July, Oct.	Total number of attendances at each centre at 12 examinations.
ENGLAND AND WALES.				
Aberystwith	4	7	7	18
Birmingham	80	90	67	237
Brighton	4	16	18	38
Bristol	37	38	26	101
Cambridge	13	18	13	44
Canterbury	13	17	6	36
Cardiff	38	36	40	114
Carlisle	48	54	40	142
Carmarthen	32	36	40	108
Carnarvon	27	26	15	68
Cheltenham	12	12	11	35
Darlington	31	28	26	85
Exeter	21	19	15	55
Hull	16	22	25	63
Lancaster	28	13	24	65
Leeds	68	61	69	198
Lincoln	42	19	17	78
Liverpool	71	58	76	205
London	165	169	154	488
Manchester	123	131	125	379
Newcastle	31	47	57	135
Northampton	14	4	14	32
Norwich	20	34	20	74
Nottingham	45	57	52	154
Oxford	14	9	20	43
Penzance	5	14	13	32
Peterborough	15	14	27	56
Plymouth	20	24	11	55
Sheffield	34	28	24	86
Shrewsbury	19	18	22	59
Southampton	32	44	39	115
Worcester	8	9	7	24
York	23	24	29	76
SCOTLAND.				
Aberdeen	70	60	53	183
Dundee	45	43	31	119
Edinburgh	110	111	106	327
Glasgow	92	92	73	257
Inverness	14	28	16	58

Total number of attendances at 6 examinations.

Douglas, I. of Man	10
Guernsey	5
Jersey	2
Kirkwall	5

The Scottish Appeal Cases.

The PRESIDENT said it was desirable that he should say a word or two with referenoe to the appeal cases in Scotland. Readers who had followed the arguments in those cases, against Mr. Turnbull and Mr. Hume, two highly respectable and respected men in Edinburgh, would have noticed that there seemed to be on the part of the judges, as there seemed to be on the part of the sheriffs, in many parts of Scotland, a disposition to regard the carrying out of the PharmacyAct by the Council as a process which was, to speak plainly, something unfair; and to regard the Society as acting in a purely trade union spirit. It did not seem to be understood that the duty

was placed on the Council by the Legislature of taking certain proceedings in the interest of the public. It was, however, in that interest that all proceedings were taken. The Council was bound to take every case into its consideration, which it did with the utmost care, and in taking proceedings against those two defendants it was not actuated by any other motive than that of enforcing the Act. One person at least, if not both, had been previously written to on the subject, and the proceedings were taken against them for keeping open shop for the sale of a virulent poison, and for the use of the title of chemist over the shop and on the label. It was never suggested that any person who called himself a chemist should be harassed for so doing, unless he put up that title over an open shop, where poisons were sold to anyone who came in to purchase. The report of the case would show to any unprejudiced person the distinct danger of gentlemen in the position of Mr. Hume and Mr. Turnbull—who dealt in a large number of things, scientific apparatus, etc.—keeping open shop and allowing any boy or girl to go in and buy corrosive sublimate, cyanide of potassium, or any other poison, and to exhibit and use a title which, bearing upon no part of their ordinary avocations, came within the prohibitions under the Pharmacy Act. He was anxious to make that statement because it was often stated that the Society claimed a trade-mark right in the word "chemist." They claimed nothing more than the Act gave them, and they considered that the spirit of the Statute clearly was that any person who exhibited any title implying that he was registered under the Act, while he kept an open shop from which any person, known or unknown, could buy poison, was liable to penalties under Section 15, not less by common-sense than by law. They had the highest respect for both the gentlemen concerned, and penalties were not sought from any interested point of view, but only with a desire that the law should be obeyed, and he was happy to think that both Mr. Turnbull and Mr. Hume regarded those as test cases, and probably felt that they had behaved, as indeed they had, as honourable men. It was, however, due to himself, as President of the Society, that he should state publicly that there was no personal feeling against anybody, but that the duty of the Society was to prevent the sale of poisons, whether forming part of a medicine or not, by any person not registered for the purpose, and to prevent the use of the title of chemist by such person over his shop, or on any label, which implied that he was registered under the Act. That was all done simply in the interest of the public. It was shown that poisons were sold to strangers, and, of course, it was impossible in a large business, where various kinds of chemicals were used for varied purposes, for even the most careful person to prevent errors of judgment being sometimes committed by servants or assistants. In all cases where the title of chemist was accompanied by the sale of poison to the public the matter was regarded by the Council as coming clearly within the scope of the Act. He made those remarks in order that persons who took an interest in the work of the Society, and especially their friends in Scotland, some of whom might think they were becoming persecutors, should know the exact reasons why the proceedings were taken.

Mr. SCHACHT suggested that the President should read the judgments in the cases.

The President accordingly did so. They are printed at p. 397.

EXAMINATIONS IN 1896.

It was resolved that the examinations in England and Wales during 1896 be held in the months of January, April, July, and October.

LEGAL BUSINESS.

The Council then went into Committee to hear and consider that portion of the report of the General Purposes Committee which dealt with legal cases, and which included the usual letter from the Solicitors.

On resuming, the report and recommendations were unanimously adopted, and resolutions were passed authorising the Registrar to institute proceedings against the persons named therein.

COUNCIL MEETING IN JANUARY.

It was arranged that the Council meeting in January, which would fall on the 1st, should be deferred to the 8th, as being more convenient.

FERRO-PRUSSIATE PAPER.

This is not one of the easiest papers to prepare so that it will keep. White demy is not a suitable paper to use, as it is more than likely that it contains "bleach" or else chlorides. Saxe or Rives' raw paper should be used, and not less than the 12 Kilo. variety, that is the quality which weighs 12 kilogrammes per ream of 480 sheets. This can be obtained from such dealers as Marion and Co., Mawson and Swan, Houghton, etc. These papers measure about 17 by 22 inches per sheet, but it is advised to use half-sheets at first. Pin the paper to a drawing or other flat board, and make two brushes—a Blanchard and a buckle brush. To make the former, take a piece of glass, an old quarter-plate cutting glass is the best, and obtain a piece of swansdown, or well-washed and dried lint not less than 4 inches wide and 4¼ inches long; double the latter in half, fluffy side outside, put the glass in between the folds of the cloth so that it reaches to within half an inch of the bottom, then put one or two stout indiarubber bands round the cloth and glass so as to hold them firmly in place. The buckle brush is made with cotton wool and glass tubing, the latter having from 1/4 to 3/8 inch bore; take some absorbent cotton wool about 4 inches long and about 1 inch thick, pass a bit of stout string round the middle of the tuft of cotton wool and the free ends of the string up the glass tube—which need not be longer than about 3 inches—pull the string and wool up the tube till about 1½ inch of wool projects, then with a pair of sharp scissors cut the wool square across the ends. Of course an artist's mop varnish brush may be used instead, but the advantage of the buckle brush is that the wool can be thrown away when once used and replaced by new. The sensitising solutions require some considerable care. A normal formula is—A. Ammonio-citrate of iron, 96 grains; Distilled water to make 1 oz.; B. Potassium ferridcyanide, 72 grains; Distilled water to make 1 oz.; C. Potassium bichromate, 5 grains; Distilled water, *q.s.* to dissolve. Mix A and B, add C, and filter quickly, then use immediately. The ammonio-citrate should be in scales free from powder, and should not have been exposed to light. The ferridcyanide must also be free from any adherent powder, and it is advisable in weighing out to allow 2 or 3 grains extra, then place the crystals in a measure with a little distilled water, stir briskly and pour off the water, using only the washed crystals. To coat the paper, and this must be done by gaslight, pour some of the solution into a saucer, dip the Blanchard brush into it and pass quickly across the paper, again dip the brush in solution and pass across from where you left off. When all the paper has been thus coated, take the buckle brush and with a circular motion remove all the brush marks, then dry as quickly as possible. Dextrin is sometimes added to the solution, but it is preferable to size the paper first with solution of arrowroot, 5 grs. to the ounce of water. There are various modifications of the process, but the above method has been found to work well in practice—if good paper and good chemicals are used if the solutions are freshly prepared, and the paper dried quickly and then stored in a tube containing calcium chloride.

PHARMACEUTICAL JOURNAL.

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THE PHARMACY ACT IN SCOTLAND.

The decisions in the Appeal Cases argued before the High Court of Justiciary in Edinburgh, have given rise to numerous comments in the newspapers, which are of a nature indicating very remarkable want of acquaintance with the provisions of the Pharmacy Act, 1868. The opinions expressed can be accounted for only by supposing that the writers are entirely ignorant of the objects and intention of the Statute. It will be sufficient to state that the general purport of the comments referred to is that the action taken by the Council of the Pharmaceutical Society has been instigated by a pettifogging spirit of trade unionism, and that the prosecutions instituted against sellers of poison in contravention of the law are evidence of a desire to take unfair advantage of exceptional privileges conferred by the Pharmacy Act upon the body represented by the Society.

It is sufficiently remarkable that persons supposed to furnish the public with information should betray such palpable incompetence for the performance of the task they undertake. It is nothing less than astonishing that they overlook the fact stated in the preamble to the Act that "the safety of the public" was the sole reason for regulating the retail sale of poisons by the provisions of the Act, and subjecting the persons legally qualified to carry out that sale to obligations involving liability to penalties if not fulfilled. It might even have been supposed that editors of newspapers would have been acquainted with the fact that a large number, if not the majority, of lawful vendors of poison have regarded the provisions of the Pharmacy Act rather in the light of oppressive constraint than as giving them exceptional privileges.

But the most striking revelation presented by the recent cases is the view which appears to be entertained by administrators of the law as to the position and motives of the Pharmaceutical Society, and as to the desirability of such an interpretation of the Pharmacy Act as the Society contends for. The judgment of Lord Trayner clearly indicates that the inclination of his mind was at first such as to lead him to a decision of the questions at issue opposite to that recognised as inevitable by the Lord Justice Clerk, not only to maintain consistency with the ruling of the English Courts, but also for giving effect to the provisions and intent of the Statute. The ultimate concurrence of Lord Young with that decision, notwithstanding the opinions distinctly, and we may add erroneously, expressed by him in the course of the hearing, appears to have been arrived at with such considerable reluctance that if the questions at issue had been submitted to him alone the result might probably have been different.

THE COUNCIL MEETING.

Temporary ill-health prevented the attendance of three members of the Council last Wednesday, Mr. Bottle, Mr. Hampson, and Mr. Newsholme, but we are glad to report that Mr. Hills was sufficiently recovered from his late attack to be present on that occasion.

After the minutes of the previous meeting had been read and confirmed, the President read a letter announcing the death of Mr. Linford, who was for many years a member of the Board of Examiners. In moving that a letter of condolence should be sent to his widow, the President drew attention to the circumstance that, in addition to Mr. Linford's official connection with the Pharmaceutical Society, he was, together with Mr. Darby and others, associated in early life with Mr. Lloyd Bullock in the endeavour to advance the position of those engaged in the practice of pharmacy, with an influential result, the importance of which could scarcely be appreciated by many at the present time. In supporting the proposal of the President, Mr. Corder testified to the value of his former colleague's services as an Examiner.

As arising out of the minutes of the last meeting, the President stated that the Board of Examiners had ascertained the examination of the Cape of Good Hope University to be of a very high class, and it was resolved that its certificate, having been approved by the Board, should be accepted in lieu of the Society's First Examination.

A letter from Mr. Helbing, the honorary Secretary of the Burroughs' Memorial Fund, was read by the President It stated that the subscriptions already amount to £860, and, the intention being to apply the money to the foundation of a scholarship, the Council was asked to become trustee of the fund for that object. On the motion of the President, seconded by Mr. Martindale, it was resolved that this should be done, and Mr. Carteighe, as Chairman of the Memorial Committee, then invited the individual support of members of the Council, in order that the scholarship might become of such a substantial character as to afford increased facilities for the acquisition of knowledge.

An application from Dr. Charles M. Luxmoore for the Research Fellowship was communicated from the Research Committee by the President, and in concurrence with the favourable opinion of the Committee, it was resolved that the Research Fellowship should be conferred upon Dr. Luxmoore.

Mr. Atkins called attention to the recent appointment of M. Berthelot to a position in the French Ministry as a somewhat unique event, on which the Government of France might be congratulated even more than that distinguished chemist.

The report of the Finance Committee was generally of the usual routine character, the only particular calling for special mention being the announcement of a legacy of £500

left by the late Mr. GEORGE DUDGEON, of Nottingham, to the Benevolent Fund.

On the recommendation of the Benevolent Fund Committee, six grants were ordered to be paid, two of thirteen pounds each, one of twelve pounds, two of ten pounds each, and one of five pounds. The Vice-President called attention to the fact that out of eleven applicants for relief from the Benevolent Fund, four were under the age of fifty. Four of them had also received grants on previous occasions, but their condition was still so necessitous and deserving as to justify further grants, so that to some extent those applicants had become annuitants.

The report of the Library, etc., Committee was for the most part merely a formal record of attendances, donations, etc., but an application from the Exeter Technical and University Extension College (see *ante*, p. 357) was referred to by the PRESIDENT, in consequence of his having, together with the Secretary and Curator, had an opportunity of visiting the College and conferring with Mr. GADD, an active member of the local council. The fitness of the institution for affording education in scientific subjects to pharmaceutical students will be reported upon to the Committee next week, as being of such a nature as to be of great advantage to apprentices in Exeter, and possibly also to warrant the application made for assistance by the Pharmaceutical Society.

In giving an account of the recent Conference at Plymouth, the PRESIDENT and Mr. ALLEN expressed their appreciation of the kind reception they had met with from members of the trade in Devon and Cornwall on that occasion, and their opinion that such meetings are productive of great benefit in establishing friendly relations and promoting the objects of the Pharmaceutical Society. Mr. ATKINS added that he knew this had been the case, and that the prospect of Exeter being made a centre of education would also be beneficially felt at Salisbury.

A letter of thanks from Mr. HOWARD B. FRENCH was read acknowledging the gift of a botanical map and of photographs of Presidents of the Pharmacetical Society, which have now been hung up in the Library of the Philadelphia College of Pharmacy.

On the recommendation of the General Purposes Committee, the persons named in a list submitted (see Supplement, page iii.) were appointed local secretaries for the ensuing year. In reference to various retirements from that position, the PRESIDENT suggested that the Council should express thankful appreciation of the services of Mr. TOONE, of Bournemouth. He also mentioned Mr. J. T. WINDLE, of Chesterfield, Mr. A. WORTS, of Harwich, Mr. T. B. PERCY, of Truro, and Mr. J. F. EDISBURY, of Wrexham, as claiming the thanks of the Council for having undertaken the duties of local secretary in their respective localities. The appointment of a local secretary for Bootle was referred to as likely to facilitate the work to be done in the neighbourhood of Liverpool. Assistant local secretaries were also appointed (see Supplement, page iv.). The centres for local examinations were agreed to, and upon the recommendation of the Committee, Aberystwith and Worcester were deleted from the list.

It was resolved that the examinations in England and Wales during 1896 should be held in January, April, July, and October.

The report of the Committee gave the customary account of legal work, and the Registrar was authorised to institute proceedings in cases of infringement of the Pharmacy Acts.

The report also gave a statement as to the appeal cases recently decided in Scotland, and the PRESIDENT pointed out that the proceedings taken against the two defendants in those cases were not actuated by any other motive than a sense of obligation to enforce the Act, in cases where the use and exhibition of the title chemist is associated with the keeping of open shop for the retail sale of poison and constitutes a distinct danger to the public. Nothing more is claimed than the Act gives, but the law declares that any person who exhibits a title implying that he is registered under the Act while keeping open shop, from which poison can be procured, is liable to penalties, and it is the duty of the Pharmaceutical Society to see that the law is obeyed. The performance of that duty is undertaken by the Council simply in the interest of the public, and it was necessary to make those remarks in order that the exact reasons for taking the proceedings should be known, and that they should not be attributed to a desire to persecute.

"THE ANTI-CUTTING RECORD."

UNDER this title has appeared the first part of a new monthly journal, which is described as being "published in the interests of retail pharmacists, wholesale patent medicine dealers, and of the proprietors who ensure a fair profit to the vendors of their articles." It is further stated that a copy of each issue will be sent post free to every chemist in business in the United Kingdom. Our readers are therefore probably in the position of being able to judge for themselves of the possible value of the scheme proposed and of the chances of success such a venture possesses. Apparently, an attempt is to be made by means of this publication to compel the makers of proprietary preparations to co-operate in a scheme for maintaining retail prices at a fixed minimum. We say "compel" advisedly after perusing the following statement: "If we are satisfied that the manufacturer is taking steps to ensure a living profit on his goods, we will do everything that lies in our power to assist him, and will always discountenance the practice of substitution in connection with his article. On the other hand, we will do all in our power to facilitate the retailer being able to offer a suitable substitute which does bear a profit, in the place of the article of the manufacturer who refuses to protect when the great bulk of the work and expense in connection with that protection is taken off his hand."

The basis of the proposed scheme is that chemists must themselves take the initiative, whilst the co-operation of the manufacturers and wholesale dealers is to be secured without involving them in trouble and expense. A form of agreement is to be drawn up, in which will be specified all preparations containing scheduled poisons and such others as are already more or less protected against "cutting" by the action of their respective proprietors. The proposed minimum price of each article will be stated in this form, which every pharmacist in business will be asked to sign. No methods of enforcing the agreement are yet specified, but the conductors of the *Anti-Cutting Record* state that they have under consideration several ways in which it can be effectually enforced. Suggestions are asked for on this point, however, in case the plan decided upon should prove susceptible of improvement.

Whether the promoters of this scheme will be able, to

any extent, to overcome the inertia that so widely prevails is doubtful, but the fact of the publication of the *Anti-Cutting Record* would seem to indicate that a decided attempt will be made to do so. A London office has been established in connection with the scheme, and there all cases of alleged breach of agreement are to be investigated by a special staff. The profit from advertisements in the paper is relied upon to meet the necessary expenditure, but this would seem an uncertain source of income, seeing that manufacturers of proprietary articles and wholesale dealers will probably have to be depended upon for those advertisements. For this reason, probably, members of the retail trade are invited to contribute an annual subscription of half-a-crown, though whether this be done or not a free copy of each issue of the paper will be sent. Chemists are also invited to give loyal support by replying to questions addressed to them from time to time, by prompt information respecting any breach of agreement, and "by supporting, whenever possible, the firms that show, as advertisers in this Journal, that they have the interests of the Retail Chemists at heart" (*sic*). Concerning the merits of this gigantic system of "boycotting," it is hardly necessary that we should venture any criticism, since it speaks for itself, but it may be remarked that the spirit in which it is conceived is diametrically opposed to the best traditions of professional pharmacy.

PROPOSALS FOR A PROTECTIVE DUTY.

Acting upon the assumption that Sir Michael Hicks-Beach, as Chancellor of the Exchequer, will probably have a large surplus of revenue to dispose of when the next Budget is drafted, a Mr. Frederick Blood, of Edgbaston, Birmingham, has addressed to him a letter, in which he makes the suggestion that such surplus should be devoted to the reduction of the income-tax, in the case of the upper and middle classes, to threepence in the pound. Having thus disposed, at one bold stroke, of the whole of the hypothetical surplus, Mr. Blood next proposes the imposition of a duty on all competing imports of manufacture and agricultural products "to such an extent as would prevent their supplanting our home industries, and with a discrimination in favour of those colonies who would give the same preference to our manufactures." With the income thus raised the duty on tea, coffee, tobacco, dried fruits and all tropical products is to be wholly or partially removed, in addition to half the duty on beer brewed from malt and hops only. "These concessions," it is observed, "would fully compensate the working classes for any rise in the price of food." In a postscript to his letter, Mr. Blood modestly remarks that, in the event of a still larger revenue being required, cycles, street hoardings, and foreign aerated waters might well bear their share of the burden.

THE PHARMACOLOGY OF IPECACUANHA ALKALOIDS.

A lecture was delivered before the Manchester Medical Society, on Wednesday evening, November 6, by R. B. Wild, M.D., M.R.C.S., on the pharmacology of the alkaloids of ipecacuanha. Dr. Wild has been for some time past investigating the physiological action of the pure alkaloids—emetine and cephaeline—as prepared and described by Paul and Cownley (see *Pharm. Journ.* [3], xxv., 111), and we propose to publish a report of his lecture in next week's Journal.

ANNOTATIONS.

Evening Meeting in London.—The first evening meeting of the Pharmaceutical Society for the current session will be held on Wednesday next, November 13, at 17, Bloomsbury Square, W.C., The President, Mr. Michael Carteighe, will take the chair at 8 o'clock. Professor Henry G. Greenish will read a paper on "The Histology of *Andrographis paniculata*," and Mr. William Martindale will present a communication on "Decoctions and Infusions."

Chemists' Assistants' Association.—The members of this Association hold their annual conversazione at the Portman Rooms Baker Street, W., on Thursday next, commencing at 8 p.m. There will be the usual programme—reception at 8 p.m., concert 8.30 to 10, and dancing at 10.15. Pritchard's quadrille band is engaged, and tickets (single, 3*s.* 6*d.* each; double, 5*s.* 6*d.*) may be obtained of any of the numerous stewards, or of the Honorary Secretary, Mr. C. Morley, 3, Bucklersbury, E.C.

Glasgow and West of Scotland Pharmaceutical Association.—The President and Council of this Association request that members and friends who may not have received personal invitations to the "At Home," on Thursday evening next, will not await the receipt of such invitations, but at once intimate their intention of being present to the Secretary, Mr. J. Anderson Russell, 212, New City Road, Glasgow. Ladies are included in the invitation, and the proceedings will commence at 8.30 p.m., at the Cockburn Hotel, Bath Street, Glasgow.

Removal of Blood Stains.—Dr. Blenkiser, in the *Scalpel*, recommends tartaric acid for this purpose; surgical instruments, sponges, the hands of the operator, and other blood-stained articles may be readily cleansed by washing them in a tepid solution of tartaric acid, and then rinsing in water without soap. When porous material is blood-stained the tartaric acid solution should be well wrung out before rinsing them.

The Late M. Pasteur.—Mr. Malcolm Morris once spent two days with Pasteur in his laboratory, and says he was much struck by the extremely business-like way in which the work was organised and carried out. "Pasteur was one of the most unassuming men I have ever met; so quiet and so utterly free from self-assertion was his manner that it was difficult to realise that one was conversing with a man who had revolutionised medicine and influenced the whole future destiny of the human race. It is not too much to say that the history of medicine must henceforth be divided into two epochs: before Pasteur and after Pasteur."

Botany at the Universities.—The election to the Professorship of Botany, at Cambridge University, vacant by the death of Professor C. C. Babington, took place on Saturday afternoon last, when the choice of the electors fell on Mr. Harry Marshall Ward, Professor of Botany at the Indian Engineering College, Cooper's Hill. Dr. Marshall Ward, who was formerly a Fellow of Christ's College, took a First Class in the Natural Sciences Tripos of 1879. The stipend of the Professor is £700 per annum. The University of Oxford benefits under the will of the late Mrs. Fielding, who has bequeathed £900 for the purpose of providing for the payment of a curator of the Fielding Herbarium. It is proposed that the curator shall also supervise the botanical library, and be under the direct control of the Sherardian professor of botany.

MANCHESTER PHARMACEUTICAL ASSOCIATION.—We are desired to notify that Mr. William Kirkby will introduce for discussion the subject of "Pharmaceutical Education," at a meeting of this Association, to be held at the Mosley Hotel on Wednesday, November 13, when the chair will be taken at 7.30 p.m. by the President (Mr. G. S. Woolley). A smoking concert will be held at the conclusion of the discussion, and an excellent programme has been arranged by the Committee. Both meetings will be open to members and non-members alike, a cordial invitation being given to all connected with the trade.

PHARMACY STUDENTS' SMOKING CONCERT.—We are requested to state that the Committee of the Pharmaceutical Football and Cricket Club will be glad to hear without further delay from those intending to be present at the smoking concert on Friday next, November 15, as it will otherwise be difficult to make the necessary arrangements. We understand that the programme for the evening is an unusually good one.

THE CHEMISTS' BALL.—At a meeting held at 17, Bloomsbury Square, London, on Monday last, it was resolved that the Chemists' Ball should be held at the Portman Rooms on Wednesday, Jan. 15, 1896, and a committee was formed, as follows: Mr. M. Carteighe (Chairman), Dr. J. Attfield (Treasurer), Mr. J. W. Bowen, Mr. R. Bremridge, Mr. T. H. Francis, Mr. T. C. W. Martin, Mr. J. H. Mathews, Mr. A. J. Phillips, Mr. A. C. Preston, Mr. P. J. Robbins, Mr. J. Style, Mr. J. C. Umney, 66, Gordon Mansions, W.C. (Hon. Sec.). Gentlemen desirous of acting as stewards are requested to intimate the fact to the Honorary Secretary without delay.

THE ANDREW CLARK MEMORIAL.—Some little excitement has been caused by the discovery that the London Hospital authorities intended to apply the money subscribed to the Andrew Clark Memorial Fund for the purpose of erecting a block of buildings for the accommodation of porters. The medical papers speak of the movement having ended in "something like a *fiasco*," and references are freely made to the eagerness displayed by the hospital authorities to utilise this opportunity of "raising the wind."

"PERCENTAGE" IN ANTISEPTIC DRESSINGS.—Our enterprising contemporary, the *Pharmaceutical Era*, has been affording space for a discussion of the meaning of the term "percentage" as applied to antiseptic dressings, and pertinently remarks, "We do not care, the druggist does not care, whether the term 'percentage' shall be applied to the solution or to the finished product; but we do care, and the druggist cares, to know what we are purchasing." We are quite in accord with the suggestion that when the articles are finished, the manufacturers should put labels on them, stating "exactly what they are, how they are made, and what they contain." This might apply generally to preparations supplied to pharmacists by wholesale manufacturers, and not to antiseptic dressings only.

SERIOUS FIRE AT WREXHAM.—We regret to report that the premises occupied by Mr. J. F. Edisbury, chemist, Wrexham, who has just resigned the post of local secretary of the Pharmaceutical Society, was badly damaged by fire on Tuesday morning last. The damage is estimated at £1000, and the origin of the fire is unknown.

LONDON CHEMISTS' DINNER.—Pharmacists in the metropolis are reminded that the annual dinner of the Western Chemists' Association of London will be held at the Café Royal, Regent Street, W., on Wednesday, November 20, at 7 p.m. The chair will be taken by the President, Mr. R. H. Parker. Tickets may be obtained of the honorary secretaries, Mr. Herbert Cracknell, 17, Craven Road, W., and Mr. A. Dyson, 35, Gloucester Road, S.W.

PUBLICATIONS RECEIVED.

MEDEDEELINGEN UIT 'S LANDS PLANTENTUIN. Part XIII. Eerste Resultaten van het door Dr. W. G. BOORSMA, verrichte Onderzoek naar de Plantenstoffen van Nederlandsch-Indië. Pp. 87. (Batavia ——'s Gravenhage: G. Kolff and Co., 1894.) From the Author.

THE DISEASES OF CHILDREN'S TEETH: THEIR PREVENTION AND TREATMENT. By R. DENISON PEDLEY, M.R.C.S., L.D.S. Eng., F.R.C.S. Edin. Pp. 268, with 99 illustrations. (London: J. P. Segg and Co., 289 and 291, Regent Street, W. 1895.) From the Publishers.

AIDS TO THE ANALYSIS OF FOOD AND DRUGS. By T. H. PEARMAIN, AND C. G. MOOR, M.A., F.C.S. Pp. 160. Price 3*s.* 6*d.* (London: Baillière, Tindall, and Cox, King William Street, Strand, 1895.) From the Author.

THE CAVENDISH LECTURE ON DREAMY MENTAL STATES. By SIR JAMES CRICHTON-BROWNE, M.D., LL.D., F.R.S. Pp. 32. (London: Baillière, Tindall and Cox, King William Street, Strand, 1895.) From the Publishers.

A LABORATORY MANUAL OF ORGANIC CHEMISTRY. BY DR. LASSAR-COHN. Translated from the 2nd German Edition by ALEXANDER SMITH, B.Sc., Ph.D., Pp. 403, with 42 illustrations. Price 8*s.* 6*d.* (London: Macmillan and Co., 30, Bedford Street, Strand, W.C., 1895.) From the Publisher.

THE TALLERMAN—SHEFFIELD PATENT LOCALISED HOT-AIR BATH. Pp. 51. Price 2*s.* (London: Baillière, Tindall and Cox, King William Street, Strand, 1895.) From the Publishers.

PROCEEDINGS OF THE CHEMISTS' ASSISTANTS' ASSOCIATION for 1894-95. Pp. 133. Price 2*s.* 6*d.* From the Association.

THE SCIENTIFIC FOUNDATIONS OF ANALYTICAL CHEMISTRY. BY WILHELM OSTWALD, Ph.D. Translated by GEORGE MCGOWAN, Ph.D. Pp. 207. Price 5*s.* (London: Macmillan and Co., 30, Bedford Street, Strand, W.C., 1895.) From the Publishers.

ANALYTICAL CHEMISTRY. By N. MENSCHUTKIN. Translated from the 3rd German Edition by JAMES LOCKE. Pp. 512. Price 17*s.* (London: Macmillan and Co., 30, Bedford Street, Strand, W.C., 1895.) From the Publishers.

THE CONDITIONS OF RADICAL CURE IN CANCER, with other papers. By HERBERT SNOW, M.D., Lond., etc. Pp. 63. Price 2*s.* 6*d.* (London: J. and A. Churchill, 11, New Burlington Street, W., 1895.) From the Author.

A TREATISE ON PHARMACY FOR STUDENTS AND PHARMACISTS By CHARLES CASPARI, JR., Ph.G. Pp. 679, with 288 illustrations Philadelphia, Pa.: Lea Brothers and Co., 706 and 708, Sansom Street, 1895.) From the Publishers.

DAS SÜDAMERIKANISCHE PFEILGIFT CURARE IN CHEMISCHER UND PHARMAKOLOGISCHER BEZIEHUNG. Part 1. DAS TUBO-CURARE. By R. BOEHM. Price 1.80 mark. (Leipzig: Bei S. Hirzel, 1895.) From the Publisher.

HINTS ON THE TEACHING OF ELEMENTARY CHEMISTRY IN SCHOOLS AND SCIENCE CLASSES. By WILLIAM A. TILDEN, D.Sc., F.R.S. Pp. 76. Price 2*s.* (London: Longmans, Green and Co., Paternoster Row, E.C., 1895) From the Publishers.

POISONING CASES AND INQUESTS.

Laudanum.—Elizabeth Olley, aged 51, of Gordon Rd., Lakenham, died on October 31, in the Norfolk and Norwich Hospital, from the effects of an overdose of laudanum. Verdict: "Death through inadvertently taking an overdose of laudanum."

Laudanum.—Eleanor Astley Naish, aged 26, of Wellington, Salop, died at the Princess Alice Orphanage, New Oscott, near Birmingham, on October 25, from the effects of an overdose of laudanum. Verdict "Death from misadventure, due to an overdose of laudanum taken to alleviate pains."

PROCEEDINGS OF SOCIETIES.

GLASGOW AND WEST OF SCOTLAND PHARMACEUTICAL ASSOCIATION.—The first ordinary meeting of the session was held on Thursday, October 31, when Mr. W. L. Currie, President, occupied the chair, and there was a good attendance of members.

Presidential Address.

The President, in the course of his opening address, said that there must be a good deal more *esprit de corps* among those who possess qualification under the Pharmacy Act, 1868, than at present exists. The aim should be to raise the professional status, and the possessor of the qualification should not sell himself to the highest bidder, as a marketable commodity. The moment some young men obtain the Minor qualification they help to extend the store system of trading by accepting appointments as manager or qualified assistant to some such combination. It is not conducive to the well-being of the general body of pharmacists that such should be the case, and if, after serious deliberation, anyone can do so, there must be a twist in his judgment. His reasoning powers are at fault, else he would not put forth his help to weave the rope which may one day hang himself and his calling. The monetary consideration for the time being has obscured his vision, and when the time arrives for him to think of becoming his own master and a responsible individual, he finds that his chance of so doing has been indefinitely postponed on account of the continued extension of the store system. It is a plain fact that if qualified men do not engage themselves to corporations, the latter cannot carry on business as dispensing chemists, and the great evil which threatens to crush out pharmacies and pharmacists will be for ever removed. The remedy really lies in the pharmacists' own hands, and if the desire for the general good was half as strong as the desire for individual advancement, they would soon rid themselves of the incubus which overshadows them.

Pharmacy as a Profession.

Though pharmacy has undoubted claims to be entitled a profession, at the same time it will be difficult to eradicate the trade element from its practice, and the man who is ashamed to go behind his counter to sell Epsom salts and cream of tartar had better enter upon some other calling. The chemist and druggist can truly lay claim to the title of a professional man, for he has had to obtain an education and training which must enable him to fulfil the requirements of a searching examination before obtaining his title. As the late President of the Pharmaceutical Conference has pointed out, however, if pharmacists are to elevate their calling to the position it ought to occupy, they must make legally enforced education the principal part of the programme, and if they can show to the Legislature and to the public, that by employing properly educated and trained men to supply their wants there is a distinct advantage, they will then have a strong claim to demand that the handling and dispensing of medicines should be entirely in the hands of those specially trained for the purpose.

Proposed New Pharmacy Bill.

With regard to a new Pharmacy Bill it is an absolute necessity that the Pharmaceutical Council be supported, not only by the members and associates of the Society, but by every man on the Register. If there is to be successful legislation, there must be unity of action, and those at present outside the Pharmaceutical Society, or at least a majority of them, should be got inside. This might be accomplished by means of an annual registration fee, and when the time is ripe for it powers may be obtained to legalise such a system. Local associations might do much by organisation and discussion, endeavouring also to secure from outsiders their promise, in the event of legislative measures being brought forward, that they will at least offer no opposition to a practical Bill.

Membership of the Society.

If the rights of membership be thrown open to all on the Register, the Society will gain both in influence and popularity. The remarks of Mr. Martin in this connection, in his address to the Pharmaceutical Conference, are to be regretted. The chemist and druggist of to-day, with the "minimum of education legally possible," as he puts it, is not only superior to those admitted to membership in 1868 by simply paying their fee, but has had in most cases a superior training and education to the Major man of twenty years ago. The business capacity of the Major man may have been neglected in order to acquire the honour, and his general observation blunted in the pursuit of knowledge. To place such an individual in a responsible position might soon prove that more than education pure and simple is necessary for a man's existence. At the same time, the Minor man of to-day is much alive to the necessity for a scientific training, and in a great many instances has turned it to good account, professionally and otherwise. The Minor examination (wrongly named) is the test of qualification recognised by the Pharmacy Act, and that being so, those possessing the qualification should be entitled to the membership of the Society.

"One-Man" Companies.

If the Pharmaceutical Society is supported in its endeavour to modify the existing conditions attached to the formation of one-man companies, there is little doubt that the effort will be successful. It is not creditable to our Legislature that the present condition should be allowed to exist, and the sooner it is remedied the better for the whole community.

Restriction of the Sale of Poisons.

It has been matter of public notoriety that there is no difficulty in obtaining certain poisons by applying to dealers in photographic materials when refused by the chemist, and the public naturally wonder why it is so. It seems so utterly ridiculous to some people that before a chemist will supply even a small quantity of certain articles one has to go through such a rigmarole, whilst the other man has only to be asked for the article and it is supplied, sometimes even without a label of any kind. But there should be even stricter regulations than at present. It is all very well for someone to go into a shop and make the request to be supplied with corrosive sublimate or cyanide of potassium for photographic purposes, and by going through the usual formula getting practically any quantity. Chemists should go even further, and inform themselves as to the quantity really required, and give no more. They have a duty to themselves as well as to the public, and should see to it, that they have due regard to the public safety by hedging the sale of poisons with as much difficulty as possible. The Pharmaceutical Society deserves all praise for doing its duty in trying to put a stop to the illegal trading in poisons, and chemists should give them every support in doing so. Even in the sale of poisons which require no registration they should exercise a certain amount of discretion. They are quite at liberty to sell any quantity of laudanum or chloroform by simply labelling it "poison." But is it right that such quantities should be sold so readily? Every obstacle possible should be placed in the way of obtaining a liberal supply of such commodities. If an accident should happen the man who sold the poison is likely to receive a good deal of abuse, even although he may in no way be to blame, and such a possibility should be carefully avoided.

Prejudice of the Public Press.

It is most unfortunate that a section of the public press should allow in its columns an expression of opinion to the effect that in prosecuting certain individuals for the sale of proprietary articles containing small quantities of poison, the Pharmaceutical Society is simply harassing such individuals, and "that the Society should not be allowed to levy fines on the public for offences which can do no harm." Such an expression only goes to show that the individual who penned it has no knowledge of the subject, and that, instead of abusing the Pharmaceutical Society for high-handed dealing, he should rather extend to its officers unstinted praise for their efforts to protect the public from danger.

Factory-made Preparations.

Finally, in these days of excessive competition, when, in addition to a strong desire on the part of outsiders to run away with a large portion of the work which should properly fall to pharmacists, there is a great tendency for factory made preparations to supersede practical pharmacy. A decided stand should be made against the evil. It is a terrible difficulty to encounter, and has grown to such dimensions as to make it appear hopeless to cope with it. But nothing can be done unless something is attempted. What will be the good of all the labour of pharmacists and others in the compilation of a new pharmacopœia if the contents are to be ignored, and the combined practical knowledge of physician and pharmacist set aside for the preparations of some special maker? What is the use of a pharmacopœia at all if the formulæ and preparations of which it is composed are not to be used? Besides, in the case of the B.P. preparations, the composition is known, but that is more than can be said of the majority of preparations now flooding the market. Something can be done to improve this condition of affairs, and if pharmacists individually make it their business to bring the subject

prominently before their medical friends, though it may not put a stop to the evil altogether, it may lessen it.

At the conclusion, a cordial vote of thanks was awarded the President for his excellent address.

Twenty new members were admitted, and the President intimated that the membership was now about one hundred and sixty.

Liverpool Pharmaceutical Students' Society.—The usual fortnightly meeting was held at 8.30 p.m., on Thursday, October 31, in the University College, the subject for consideration being the suggested federation of local pharmaceutical associations, a discussion upon which was to be opened by the President, Mr. T. S. Wokes. There was not a large attendance of members.

Irish Moss as an Emulsifying Agent.

Among the miscellaneous communications, Mr. F. Walker brought forward one on the use of Irish moss as an emulsifying agent for cod-liver oil, not claiming anything original in the idea, but simply recording his experience. A mucilage was made by boiling a ¼ oz. of Irish moss with water, making up to 16 fluid ounces, and filtering hot through paper. Of this he put 4½ ozs. into a quart bottle, added 8 ozs. of cod-liver oil in small quantities at a time, shaking well between each addition, and lastly pouring in the flavouring, and making up to 16 fluid ounces with water. This mixture, after shaking for a short time, gave a fine creamy product, pouring easily from the bottle, and, judging from a sample he exhibited, being as good and perfect an emulsion as it was an elegant-looking preparation.

Tinct. Chloroformi et Morphinæ.

A note on tinct. chloroformi et morphinæ, by Mr. H. Wyatt, junr., then followed, in which he alluded to the heavy deposit which most dispensers of this tincture must have noticed as separating from the liquid on standing any time. This, he took it, was due to the acid hydrocyanicum throwing down glycyrrhizin from the ext. glycyrr. liq., and with this idea he had tried adding an amount of tinct. senegæ equal in alcoholic strength to the S.V.R. ordered in the B.P. formula. The tincture so made did not deposit so rapidly as before, and when diluted with water made a more presentable mixture than the ordinary tincture, with very little likelihood of the chloroform separating, even when given in large doses, for tinct. senegæ is quite equal in emulsifying power, as regards chloroform, as tinct. quillaiæ. Mr. Wyatt said it was open to question whether such a volatile acid as the dilute hydrocyanic acid of the B.P. should be used in such a form as tinct. chlorof. et morphinæ, as every time the stock bottle had its stopper removed for dispensing there was a chance of some HCN vapour escaping. This risk could be avoided if an equivalent quantity of an alkaline cyanide were used instead of the hydrocyanic acid, and it was a pity the acid was not omitted from the B.P. formula and the mere stable potassium cyanide used in a solution of equal strength.

Federation of Pharmaceutical Associations.

The discussion on the federation of Local Pharmaceutical Association, was then opened by the President, various members continuing it with vigour, the general consensus of opinion being that such a movement ought to be encouraged, as calculated to improve the chances of the trade securing that recognition of their rights they all hope before long to enjoy.

Plymouth, Devonport, Stonehouse, and District Chemists' Association.—The junior members of the above Association held a meeting at the Foresters' Hall, Plymouth, on Thursday evening, Mr. E. A. Hodge presiding. An interesting paper on the "Preparation and Preservation of Vegetable Syrups" was read by Mr. Glode Guyer, Honorary Secretary Chemists' Assistants' Association of London, and a discussion followed, in which the Chairman and Messrs. Cocks, Fairweather, and others took part. The Chairman, in the course of his remarks, congratulated the winners of the prizes in the recent "Materia Medica" examination, and hoped that the subjects to be discussed at the meetings of the present session would prove interesting and instructive to the junior members.

Chemists' Assistants' Association.—The attendance at 103, Great Russell Street, on the 31st ult., constituted a record for an ordinary meeting, there being some threescore present. This was due to the fact that an opportunity was afforded of visiting the St. Pancras Electric Light and Power station, and the conspicuous success of the innovation was one upon which the originators may well be congratulated. After Messrs. Clark, Davis, Elliot, Hall, and Hogley had been elected members of the Association, the President called upon Mr. John F. C. Snell, A.M. Inst. C. and E.E., to read his paper on the "Commercial Application of Electrical Energy."

The author commenced by giving a brief sketch of the progress of electrical science from the days of Volta down to the present time, and in the course of his remarks allusion was made to the fact that it is only twenty-two years since electricity became a commercial means of transforming and transmitting energy, whilst the distribution of it from central stations has only been accomplished within the last decade. In the St. Pancras station there are now motors representing an aggregate of over 80 h.p., and these are constantly increasing. They are used regularly for several varieties of industrial purposes, including woodworking machinery, printing, laundries, hairdressers' shops, lifts, and ventilating fans, and have also been tried more or less experimentally for heating and cooking purposes, but it is, of course, for lighting purposes where the applications of electricity have proved the most formidable rivals to gas, for here the cost of electric light, taking into consideration the diminished wear and tear of fittings and decorations, is practically the same, and in many cases less than gas, whilst the advantages from a sanitary point of view, and diminished risk of fire, cannot be disputed. Allusion was here made to the ingenious process of electrolysing sea-water as a means of sanitation, which was described at the last meeting of the British Association. This system has been in use at Ipswich for two years, and consists of a dynamo and special kind of vats, through which sea-water is passed, and by the electrolytic action thus set up the chlorides and bromides of the water are converted into hypochlorites and hypobromites, thus producing a disinfectant which is stated to answer admirably, since the sewage is efficiently sterilised before it passes out into the sea. There seems to be a wide field for development not only in this direction, but also in electro-metallurgy, the application of electricity to the treatment of bauxite having brought aluminium into great prominence for various commercial purposes.

After a brief description of the applications of electricity in collieries, and for the isolation of rarer metals, welding, and spectrum research, Mr. Snell devoted the rest of his remarks to a description of its distribution from central stations. In the parish of St. Pancras, this is carried out by means of direct currents only, which have many advantages in application to the working of motors, storage, etc., whilst alternating currents—which are employed in many other stations—cannot be so efficiently applied to motors and do not permit of storage. The system employed at King's Road station for the destruction of refuse has many points of interest. There are three Lancashire boilers, which are arranged to work at a pressure of 125 lbs. per square inch, the heat being supplied either by coal or by the destructor gases, whilst beneath the boilers and communicating with a large flue at the back of them, are arranged six destructor cells, each capable of burning 10 tons in twenty-four hours. These being arranged directly under the boilers there is little loss of heat in the flues, and the boilers thus get the full benefit of the heat generated in the cells. In addition there are twelve other cells, the heat from which can be passed through the boilers, or directly up the shaft, which is some 180 feet high. The refuse brought in from the parish is shot into hoppers, from whence it passes automatically into the cells beneath, which are made to rock so that the refuse is gradually worked down when the combustible material is burned, whilst the residue or "clinker" goes into the ashpits prior to being carted away. The temperature in the cells is high enough to dissociate any deleterious fumes from the gases, which are afterwards passed through a boiler in which steam is raised for driving the auxiliary engines, stone breaking, mortar mills, and sets of blowers which produce a forced draught. In addition an economiser, through which the feed-water is passed, ensures the temperature being raised to 290° F. by means of the gases alone, and hence effects a considerable saving in the amount of coal burnt. Accumulation of soot round the pipes which form the economiser is prevented by a sliding system of scrapers driven by an electromotor.

The water softening apparatus made by Doulton next claimed attention. A water-wheel, driven by the head of water from the main, works a stirrer in the lime mixing tank, whence the lime water passes to another tank, and again by means of a regulating valve into a clarifying tank, and thence by means of filters to the feed-water tank. Precipitation of the calcium and magnesium sulphates is effected by means of the economiser, and boiler scale is thus prevented. This preliminary treatment of the water is very impor-

tant from an economic point of view, as 1/16th inch thickness of scale increases the fuel bill by 10 per cent. The system of feed-pipes is a duplex one, being either direct or through the economiser, and hence a breakdown in either section does not stop the work; this arrangement also applies to the steam-pipes. The three engines are of 200 h.p., and each works two dynamos, whilst there are three centrifugal pumps, each driven by an electric motor, by which water is drawn from an underground tank, forced to a height of 40 feet over a series of corrugated iron sheets, and passes to a large overhead tank, and thence to one of three condensers, into which the exhaust steam passes. The resulting hot water is discharged into the underground tank above mentioned, and is then drawn up by the centrifugal pump, to be passed over the cooling apparatus. On the ground floor are also a small mess-room for using electrical cooking apparatus, and a room in which the instruments are kept for testing and calibrating, and where returns are made recording the pressure on the system.

In the discussion which followed, Mr. T. M. Taylor asked what was the cause of the differences in colour shown by the electric light. This, Mr. Snell explained, was due in many cases to the variety of current used, for whereas an alternating current gives a violet, a direct current gives a blue or white light. It was to be noted that the light produced from alternating currents did not form a crater, as in the latter case. In reply to Mr. P. MacEwan, who thought that the colour of the arc light was due to the material used for the rod, and caused by the volatilisation of its constituents. Mr. Snell stated that the rod was made of powdered charcoal and some kind of glue, the whole being covered with a thin coating of copper. Messrs. Strother and Robbins also joined in the discussion, after which a vote of thanks was awarded to Mr. Snell, on the proposition of Mr. Roe, seconded by Mr. Guyer. The company, reinforced by some additions, were then conveyed to the station, which is situated in King's Road, Camden Town. Here the various processes and apparatus were graphically described by Mr. Snell and his assistants, and a very enjoyable visit terminated at a late hour.

Cambridge Pharmaceutical Association.—On Friday evening, November 1, Mr. A. Ivatt, M.A., F.C.S., of Christ's College, gave a lecture on "Spectacles and their relation to the Human Eye," illustrated by models and diagrams. Mr. Alderman Deck, F.C.S., occupied the chair. The lecturer throughout, as far as possible, avoided the too frequent use of technical terms, and so adapted his language to meet the requirements of the younger members of the Association. He first gave a clear description of the normal healthy eye, and then pointed out the more common defects and deviations from the normal condition, and lastly described why certain kinds of spectacles are used to remedy those defects, especially long and short sight. Mr. Ivatt first proceeded to show that light travels through an even transparent body, such as the air, in straight lines; but during its passage through the lens, and other transparent media of the eye, which are denser than the air, the rays from an object become bent, and the image is received inverted on the extremely sensitive retina at the back of the eye, and it is in the brain itself where the analysis of the objects of our vision really takes place.

The eye was next compared with the ordinary photographic camera. The lens of the eye is easily and quickly accommodated for far and near vision by alteration of the shape of the lens itself, whilst in the case of the camera the lens cannot be altered in shape, but must be moved to or from the object to obtain a clear picture. "Long sight" and "short sight" were next carefully explained, and lastly the kinds of spectacles in common use, with a description of the proper composition of lenses. It was stated that lenses for spectacles should be either made of the best crown glass, or of colourless quartz; those made of the latter are known as "pebbles" or "rock crystal," and are usually recommended by opticians, as being clearer and cooler than glass; but the clearness of view through pebbles depends upon the quality and scientific accuracy with which the quartz is cut, for if not carefully prepared the spectacles will be decidedly inferior to those made of glass. When "pebbles" are really good and accurately cut they have the advantage of being harder than glass, and therefore not so liable to be scratched, especially at the centre of the lens, where perfect transparency is most essential. At the close of the lecture, the chairman proposed a cordial vote of thanks to Mr. Ivatt for his able and very useful lecture. This was seconded by Mr. A. S. Campkin, J.P., and carried with acclamation.

MISCELLANEOUS NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Royal Institution.—A general monthly meeting of the members of the Royal Institution was held on the 4th inst., Sir James Crichton-Browne presiding. The following were elected members:—H.R.H. Prince Louis Philippe, Duc d'Orleans, Sir John Evans, K.C.B., F.R.S., the Hon. Adrian Verney Verney Cave, Mr. Walter Allcroft, and Mr. James Beale. The managers reported that the late Mr. John Bell Sedgwick, M.R.I., had bequeathed £300 to the Royal Institution in aid of the fund for the Promotion of Experimental Research at Low Temperatures. The special thanks of the members were returned to Sir Frederick Abel, Bart., for his donation of £50 to the fund for the Promotion of Experimental Research at Low Temperatures.

Deficient Tincture of Senna.—At the Birmingham Police Court on November 1, Charles Packwood, Summer Lane, chemist, and William Henry Blunt, Snow Hill, chemist, were summoned for selling tincture of senna which was not equal to the standard of the B.P.—Constable Jones, inspector under the Food and Drugs Act, deposed to purchasing the senna from defendants' shops, and the certificate of the city analyst stated that in Packwood's case there was only half the quantity of solid ingredients, as required, present, and in the case of Blunt the tincture only contained 40 per cent. of solids.—The contention for the defence was that the tincture was of the required strength, but that a mistake was made in not thoroughly shaking the bottle.—Each defendant was fined 2*s.* 6*d.* and costs.

Alleged Collusion between a Chemist and a Medical Man.—At Greenwich County Court on November 1 the case of Black *v.* Chandlor was heard, being a claim for £1 16*s.* 3*d.* for medicines supplied. The points upon which defendant relied were brought out in his examination of the plaintiff and of witnesses for the defence.—Addressing the judge Mr. Chandlor said he was not fighting the claim for pecuniary considerations, but on public grounds, as there were matters of public interest involved. Briefly his case was that he had been introduced by plaintiff, who is a chemist at Sydendam, to a doctor in that neighbourhood. He had been given prescriptions for his wife which no one but the plaintiff could understand, and had been supplied with liniment made of methylated instead of pure spirit.—Plaintiff denied these statements, whereupon the defendant called Mr. Sells, manager to J. Bell and Co., Oxford Street, who said he had been unable to make up the prescription handed him by defendant, owing to some of the expressions used not being sufficiently explicit to one who had not made up the same man's prescriptions before. In support of the allegations that the liniment was made with methylated instead of rectified spirit, he was going on to give evidence of an analysis made by one of his firm's experts, but the judge decided he could not accept it except from the actual analyst. That gentleman not being present, he gave judgment for the plaintiff, but refused costs on the higher scale.

Sheffield Municipal Election.—Mr. J. M. Furness, one of Sheffield's best known chemists and druggists, has been re-elected one of the representatives of St. Philip's Ward on the Sheffield City Council.

The New Alkali Process.—The new Castner-Kellner process for the manufacture of caustic alkali and bleaching powder by means of the electric decomposition of salt, etc., has aroused considerable interest in electro-chemical circles, says the *Electrical Engineer*, to which Mr. Jas. Hargreaves, of Widnes, writes as follows: "The decomposition of salt by electrolysis is a subject at which I have worked more or less as a dilettante from 1875 to 1890. At the latter date the late Mr. Thomas Bird and myself went thoroughly into the matter, Mr. Bird's time and labour being exclusively employed in these researches until the date of his death at the beginning of the present year. As a preliminary we closely examined all accessible data, and all the ideas we could ourselves think of, which included pretty nearly all the ideas covered by the Castner and Kellner patents. In making this

remark, I am not in any way hinting that the same ideas did not originate with these gentlemen, or that they have not the most perfect right to secure them by patent. The use of mercury seemed very tempting at first, but we found that it presented difficulties of its own in working. But apart from, and beyond, the question of manufacturing, the physical properties of mercury were carefully considered, in which the researches of Regnault and Merget were of great assistance. At 10° C. = 50° F., its vapour tension is 0·0268 Mm.; at 20° C. = 68° F., 0 0372 Mm.; at 30° C. = 86° F., 0·0530 Mm. Mr. Castner's assertion, that 'as the reaction takes place under water there is no escape of mercury,' is an error. I should have thought that, Prof. Sir Henry Roscoe being on the board of directors, it would not have been necessary to have these facts pointed out. The sodium amalgam is decomposed by contact with water, the oxygen of which is absorbed by the sodium. The hydrogen of the water is strongly occluded by the mercury forming practically an amalgam of hydrogen and mercury, the decomposition of which is due to the very high vapour tension of the hydrogen. This forms one of the difficulties of separating the very small proportion of sodium present in the amalgam after it leaves the anode cell, and ensures that the hydrogen shall be fully saturated with mercury of the tension due to the temperature at which it escapes from the surface of the metal. The question to decide is whether the statements of Mr. Castner, or those of Regnault and Merget, are to be accepted. Anyhow, those who have the facilities may try the experiment for themselves. Into a bottle with water on the bottom, drop from time to time small pieces of mercury amalgam, suspend a strip of gold-leaf in the bottle, and expose it to the hydrogen which escapes from the water. After a time the gold-leaf will be tarnished by the mercury which it extracts from the hydrogen. It must further be borne in mind that the mercury thus deposited in only a very small proportion of the total mercury carried off by the hydrogen. Those who interest themselves in the question will find the researches of Regnault and Merget discussed in *Comptes rendus*. I do not quite remember the years, but a search through 1870, 1871, and 1872 will find them. After considering the facts, my colleague, without waiting for my opinion, emphatically declined to have anything to do with a business so likely to injure his fellow-men, no matter what profit it might bring. My own feeling was precisely the same, but I have a distinct remembrance of feeling hurt by his emphatic manner, because it seemed to hint that I should have been content to make a profit by such a means. From this Mr. Castner will learn why his patents were not anticipated."

LECTURE BY MR. A. H. ALLEN.—Mr. A. H. Allen, analyst to the City of Sheffield, and also a well-known London analyst, delivered a lecture on Tuesday evening at the rooms of the Sheffield Literary and Philosophical Society on "Some Phenomena of Polarised Light." Mr. Allen said he was induced to choose his subject owing to the great pleasure he had personally experienced in viewing the numerous beautiful polariscopic objects in the possession of his friend, Dr. J. Edwards, of Dover Street, Piccadilly, London, who had been kind enough to lend a number of the most beautiful of those on exhibition that evening. He then proceeded to deliver an elaborate lecture, and, with the aid of a polariscopic lantern, exhibited numerous phenomena illustrating the beautiful effects of polarised light. At the close Mr. Allen was thanked for his lecture.

MAYOR'S DINNER AT SHREWSBURY.—The Mayor of Shrewsbury, Mr. W. G. Cross, pharmaceutical chemist, entertained the members of the Corporation and a number of friends to dinner at the George Hotel on Wednesday, October 30.

Mr. E. C. Peele, in proposing "The Mayor," said he had had the pleasure of knowing the Mayor since he was a baby in arms, and they went to school together. The Mayor had discharged all the duties of his office with credit to himself and credit to the town. He had had several public functions to attend to during the year, and in all these he had shown his fitness for the position he held. He had presided over their deliberations in the Council with tact and fairness, and they had seen two great schemes launched during the year, which he hoped would have a very successful end. It was about twenty years since he had the pleasure of piloting Mr. Cross's father through the office of mayor, and of keeping his conscience as best he could, and it was with increased pleasure that he now proposed the health of his son on retiring from the same office.

The Mayor, who was enthusiastically received, thanked the company for the way they had received the toast. He said he was painfully aware of his shortcomings, which had been many, but these shortcomings had been minimised by the kindly consideration of his colleagues. It had given him the greatest pleasure to sit in the seat in which his father sat twenty years ago, and to do the best that in him lay to fill the office conscientiously and honestly, and with fairness to all those with whom he came into contact. It was a great satisfaction to him to hear the kind expressions Mr. Peele had given utterance to, and which they had so kindly endorsed; but he could not have achieved any success at all but for the kindness of those associated with him. Not only had he had the support of all the members of the Corporation, but he had had the invaluable help of all the borough officials, who had seconded his efforts and made them successful.

S. M. BURROUGHS' MEMORIAL.—In accordance with the decision of the first general meeting held on February 12, 1895, and in order to meet the wishes of subscribers of the Memorial Fund, voting papers have been forwarded to subscribers. Of 133 subscribers, 107 voted. Of these, 71 subscribers, representing 479 pound votes, voted for the foundation of a S. M. Burroughs' Scholarship, as originally proposed by Mr. Helbing. Thirty-one subscribers, representing 92 pound votes, voted for a Burroughs' Benevolent Fund.

It was therefore decided that the Memorial should take the form of a S. M. Burroughs' Scholarship of the value of about £60, and be awarded bi-annually to students in pharmacy. The Council of the Pharmaceutical Society has been asked to become trustee to the fund and has expressed its willingness to undertake the trusteeship. The fund so far amounts to £860, and a further £150 is required. The friends of the late S. M. Burroughs and those interested in the educational schemes of the Pharmaceutical Society are requested to send their subscriptions or any further donations to the treasurer of the Memorial Fund, Mr. John Moss, 39, Tressillian Road, St. Johns, S.E.

IRISH NEWS.

ATTEMPTED ERASURE FROM THE REGISTER. — On Saturday, November 2, before the Judicial Committee of the Privy Council of Ireland, an application by the Pharmaceutical Society of Ireland was heard, to have the name of Mr. R. C. Marshall removed from the Register of Chemists and Druggists, on the ground that he had been twice convicted of illegal compounding. There was a counter memorial from Mr. Marshall praying that his name should not be removed from that Register.

Mr. Robert C. Clay, solicitor, appeared for the Society, but was not allowed to address the Committee.

Mr. John Ross, Q.C., appeared for Mr. Marshall, and at the request of a member of the Court mentioned the facts of the case. In April, 1894, Mr. Marshall was fined £5 for compounding a prescription, he not being qualified to do so. Again, on the 29th of last July, another inspector of the Society entered his shop and asked him to make up a prescription. Mr. Marshall at first refused, saying it was contrary to law for him to do so, but the inspector pressed him and he consented. He was brought before the magistrates and fined £5, under Section 35 of the Irish Pharmacy Act of 1875, the Society now sought to strike him off the Register of Chemists and Druggists.

Mr. W. J. Wells, junior, said that as the Committee could not hear Mr. Clay, he had been requested to make a statement. The Society had a very serious public duty to perform, and had performed it. They now simply left the case in their Lordships' hands to settle what should be done.

The Lord Chancellor said: The Society cannot throw the responsibility of this grave and serious exercise of jurisdiction upon the Privy Council. We are entitled to have a statement of the Society's case, their attitude, and the order they ask us to make. It is not fair to run away from the administration of responsibility after putting the matter before us.

Mr. Wells: Allow me to say that we are in this unfortunate position, that we have an Act of Parliament to carry out, but Government did not think it necessary to give us the funds to do it. This case has cost us about £20. We get two-thirds of the £5 fines, and these things are occurring every day throughout the country. If you make the order we ask for the defendant will simply be prevented from selling some few dozen poisons, but will not be prevented from conducting the rest of his business.

The Lord Chancellor: We make no order, and what will happen will be that what was decided by the magistrates will remain in existence. An undertaking was given by the defendant, which it is not stated that he has violated, and we leave the matter there.

THE SOCIETY AND THE REGISTER.—The abortive application of the Pharmaceutical Society of Ireland to the Irish Privy Council on last Saturday, *re* R. C. Marshall, has been "the talk of the town" for the last few days; and has been the subject of newspaper comments. The Dublin *Daily Express* in a leading article refers to it as "a very curious, and an all but unprecedented incident"; but, although exception is taken to the method, it is admitted that the Society was justified in making the application; this appears to be the general feeling. The article itself is in one or two points curious, as the editor, in some unaccountable way, has mixed up the Society with the Apothecaries' Hall. "Curiously enough, they" (the apothecaries), he says, "at the moment they made this attempt, ignored the rights of the bar," and then he goes on to inform his readers that "the Apothecaries' Hall has a special power to examine and qualify for a medical degree," which would doubtless be, if true, welcome news to "The Hall," although, as he says, "a cause of dissatisfaction to recognised authorities."

LEGAL REPORTS.

PROCEEDINGS UNDER THE SALE OF FOOD AND DRUGS ACT.

THE PRESENCE OF SALICYLIC ACID IN ORANGE WINE.

On Wednesday, November 6, at the Westminster Police Court, an important question under the Sale of Food and Drugs Act was raised before Mr. De Rutzen. Mr. Gill appeared for the prosecution, and Mr. Rose Innes, instructed by Messrs. Loxley, Elam, and Gardner appeared for the defence. The prosecutor is the Inspector of St. George's, Hanover Square, and the defendant a member of the well-known firm of Walton, Hassell and Port. The facts were admitted, the real question in dispute being whether the quantity of salicylic acid present in the orange wine of the defendant was dangerous to health. The wine admittedly contained ·038 per cent., or equivalent to 26·6 grains per gallon.

Mr. Cassall, public analyst, stated that the quantity used was unnecessarily large, as 1 part in 10,000 was found sufficient to preserve any liquid of this kind. He had, since his analysis of the sample, tested the effect of salicylic acid upon himself: it had produced headache and affected the bladder. He thought that the habitual taking of the drug would lead to cumulative effects. If the wine were properly made, alcohol would preserve it.

Dr. W. H. Corfield said that salicylic acid was slightly caustic, and was therefore chiefly used for external application. Its internal use had been largely given up, as it caused irritation of the stomach and kidneys. Salicylate of soda was preferred. He regarded it as preposterous to suggest that a substance which was useful for removing corns was a proper substance to put into wine to be taken with one's dinner. The French Government had absolutely prohibited the use of salicylic acid in foods.

Mr. Rose Innes remarked that this was simply because it is produced in Germany, a statement which was confirmed by Dr. Thudichum.

For the defence a large number of expert witnesses were called, and the evidence of those gentlemen was in direct conflict with that called by the prosecution. They one and all regarded salicylic acid as a most useful preservative, and as being, in the quantity employed, perfectly harmless.

Dr. Bond stated that he had taken 10-grain doses of it three times a day for two or three weeks continuously, for relief of rheumatic pains, and he thought even so large a dose as 3 drachms would not poison anyone, though it might cause unpleasant symptoms. Indeed, he had never heard of anyone being poisoned by salicylic acid.

Dr. Arthur P. Luff said that he had in cases of acute rheumatism given 120 grains in six hours without any injurious effects.

Dr. B. H. Paul said that the great advantage of salicylic acid as an antiseptic was its non-poisonous nature. It was true, he admitted in cross-examination, that the addition of alcohol would preserve wine, but such addition was undesirable for many obvious reasons.

Mr. A. Gordon Salamon said that salicylic acid was a most useful antiseptic. It was used in milk, beer, sherry, and in many temperance drinks. It was an expensive drug, and it could not be regarded as an adulterant. It was used to preserve sherry which was of low alcoholic strength but was not added to change its character or flavour, still less to increase its bulk. Salicylic acid was used to prevent the public swallowing germs. There were but three alternatives—increased alcoholic strength, putrefaction, or the use of a preservative such as salicylic acid. He, speaking from practical experience, must emphatically differ from Mr. Cassall's statement as to the very minute quantity of salicylic acid which was necessary. The quantity used was not at all excessive.

Dr. Wm. Murrell having given evidence to the same effect, the learned magistrate said, in view of the extreme divergence of opinion, he would take time to consider the matter.

COURT OF CHANCERY.

PROPOSED REVOCATION OF A PATENT FOR MEDICINE.

Re *Ingram's Patent* (*No.* 1639 *of* 1894).

The petition of the Pharmaceutical Society of Great Britain for the revocation of Ingram's patent for liver pills, which was mentioned to Mr. Justice Chitty on Saturday, the 26th ult. (see *ante*, p. 390), came before Mr. Justice North on Saturday last.

Mr. Shaw (instructed by Messrs. Flux, Thompson and Flux), who appeared for the petitioners, stated that his clients had received notice from the respondents that they intended to oppose the petition. He therefore applied that the case should go into the witness list to be tried in the ordinary course.

Mr. Justice North said if that was the practice adopted by Mr. Justice Chitty, he saw no objection to its being done.

Mr. Peterson appeared for the respondents, and assented.

OBITUARY.

LINFORD.—The news of the death of Mr. John S. Linford, Pharmaceutical Chemist, on Wednesday, October 30, will be received by his many friends with deep regret. For the past fourteen years he had resided in Hull, where he has done much useful work. A local newspaper describes him as one of nature's noblemen, whose lovable character gained for him much esteem. Mr. Linford had been a member of the Pharmaceutical Society since 1865, and for an extended period was one of the Society's examiners. He was also a Fellow of the Chemical Society. Originally in business in London, since settling at Hull he has acted as analytical chemist to Messrs. Lofthouse and Saltmer. In his younger days, observes the *Eastern Morning News*, Mr. Linford was a capital cricketer, and played for his county—Kent. As an early volunteer he was also most enthusiastic. He was a native of Canterbury, and there, as well as in London, enjoyed the friendship of many notable men. Mr. Sidney Cooper, the artist, was one of his earliest friends. He leaves a widow to mourn his loss. Mr. Linford had no children of his own, but he adopted and brought up his nephew, Mr. Edgar Bruce, the well-known actor. Mr. Linford was a familiar figure at the meetings of the Hull Literary Club, and usually joined in the discussions after the lectures, and he was himself an able lecturer. In the higher branches of literature he was a painstaking student. He was a member of the Council of the Literary Club.

MACDONALD.—Mr. John Macdonald, Pharmaceutical Chemist, 56 Newington Road, Edinburgh, died suddenly at his residence, 7, Stanley Street, Portobello, on Friday, Nov. 1, at the age of 60 years. Mr. Macdonald became a member of the Pharmaceutical Society in 1864, and was a regular contributor to the Benevolent Fund. He was originally in business in Lasswade, and removed to Edinburgh about twenty-three years ago. Though he never took any public part he was always interested in the work of the Society, and was for several years a member of the local Price List Committee. He was a member of the Edinburgh Photographic Society and of the Edinburgh Field Naturalists' Society. He was a keen angler and an enthusiastic and very successful amateur photographer. For the last two years he had been in failing health, but remained at business till Wednesday last. On Thursday he spoke of being at business again on Friday, but he suddenly died of syncope on the morning of that day. He had been a widower for many years and leaves no family.

QUIBELL.—On Friday Nov. 1, Mr. Joseph Layne Quibell, Chemist, of Gainsborough, died, aged 36. He relinquished business six years ago on account of failing health, and during the interval has suffered from a painful illness. Deceased was a nephew of Mr. Alderman Quibell, of Newark, and was highly respected.

NOTES AND QUERIES.

[*The information given in this column includes both notes of practical interest to pharmacists, and replies to queries which seem to possess sufficient interest to readers generally. Readers requiring working formulæ for special preparations should intimate their wants to the Editor, who will be pleased to assist them to the best of his ability. The word "parts" invariably indicates parts by weight.*]

Preparation of Lantern Slides.

"Lanternist" finds, on intensifying negatives that are nearly but not quite dense enough to give clear glass and black lines on lantern slides, that the fine clear lines are partially or entirely obliterated; with negatives of less density this does not occur so easily. This defect may be due to two causes. First, the slide may not have been properly washed after bleaching, or what is far more probable, there is a slight deposit on the lines which becomes distinctly visible on intensification; this fault may of course arise primarily in the negative or in exposure of the slide. The remedy for the first is obvious. For the second cause it is advisable to reduce the slide a little either with Belitzski's or Howard Farmer's reducer, then, after thorough washing and immersion in anthion or hydrogen peroxide and washing, to bleach with mercury and blacken with potassio-cyanide of silver.

Parrish's Chemical Food.

Nearly every manufacturer has a special modification of the formula for making "syrup. ferri phosph. co." Probably the following, from an American source, will suit you, or you can modify it to meet your requirements:—Ferrous sulphate 10 drachms; sodium bicarbonate 150 grains; sodium phosphate, 12 drachms; calcium phosphate, 12 drachms; syrupy phosphoric acid (sp. gr. 1·75), 20 drachms, or *q.s.*; sodium carbonate, 40 grains; potassium carbonate, 1 drachm; powdered cochineal, 2 drachms; sugar, 32 ounces; hydrochloric acid, solution of ammonia, and water, of each sufficient, orange flower water, 1 ounce. Dissolve the ferrous sulphate in about 12 ounces of boiling distilled water and the sodium phosphate in a similar amount of cold water; mix the solutions and add the sodium bicarbonate dissolved in a little water; wash the precipitate by decantation until free from sulphate; suspend the calcium phosphate in a little water and add sufficient hydrochloric acid to dissolve it, then reprecipitate with a slight excess of ammonia and wash this by decantation until free from chloride; throw the two precipitates on a calico strainer and drain thoroughly. Remove the drained precipitates from the cloth and dissolve them in the phosphoric acid, then add the potassium and sodium carbonates, and if necessary a little more phosphoric acid to dissolve any precipitate. Make up the volume of liquid to 22 fluid ounces, dissolve the sugar in it by the aid of heat, and add the cochineal to the hot syrup. When cool, strain, and add the orange-flower water. You will save time and labour, and obtain a more satisfactory product, if you modify this formula and employ equivalent quantities of solution of ferrous phosphate and of calcium carbonate dissolved in phosphoric acid, in place of the iron and calcium salts originally prescribed. In such modification probably lies the secret of the preparation supplied by wholesale dealers.—[*Reply to W. W.*]

Blacking to be used without a Brush.

(1) "Beasley" gives the following: Treacle, 4 oz.; lamp black, ½ oz.; yeast, 1 tablespoonful; two eggs; olive oil, 1 teaspoonful; oil of turpentine, 1 teaspoonful. Mix well. To be applied with a sponge without brushing. (2) From the *Era Formulary:* Aniline black, 1 oz.; camphor, 2 oz.; shellac, 25 oz.; wood alcohol (or, preferably, methylated spirit), 73 oz. Dissolve.—[*Reply to W. W.*]

To Sweeten Rancid Butter.

According to the *Bulletin d'Agriculture Constantine, Algérie*, rancid butter may be sweetened by working it up with water containing 20 to 30 drops of solution of chlorinated lime for each kilo. of butter. Allow to stand, and the butter will lose its rancid odour and taste. Another way is to stir up the butter with water containing bicarbonate of soda. In either case, after treatment the butter must be well washed with cold water and then salted.

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

Communications for the Current Week's Journal should reach the Office not later than Wednesday Morning. Telegrams can be Received on Thursday Morning. All Communications respecting Editorial matters must be Addressed "Editor, 17, Bloomsbury Square, London," and not in any case to individuals supposed to be connected with the Editorial Staff of the Journal.

Business communications—including advertisements, orders for copies of the Journal, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London, W.C. Cheques and money orders should be made payable to "Street Brothers."

LETTERS.

Preparation of Tinct. Iodi.

Mr. E. H. Dyer, of Honiton, thinks the following quick method of preparing tincture of iodine is worthy of notice, in view of the pending revision of the British Pharmacopœia:—"Dissolve KI in sufficient water to dissolve it; then add iodine, which dissolves in a few minutes. The S.V.R. is then added, and makes a perfect solution. This method at least saves time, if there is no objection to the small quantity of water used."

Liq. Calcis Saccharatus.

Mr. J. W. Taplin, of Harlesden, writes: "The question of making the above in the most satisfactory way has cropped up several times lately. The simplest, and with the best result, is, I find, slaked lime, 1 ounce; syrup, P.B. (by weight), 3 ounces; distilled water, 19 ounces. Mix the lime and some of the water, pour into a bottle, add the syrup and the remaining water. Shake, and follow out the other instructions of the Pharmacopœia."

ANSWERS.

"Botanist."—Get an instrument fitted with 2/3 in. and 1/6 in. objectives and a No. 2 or B eye-piece. See page xiii. of the Educational Supplement to the Journal for September 14 last.

Jas. D. Petrie.—The articles on photography commenced in the *Ph. J. Supp.* for May 25, and appeared fortnightly for some time after. We are glad to know you have found those you have read "very useful."

R. Winfrey.—We have no use for the volumes you specify.

Wm. Wolstenholme.—Thanks for your appreciative remarks. For answers to your queries see under "Notes and Queries." We do not know the second preparation you name, but perhaps the recipes given may serve your purpose.

"A. B. C."—The formula you refer to, on page 391, should read "Leaves of *Adonis vernalis*, 2 to 3·75 grammes." The word "to" was represented by a hyphen, and that is evidently indistinctly printed in your copy.

R. Speedie.—Thanks for the newspaper cuttings you sent. We are always glad to receive any assistance in this way.

"Spice."—The powder seems to consist chiefly of liquorice and fenugreek, with small proportions of gentian and capsicum, but the exact composition can only be arrived at by experimenting.

Otto Werner.—The article you refer to was reprinted from the *Pharmaceutical Record*, the Editor of which may possibly be able to give you the information you require. The address of that paper is 65, West Broadway, New York, U.S.A.

J. H. Coleman.—Unavoidably held over this week.

CORRECTIONS.

Cambridge Pharmaceutical Association.—In the report of this Association on page 384, the name of Mr. A. Ivatt, one of the Vice-Presidents, was printed Mr. A. Wall.

"Test for Saccharin."—This heading was given in error to a paragraph on page 386, last week. It should have been "Test for Saccharose."

Communications, Letters, etc., have been received from Messrs. Bayley, Bell, Blackburn, Bowe, Brown, Cammack, Clarke, Cole, and Elkington, Coleman, Cracknell, Davis, Deck, Dyer, Haycroft, Henry, Hetherington, Higgins, Hill, Kirkby, Maitland, Marsden, Moon, Morgan, Morley, Peck, Plugge, Rossiter, Russell, Simmonds, Sinclair, Slynn, Smalley, Speedie, Stroud, Taplin, Umney, Walpole, Warden, Werner, White, Whittle, Will, Winfrey, Wolstenholme, Wright.

THE HISTOLOGY OF ANDROGRAPHIS PANICULATA.

BY HENRY G. GREENISH.

Professor of Materia Medica to the Pharmaceutical Society of Great Britain.

The anatomy of this drug, for a specimen of which I am indebted to Mr. J. S. Ward (see *ante*, p. 197), is in more points than one so interesting, that I have thought a short account of it would be welcomed by those interested in the study of pharmacognosy.

The stem is quadrangular, furrowed, and in the upper part winged. Careful examination with a lens shows, especially in the lower part, a number of minute light-coloured points. Similar points are also observable on the leaf.

A transverse section through the upper winged portion of the stem exhibits an epidermis, a narrow primary bark, a narrow bast, and a well-developed ring of wood enclosing a large pith. The latter is remarkable for the presence in its

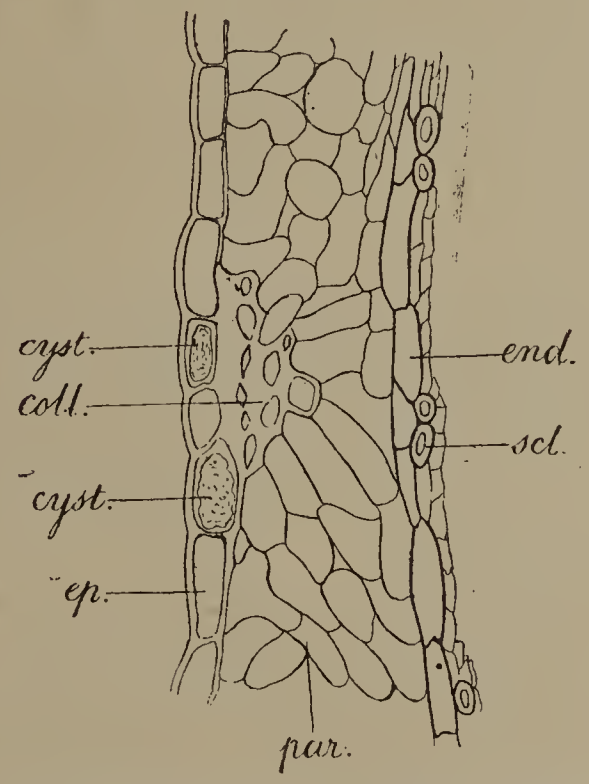

Fig. 1.—*Andrographis paniculata.* Cortex of Stem; Trans. Section (x160).

cells of numbers of loose prismatic crystals of calcium oxalate. The wood consists principally of small vessels associated with chambered wood fibres, and is traversed by medullary rays usually one cell wide. With the exception of the vessels the elements of the wood are not strongly lignified. In the pericycle isolated, mostly only slightly lignified fibres, (Fig. 1, *scl.*) are present; in the secondary bast, groups of minute fibres are also discernible. The endodermis (Fig. 1, *end.*) is prominent and is separated from the one-celled epidermis (Fig. 1, *ep.*) by about five rows of parenchymatous cells (Fig. 1, *par.*) frequently arranged in a palisade-like manner, and containing abundance of chlorophyll. In this primary bark strands of collenchymatous cells (Fig. 1, *coll.*), abutting on the epidermis, are distributed at intervals. So far the structure and cell contents appear to be normal, and only the calcium oxalate in the pith attracts attention. But if the cells of the epidermis are scrutinised they will be found here and there to contain large bright green, irregularly rounded or oblong masses (Fig. 1, *cyst.*) visible in the epidermis of the wings as well as of the stem. The addition of dilute hydrochloric acid changes the green colour to a yellowish brown, a change usually accompanied by effervescence; the residual mass yields the cellulose reaction with chlor zinc-iodine. They are cystoliths, and the green colour they exhibit is due to chlorophyll associated with protoplasm

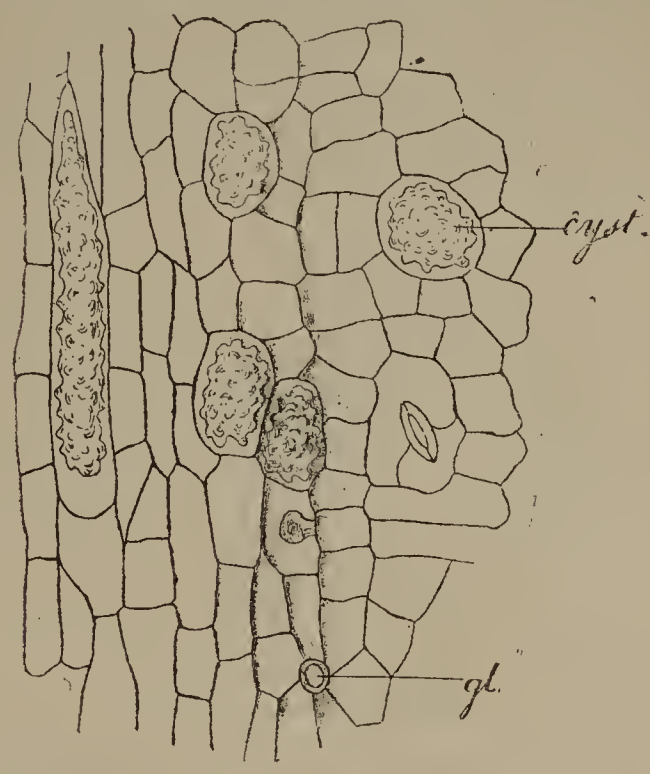

Fig. 2.—*Andrographis paniculata.* Epidermis of Stem (x160).

which, in favourable sections, can be observed filling more or less completely the irregularities in the surface of the cystolith.

Further examination by radial sections and by separation of the cells of the cortex from one another shows that the cystoliths are not confined to the epidermis, but may be found in any part of the primary bark, generally, however, in or near to the epidermis. In shape they vary exceedingly. Most of them are nearly isodiametric, but some are oblong,

Fig. 3 —*Andrographis paniculata.* Lower Epidermis of Leaf (x160).

or even much elongated, but rarely sharply pointed (Fig. 2). They may be large or very small; covered with projections or nearly smooth and then exhibiting conspicuous stratification; sometimes impregnated with calcium carbonate, sometimes free, or nearly free, from it; in the latter case dilute acid occasions little or no effervescence, whilst direct application of chlor-zinc-iodine produces a blue coloration;

dilute sulphuric acid, moreover, fails to produce the characteristic calcium sulphate crystals.

Surface preparations (Fig. 2), in addition to showing the distribution of the cystoliths, exhibit an occasional stoma, and also a small glandular hair or scar left by one (Fig. 2, *gl.*). These glandular hairs contain usually from four to eight secreting cells, and are attached by a single cell to the epidermis, as may be seen in favourable transverse or radial sections.

In the leaf the meristele exhibits a structure recalling that of the stem. Stomata occur on the under surface only and in large numbers (Figs. 3 and 4). The epidermal cells of both surfaces frequently contain cystoliths (Figs. 3 and 4,

Fig. 4.—*Andrographis paniculata.* Upper Epidermis of Leaf (x160).

cyst.), which sometimes produce an enlargement of the cell in its lower part, in consequence of which, in surface preparations, they appear to lie in sub-epidermal cells.* That this is not the case is amply proved by the critical examination of transverse sections (Fig. 5). In the leaf the cystoliths are commonly free from calcium carbonate. Glands (Fig. 5, *g'.*), similar to those on the stem, are discernible in considerable number on both upper and under surfaces, whilst near the margin large bluntly conical, striated, usually two-celled hairs are occasionally conspicuous.

The only part of the flower usually to be found in the drug is the calyx supported on a pedicel. On the latter as well

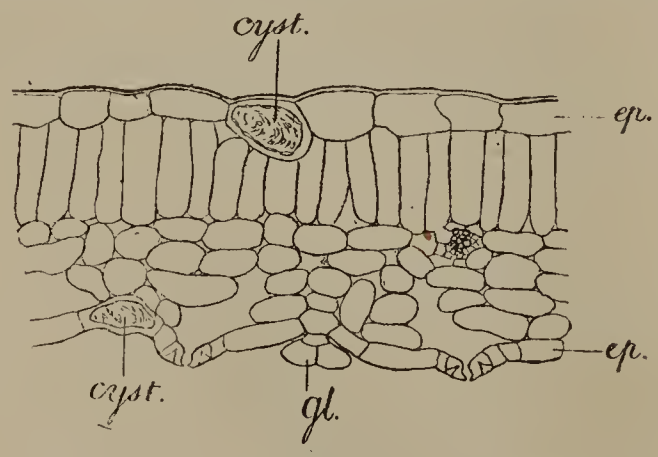

Fig. 5.—*Andrographis paniculata.* Trans. Section of Leaf (x160).

as on the outer (lower) surface of the sepals are hairs (Fig. 6), which somewhat resemble those on the leaf, and at least two forms of glands, the one identical with that already noticed, whilst a second form (Fig. 7), consists of a stem composed of two or more elongated, colourless cells supporting a brown, glandular, cup-shaped head, in which the number of secreting cells is large. The inner (upper) surface of the sepals is lined with longer, narrower, wavy hairs.

In the root cystoliths are to be found in the parenchyma of the cortex; their colour is usually less prominently green than that of those in the stem and leaf.

There remains to be noticed one anatomical peculiarity that has been only casually referred to, but is so unusual as to call for further remark. It has already been observed that in the secondary bast minute fibres occur. Examination of stem, root, or midrib of the leaf under a sufficiently high power shows that these fibres are aggregated usually in groups of two to sixteen or more, and contained in cells of the secondary bast (Fig. 8, *a*). These cells, with the fibres con-

Fig. 6.

Fig. 7.

Fig. 8.

tained in them, can be isolated intact by digestion of the tissues with solution of potash (Fig. 8, *b*), and will then be seen to be strongly axially elongated; by pressure the wall of the mother-cell can be ruptured, and the fibres partially (Fig. 8, *c*) or completely (Fig. 8, *d*) separated from one another. With chlor-zinc-iodine they mostly assume a yellowish colour, passing to violet, showing that they are at most only slightly lignified. With phloroglucin no distinct reaction could be obtained.

Such groups of fibres were first observed by Russow* in the stem, leaf, root, and petiole of *Hexacentris coccinea.* Russow showed that these remarkable fibres are produced by axial division of the mother-cell by delicate cell-walls; these thicken in the angles like ordinary collenchyma and develop a middle lamella, which, however, soon disappears, being

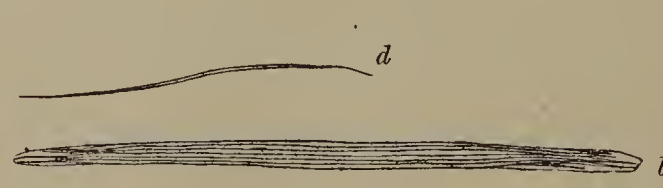

Fig. 8.

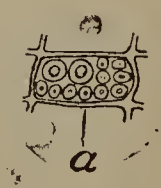

Fig. 8.

probably liquefied. The daughter-cells, which further thicken their walls, thus come to lie loose in the mother-cell. Similar cells with minute fibres were found in several other species of Acanthaceæ, but had not, as far as he was able to ascertain, been observed in any other natural order.

The minute prismatic crystals of calcium oxalate, the cystoliths, the two forms of glandular hairs, and the minute fibres may be cited as characteristic histological features of *Andrographis paniculata.* Up to the present cystoliths have not been found in many natural orders. Radlkofer†

* Compare Planchon and Collin 'Les Drogues Simples,' p. 541 The figure represents the epidermis of the under (not upper) surface

* 'Sitzungsber d Dorpater Naturforscher Gesellsch.,' v., 308.

† Just's 'Bot. Jahrb.' xviii., 355.

enumerated in 1890 the following eleven:—Urticaceæ, Acanthaceæ, Cucurbitaceæ, Gyrocarpeæ, Olacineæ, Begoniaceæ, Cordiaceæ, Borragineæ, Hydrophylleæ, Loasaceæ, and Verbenaceæ, to which in 1891 I added a twelfth, viz., Polemoniaceæ.* Hobein† has drawn attention to their systematic value in contributing to the accurate subdivision of the order Acanthaceæ, and shown that in the subtribes Andrographideæ, Asystasieæ, and Pseuderanthemeæ alone the cystoliths are always single and mostly rounded. In *Andrographis paniculata* I have observed double cystoliths, but only quite exceptionally. As already remarked the cells with minute fibres are, according to Russow, peculiar to certain Acanthaceæ.

DECOCTIONS AND INFUSIONS.

BY WILLIAM MARTINDALE.

Of these two classes of preparations, thirteen decoctions and twenty-eight infusions are official in the British Pharmacopœia. In the revision of this work some that are not in use will most probably be deleted.

Water being the most easily obtainable menstruum, and, especially if heated, the simplest and most natural agent with which to exhaust a drug of vegetable origin, one or other of these forms would suggest itself as the primitive mode in which to administer such medicaments, but now in many cases they are but used as vehicles for more definite and active drugs.

In domestic use, the tea, coffee, and cocoa, which are used as our commonest beverages, are prepared by these processes freshly for each time of use. By this means we get an aroma and flavour which no other method of treatment will give us, although attempts have been, and are, made to prepare liquid forms of these that can be kept indefinitely, to meet the tendency of the age, which is to have preparations of this nature ready and convenient for use.

To meet the foregoing want in regard to drugs, concentrated decoctions, infusions, and liquid extracts have been manufactured, and now meet with a large demand. But these preparations, I consider, have their parallel in the essence of coffee, etc., that I have referred to; they lack the flavour of the freshly-made articles.

In preparing tea for a beverage, one point of its advantage is that we do not completely exhaust it of all its soluble constituents by infusing it too long, thus no other process of treating it has proved so successful.

In the case of drugs we have not exactly the same parallel as in tea; for the sake of uniformity in strength we wish to get our infusions to contain, in most cases, as much of the extractive of the drug as the water will dissolve. To avoid, therefore, the use of diluted concentrated preparations, for which I hold there is no defence except that otherwise they take a considerable time to prepare, which is inconvenient to the patient, and to meet the wish of those who desire to supply these classes of medicaments freshly made, I have endeavoured to show that the time of infusion may be shortened in most cases without interfering with the degree of exhaustion of the drug obtainable by longer treatment. I present, in tabular forms, the results of experiments carried out with this view, in which there are shown the amount of extractive obtained by the B.P. process, and that of a shorter time which I would suggest. The residues were obtained by evaporation in a water bath and finished in a water oven.

It is also desirable that, with exceptions, they should be prepared of the uniform strength of 1 in 20. This may cause some variation of dose, but it is considered that it would be an advantage to have most of them of this strength, as is done in some of the foreign pharmacopœias, in which one process is adopted for a number of drugs. It is considered better that there should be an individual process given for each decoction and infusion, so as to allow of the state of comminution of the drug being mentioned, and, as they have to be extemporaneously and quickly prepared, the directions should be attached to each formula.

Decoctions.

In addition to making these of the strength of 1 in 20, it is desirable to bring their preparation more into uniformity by boiling for an equal time, say for ten minutes.

I would suggest that, with exceptions, 20 per cent. more menstruum should be used to commence with, than the amount of finished product required. The loss of liquid by absorption and evaporation under the most economical conditions, in preparing one pint in a covered vessel, I find is usually not less than 25 per cent., so that there would still be a deficiency to make up by displacement, by pouring over the contents of the strainer more menstruum to produce the required quantity. In making this, the pharmacopœial quantity, there is no fear, therefore, that the strained decoction, without addition, will exceed the required quantity.

*Table of Decoctions.**

Decoctum.	Process.	Strength.	Condition of Drug.	Time.	Dry Extractive from 400 fl. grains.
Cinchonæ	B.P.	1-16	No. 20 powder	boil 10 min.	
,,	suggested	1-20	,, ,,	,,	
Granati Radicis ..	B.P.	1-10	,, ,,	boil to half	9·8 grains
,, ,, ..	suggested	1-20	,, ,,	boil 10 min.	5·4 ,,
Hæmatoxyli	B.P.	1-20	unfermented	,,	—
Papaveris	B.P.	1-10	bruised	,,	6·3 ,,
,, (*without seeds*)	suggested	1-20	,,	,,	3·9 ,,
Pareiræ	B.P.	1-20	No. 20 powder	boil 15 min	5·8 ,,
,, ...	suggested	1-10	,, ,,	boil 10 min.	4·4 ,,
Sarsæ Co.	B.P.	1-8	as in B.P.	digest 1 hr.	5·4 ,,
,, ,, ...	suggested	1-10	,,	boil 10 min.	4·9 ,,

With two exceptions, the compound decoctions of aloes and sarsaparilla, in which covered vessels are ordered on account of the volatile nature of some of the ingredients, I would leave it indefinite whether a covered or uncovered vessel should be employed. I should give preference in most cases to an uncovered vessel, as in a covered vessel vegetable products when boiled in water are apt to froth and boil over, even with the most careful attention. Especially is this the case with decoction of cinchona.

The decoctions of cinchona, in No. 20 powder, pomegranate root bark, in No. 20 powder, pareira, in No. 20 powder, and poppy, bruised, I would recommend to be prepared by such a process as I have suggested, that is, to mix the drug with 24 ounces of distilled water and boil in a suitable vessel for ten minutes, then strain and pour as much distilled water over the contents of the strainer as will make the strained product measure a pint.

* *Pharm. Journ.*, v., 839. † Engler's 'Bot. Jahrb.', v., 422.

* Only those are tabulated in which a change is suggested.

Decoction of Cinchona.—Although as regards the alkaloidal strength of the decoction, it is, I find from analysis, of equal strength if prepared 1 in 16, or with half this quantity of bark, 1 in 32, if a good bark be employed; yet, as cinchona bark is so variable and now so cheap, it is not desirable to deviate from the uniform strength of 1 in 20 I have proposed. The decoction is a natural preparation of the bark, not truly incompatible with carbonate of ammonium and spirit of sal volatile, with which it is often prescribed. These form combinations largely employed in medical practice, and although failing to exhaust the bark, this is one of the most frequently prescribed of the official decoctions.

Decoction of broom, in which at present the drug is not ordered to be bruised, had better be replaced by an infusion of the bruised drug, and decoction of logwood should be made from the unfermented chips.

Compound decoction of sarsaparilla, if it is to be retained, I would not tamper with, except to make the proportion of sarsaparilla 1 in 10 of product in place of 1 in 8.

Other decoctions, with the exception of decoction of aloes, not being in demand, will probably be omitted.

Compound Decoction of Aloes.—There appears to be bad pharmacy in the present preparation, in that, after making an extract of socotrine aloes by evaporating the "liquors in a current of warm air to dryness," we are directed to boil it for five minutes in a solution of carbonate of potassium. As, owing to oxidation, the extract will never completely dissolve again in distilled water, I am of opinion that crude aloes might as well be employed in making this preparation, especially if the Barbados (*i.e.*, Curaçoa) variety be used. I find that this, if of good quality, is entirely soluble in a carbonate of potassium solution of the strength directed for preparing the decoction. The Socotrine variety is not so, and it is also considered to be less active as a purgative. If the preparation were made to contain 1 per cent. of Barbados aloes, instead of the 1 per cent. of extract of Socotrine aloes now ordered, I think there would be little or no alteration in the medicinal action of the preparation. Solution of the aloes is said to lessen its tendency to cause griping, and the action of the carbonate of potassium seems also to modify the effect of the preparation chemically, as if kept long it is said to lose much of its bitterness. Garrod* and Farre found the resinous matter left in preparing the extract of aloes caused little or no griping; it often proved almost inert. The change from using the crude Socotrine aloes, about 1 in 73 of product, in P.L. 1836, to extract of Socotrine aloes, was made in P.L. 1851. Now the aloes in the preparation seems to me to be over-cooked. I exhibit the decoction made in four ways:—The B.P. with 1 per cent. of extract of Socotrine aloes; with 1 per cent. of crude Barbados aloes; with 1 per cent., and also with 2 per cent. of crude Socotrine aloes. It may be necessary to use more than 1 per cent. of Socotrine aloes in the preparation if this be accepted, so as to retain its present strength; this should not be much deviated from, as it is a domestic remedy, the *Baume de vie* of ancient pharmacy. For this reason also the saffron should be retained, unless the medical authorities wish it omitted. The samples of decoctions of crude aloes were made with Barbados aloes yielding 73·5 per cent., and Socotrine yielding 45·2 per cent. of extract respectively, so that if Socotrine aloes be used, about twice as much of it will be required as of its extract, to keep the decoction of the same medicinal activity. From experience I find that Socotrine aloes is never so rich in extract as the Barbados. As regards the taste of the decoctions, I do not think there is much to choose between them, because the liquorice and saffron cover the taste so as to make them, to me, hardly distinguishable. The purgative action is a medical question. In other respects the present formula proves satisfactory.

* Garrod's 'Materia Medica and Therapeutics.'

Infusions.

Besides making these as far as possible of the uniform strength of 1 in 20, I would generally reduce the time of infusing to fifteen minutes. With one exception, that of calumba, I think boiling water should be used as a menstruum, a less heat being insufficient to prevent the tendency to fungoid development. They should while infusing, of course, be stirred occasionally. It would not tend to greater uniformity of the product to make up the quantity lost by absorption. Infusions therefore, as at present, should merely be ordered to be strained. It may be a question whether it be advisable to make them of uniform strength, for which there has been a desire expressed, or of nearly uniform dose, as they are now. Infusions of digitalis and quassia would under any circumstances be exceptions. The infusion of chamomile and simple and compound infusions of orange peel, I would not alter.

*Table of Infusions.**

Infusum.	Process.	Strength.	Condition of Drug.	Temperature and Time.	Dry Extractive from 400 fl. grains.
Buchu	B.P.	1–20	bruised	212° F.; ½ hr.	3·3 grs.
,,	suggested	1–20	broken	,, ¼ ,,	2·9 ,,
Caryophyll i	B.P.	1–40	bruised	,, ½ ,,	2·4 ,,
,,	suggested	1–20	,,	,, ¼ ,,	4·8 ,,
Cascarillæ	B.P.	1–10	No. 20 pdr.	,, ½ ,,	3·2 ,,
,,	suggested	1–20	,,	,, ¼ ,,	1·5 ,,
Catechu	B.P.	320grs	No. 20 pdr.	} ,, ½ ,,	12·1 ,,
Cinnamon 60 *grs. to* 1 *pt.*	—	to 1 pt.	bruised	}	
Catechu	suggested	1–20	No. 20 pd.	} ,, ¼ ,,	16·4 ,,
Cinnamon 1–100	—	—	bruised	}	
Chiratæ	B.P.	1–40	cut small	120° F.; ½ ,,	0·2 ,,
,,	suggested	1–20	,, ,,	212° F.; ¼ ,,	0·8 ,,
Cuspariæ	B.P.	1–20	No. 40 pdr.	120° F.; ¼ ,,	5·1 ,,
,,	suggested	1–20	,, ,,	212° F.; ¼ ,,	5·7 ,,
Cusso	,,	1–20	No. 20 pdr.	,, ¼ ,,	—
Digitalis	B.P.	56 grs.	whole	,, ¼ ,,	2·0 ,, †
,,	suggested	to 1 pt.	No. 20 pdr.	,, ¼ ,,	2·5 ,, †
Ergotæ	B.P.	1–40	crushed	212° F.; ½ ,,	2·4 ,,
,,	suggested	1–20	,,	,, ¼ ,,	3·6 ,,
Gentianæ Co.	B.P.	B.P.	B.P.	,, ½ ,,	3·6 ,,
,,	suggested	B.P.	B.P.	,, ¼ ,,	3·3 ,,
Krameriæ	B P.	1–20	No. 40 pdr.	,, ½ ,,	3·9 ,,
,,	suggested	1–20	bruised	,, ¼ ,,	3·2 ,,
Lini	} suggested	1–20	whole	,, 1 ,,	—
Liquorice Root 1–80	}				
Lupuli	B.P.	1–20	whole	,, 1 ,,	5·5 ,,
,,	suggested	1–20	broken	,, ,,	5·2 ,,
Maticæ	B.P.	1–20	cut small	,, ,,	3·5 ,,
,,	suggested	1–20	broken	,, ,,	3·4 ,,
Quassiæ	B.P.	1–80	chips	cold; ½ ,,	—
,,	suggested	1–100	rasped	212° F.; ¼ ,,	—
Rhei	B.P.	1–40	thin slices	,, ½ ,,	4·9 ,,
,,	suggested	1–20	,, ,,	,, ¼ ,,	9·6 ,,
Rosæ Acidum	,,	B P.		,, ¼ ,,	—
Scoparii	,,	1–20	bruised	,, ¼ ,,	2·3 ,,
Scoparii (Decoct.)	B.P.	1–20	dried.	Boil 10 min.	1·005 ,,
Senegæ	B.P.	1–20	No. 20 pdr.	212° F.; ½ hr.	6·1 ,,
,,	suggested	1–20	,, ,,	,, ¼ ,,	6·0 ,,
Sennæ	B.P.	B.P.	whole	,, ½ ,,	15·1 ,,
,,	suggested	B.P.	,,	,, ¼ ,,	14·3 ,,
Serpentariæ	B.P.	1–40	No. 20 pdr.	,, ½ ,,	1·3 ,,
,,	suggested	1–20	,, ,,	,, ¼ ,,	2·4 ,,
Uvæ Ursi	B P.	1–20	bruised	,, 1 ,,	7·7 ,,
,,	suggested	1–20	,,	,, ¼ ,,	7·3 ,,
Valerianæ	B P.	1–40	,,	,, 1 ,,	2·4 ,,
,,	suggested	1–20	,,	,, ¼ ,,	4·7 ,,

* Only those are tabulated in which a change is suggested.
† Dry extractive from 1000 fluid grains.

In preparing the infusions of buchu, clove, cascarilla, catechu, chiretta, cusparia, ergot, compound gentian, jaborandi, rhatany, hop, matico, quassia, rhubarb, rose, senega, senna, serpentary, bearberry, and valerian, the time might be reduced to a quarter of an hour.

Infusions of chiretta and cusparia, now prepared at 120° F., and infusion of quassia, with cold water, had better be prepared with boiling water. No sufficient reason has been given why boiling water should not be used in these cases, and the latter certainly would tend to prevent the liability to such changes as I have mentioned.

For infusion of buchu the leaves should be simply freshly broken, not bruised too much, else a too mucilaginous preparation is obtained.

The following would be double the strength of the now official preparations :—Infusions of clove, chiretta, ergot, rhubarb, serpentary and valerian, and infusion of catechu would be increased in strength. Infusion of cascarilla would be one-half its present strength.

In preparing infusion of digitalis, No. 20 powder might be used to give a greater uniformity of sample and better exhaustion, but the strength of the infusion should not be altered without careful consideration, as it is a preparation on which great reliance is placed medically.

Of calumba a cold infusion is preferable to one prepared with boiling water which takes up the starch and is objectionable. After preparation, it is often heated to the boiling point and strained through cotton wool to separate albuminous matter, without interfering with its flavour or medical activity.

Infusion of kousso, as it has to be administered without straining, should have its fineness of comminution defined—say No. 20 powder—and the strength reduced to 1 in 20.

Infusion of linseed, 1 in 20, would be slightly increased in strength, and the time of infusion, two hours, might be reduced one-half.

Infusion of quassia, being generally used as a vehicle, might be made of the strength of 1 in 100 in place of 1 in 80, if boiling water be employed.

The strength of infusion of senna, preferably Alexandrian, 1 in 10, should be adhered to.

I am indebted to Mr. E. H. Lee, for aid in obtaining the results for the tables.

Separation and Determination of Tin and Antimony in an Alloy.—Menglin treats the alloy with nitric acid which will dissolve any other metals which may be present, and transform tin and antimony into insoluble oxides. These are collected, washed, heated to incandescence, and weighed. He then transfers them to a beaker and adds a piece of pure tin, covers them with dilute hydrochloric acid, and heats gently. The antimony separates in the metallic state, and the tin is converted into chloride in the solution. The separated antimony is collected, dried, and after having been washed with water and alcohol, weighed. The weight of the united oxides having been previously ascertained, the proportion of tin can easily be calculated thus :—Taking the weight of the antimony to be A, multiply by 1·162, when the weight of antimonic oxide is obtained. Deduct this from the total weight already ascertained, which we may call M. Consequently, $M-(A\times1{\cdot}162)$ is equal to the weight of the tin oxide. Multiply this by 0·78667, and the result shows the quantity of tin contained in the alloy taken (*Apoth. Zeitg. Jahr.*, 330).

SHORT NOTES ON THE PREPARATIONS AND FORMULÆ OF THE BRITISH PHARMACOPŒIA.

OINTMENTS.

Ung. Acid. Bor.—This is one of the few ointments in which paraffin is used as a basis with any measure of success. But it is rare to meet with a good sample supplied in the usual course of wholesale dealing. This may be traced to one or other of the following causes :—

α. The acid used is not in sufficiently fine powder (subtil.).
β. It is not distributed by sifting over the surface of the melted basis whilst stirring is going on, or
γ. The product is not kept diligently stirred until cooling is well advanced.

These precautions being well observed, there results a very good-looking primrose-coloured ointment, which is a credit to British pharmacy. (Prescribed 93 times in 12,000 prescriptions, Martindale.)

Ung. Acid. Carb.—The formula for this ointment is quite a failure. Carbolic acid will not coalesce into a good state of admixture with any one of the paraffin bodies—solid, greasy, or liquid—nor can the ingredients be re-compounded amongst themselves, by any easy means, at least, when once a separation has been effected. An alternative formula, which has been already published, gives a very good result indeed.

℞. Phenol ..... ℥j.
Ceræ puræ ..... ℥ivss.
Cetacei ..... ℥iss.
Ol. olivæ opt. ..... ℥xij.

Misce secundum artem.

The following, however, seems preferable, both as to keeping qualities and uniformity of texture :—

℞. Phenol ..... ℥j.
Glycerin (anhydrous) ..... ℥j.

Tere simul, et adde

Ung. simp. ..... ℥xvij.

Et tere bene.

Prescribed 5 times in 12,000 prescriptions.

Unq. Acid. Salicyl.—This ointment presents the same difficulty as the foregoing. The statement that salicylic acid is soluble in "ho fats and in paraffinum molle" is perfectly correct, but it should be added that it has a disposition to separate from these on cooling, and although this be kept in check by diligent stirring during the process of cooling, the separation goes on after the ointment is finished and militates seriously against its keeping qualities. A very good alternative process is to dissolve the acid in a very little absolute alcohol and rub the solution with the requisite proportion of lard or a mixture of lard and wax if a stiffer ointment be required.

Prescribed 3 times in 12,000 prescriptions.

Ung. Aconitinæ.—The present formula is a very good one, but its keeping qualities would be improved by the use of absolute alcohol as a solvent for the alkaloid, instead of the spirit misnamed "rectified." (Prescribed twice in 12,000 prescriptions.)

Ung. Antim. Tart.—As usually prepared, this ointment is objectionably gritty. To obviate this, the Spanish Pharmacopœia orders the salt to be rubbed with a little water before mixing with the basis. A dampness is thus introduced which interferes with the keeping quality. The Pharmacopœia of the Netherlands orders olive oil instead of water, which is better, but anhydrous glycerin, ℥j. to the ¼ oz. antim. tart., answers the purpose most admirably, giving a fine smooth ointment that will keep unchanged for a reasonable time. (Prescribed not at all in 25,500 prescriptions.)

Ung. Atropinæ.—In this formula also the use of absolute alcohol would be a great advantage. Pure ethylic alcohol coalesces with fatty matter, whereas but a slight proportion of moisture prevents coalescence altogether. It is much to be desired that dispensers should become acquainted with this too much neglected pharmaceutical luxury, especially as advanced culture guards now more than formerly against its extravagant abuse.

Prescribed not at all in 25,500 prescriptions.

Ung. Belladonnæ.—The present formula is a very great improvement on that of the B.P., 1867. Prepared by careful trituration of the alcoholic extract with good benzoated lard we obtain a *ne plus ultra*. To guard against defective knowledge of persons employed in wholesale trade, it would be well that the directions were rendered more explicit, instead of "mix thoroughly," which so often occurs, leaving the operator at liberty either to mix on a slab or mix with heat and let the ointment cool itself, or to adopt other abbreviations of labour that indolence may dictate. He should be told to use a grinding apparatus of some kind, and that such products as these must be mixed by efficient "trituration."

Prescribed twice in 12,000 prescriptions.

Ung. Calaminæ.—Turner's cerate was once a very noted ointment, but it came into disrepute through carelessness or fraud in its manipulation, and defective storage. Thirty years ago almost any dirty red stuff did duty for calamine powder. Beeswax was then all right. Now there is danger of a worse infliction if no efficient means be found to prevent the evil, as any yellow waxy stuff will pass as beeswax. Could any improved formula retrieve the disaster to Turner's cerate, the present one would certainly do so. A better one could scarcely be devised. Yet the directions here, too, should run, "mix thoroughly with trituration."

Prescribed twice in 12,000 prescriptions.

Ung. Cantharidis.—If this ointment is to be retained in the Pharmacopœia, surely some better formula might be devised than the present one? Perhaps an admixture of liq. epispasticus with lard, or lard and wax would answer. The direction to strain through muslin with strong pressure is certainly not to be seriously thought of, since a loyal disciple might have sore hands for two or three weeks afterwards as a reward for carrying out the letter of the law.

Prescribed not at all in 25,500 prescriptions.

Ung. Cetacei. — Time was when the formula for spermaceti ointment was perfect. Popular demand for it was then nearly as great as it is now for zinc ointment. But the elegant pharmacist of that day began to use ol. olivæ pall., which means (reputed) olive oil spoiled and gone wrong. In vain men of experience protested, that colour did not matter so long as the thing was really good. But they were cried down as old fogies—not enough "go in them"—away they went, and good ung. cetacei after them. Still ung. cetacei figures in five Continental Pharmacopœias besides that of the United States. The best formula is the Greek, equal parts of wax, spermaceti, and olive oil. The worst seems to be our own—spoilt by a two hours' roasting with gum benzoin—a sickly smelling product of very messy inconsistence.

Prescribed 20 times in 12,000 prescriptions.

Ung. Chrysarobini.—The present formula seems incapable of furnishing a uniform or satisfactory product. Even when the ointment is strained it is uncomfortably gritty and too hard. A fairly good substitute may be prepared by rubbing chrysophanic acid with anhydrous glycerin till smooth and then triturating with a simple ointment (wax, 1 part; olive oil, 3 parts), but for the use of this the sanction of the therapeutist is required.

Prescribed twice in 12,000 prescriptions.

(*To be continued.*)

REVIEWS AND NOTICES OF BOOKS.

A Treatise on Pharmacy for Students and Pharmacists. By Charles Caspari, Jr., Ph.G., Professor of the Theory and Practice of Pharmacy in the Maryland College of Pharmacy. Pp. 679, with 288 illustrations. Price $4.50. (Philadelphia, U.S.A.: Lea Brothers and Co., Sanson Street, 1895.)

Pharmaceutical students and practitioners in the United States are specially favoured as regards the choice of standard works on pharmacy. Yet each particular book on the subject that has come to us across the Atlantic has been found to possess special merits and the one now under consideration is no exception to this rule. The author, in addition to being professor of pharmacy in an important pharmaceutical college, is joint editor of the 'National Dispensatory,' one of the most useful reference books for English-speaking pharmacists, and he therefore possesses exceptional opportunities for knowing the needs of both students and practising pharmacists. Whilst, however, he has endeavoured to make his book useful to the whole craft, his main object has been to supply students of pharmacy with a comprehensive and trustworthy text-book. Care has been taken, therefore, to omit as unnecessary all formulæ and other matters readily accessible in the U. S. Pharmacopœia and other standard works of reference. In the author's own words, the book "is pre-eminently intended to be one of instruction and an aid in the study and use of the Pharmacopœia. The object constantly in view was to answer, if possible, the many questions of why and wherefore with which students and practising pharmacists are almost daily confronted." Such an object is a highly commendable one, and the author may be congratulated on the success that has attended his efforts, since he has produced a student's text-book that well represents what such a text-book ought to be.

The first part of the book, occupying about one hundred and ninety pages, treats of general pharmacy, what may be called "first principles" being dealt with at length and in an eminently practical manner, illustrations being introduced wherever required to elucidate the text. The early chapters explain the arrangement and nomenclature of pharmacopœias; systems of weights and measures, and the methods of determining mass and volume; specific gravity and the different ways in which it can be determined; the application and measurement of heat. The collection and preservation of crude drugs are next referred to briefly, and their mechanical sub-division at greater length. Then follow chapters on solution, percolation, the separation of non volatile and volatile matters, crystallisation, and the classification of natural products used in pharmacy. The particulars afforded in each instance are quite sufficient for the purpose, but it will generally be found desirable to resort to special works for more extended information than can conveniently be given within the limits of an ordinary text-book of this nature.

Practical pharmacy receives attention in the next two hundred pages, constituting part two of the book, which is made to cover both galenical pharmacy and extemporaneous pharmacy or dispensing. The remarks on the different classes of galenicals have special reference, of course, to the preparations of the U.S.P., including waters, solutions, decoctions, infusions, syrups, mucilages, honeys, glycerites, elixirs, spirits, tinctures, wines, vinegars, extracts (fluid and solid), oleo-resins, resins, collodions, emulsions, mixtures, pills, confections, lozenges, compressed tablets, tablet triturates, powders, granulations, ointments, cerates, liniments, oleates, plasters, and suppositories. At the same time useful hints of more general application are to be found on every

page, and the best methods of dispensing are given in every case the most recent processes being described and illustrated as fully as those that are better known. In this respect the book should appeal specially to British pharmacists who, in many instances, have but vague ideas respecting the more recent developments of modern pharmacy.

The concluding section of the book, and also the most extensive, is devoted to "pharmaceutical chemistry," *i.e.*, to the constitution, reactions, etc., of the chemical substances used in pharmacy. Elementary substances and the so-called inorganic compounds derived from them are first considered, the arrangement followed having special reference to the study of chemicals from a pharmaceutical point of view. Then follow notes on cellulose and coal-tar derivatives; starches, gums, and sugars; alcohol and its derivatives; fats and fixed oils; volatile oils and resins; organic acids, alkaloids, neutral principles, glucosides, and animal ferments. The prevailing idea of the author in compiling this part of the book appears to have been that of supplementing the ordinary chemical text-books. The substances referred to are not dealt with at great length, and processes of manufacture are very briefly summarised, the intention being to enable "the student to understand fully the official requirements as regards identity and quality." It will be seen then, that, strictly speaking, this section comprehends what is commonly referred to as inorganic materia medica. Nothing of any great importance in medicine appears to have been left unconsidered, and whilst on the one hand, tediously long dissertations are avoided, undue brevity is carefully guarded against on the other. These points are characteristic of the whole book, and, without making any pretence of detailed criticism, it can be cordially commended as one of the most practical and satisfactory of its kind.

HINTS ON THE TEACHING OF ELEMENTARY CHEMISTRY IN SCHOOLS AND SCIENCE CLASSES. By WILLIAM A. TILDEN, D.Sc., F.R.S. Pp. 76. Price 2*s*. (London: Longmans, Green, and Co., 1895.)

Nowadays, when the qualification to teach a subject is so often based on the passing of an examination in that subject, no more welcome guide to teachers of elementary chemistry could be published than this little book by Professor Tilden. It represents the substance of a short course of lectures recently given to a class of teachers at the Royal College of Science, and in their amplified form the hints then given should now prove useful to a wide circle of readers. In the preface, the author points out that the necessity of clearly distinguishing fact from hypothesis requires to be far more definitely established in the minds of a large proportion of teachers, and in the book itself he explains in the clearest manner how to make the most of observed facts.

The first chapter deals with qualitative observation, and, after several important instances have been quoted of fallacies originating as a consequence of imperfect observation, a series of exercises is described "to suggest to teachers the kind of practical work which may be advantageously done by the pupil, and to show in a general way how he may proceed from very simple operations to work of a more complex character." Quantitative observation is the subject of two chapters, the gravimetric and volumetric exercises suggested being such as will enable a student to verify for himself the Law of Definite Proportions, and to test the Law of Reciprocal Proportions. It is shown, by the way, that fairly accurate quantitative results can be obtained by the use of quite inexpensive apparatus. Suggestions for work on chemical equivalents, molecular weights and formulæ, and the classification of atomic weights occupy the remaining chapters of the book, the following passage forming an appropriate conclusion to the last:—"Chemistry cannot be learnt by reading alone. There comes a stage in every student's career when much reading is very necessary, but this is only reached after long training of the eye and the hand. First of all learn to see things clearly, and from first to last let fact stand before all hypothesis." Teachers of elementary chemistry will find the book indispensable, and every student with a somewhat advanced knowledge of the science will find it an exceedingly useful addition to his library.

MOVEMENT. By E. J. MAREY. Translated by Eric Pritchard, M.A., M. B., B.Ch., Oxon. Pp. 323. Price 7*s*. 6*d*. (London: William Heinemann, 1895.)

At the outset, the reader is inclined to join issue in a friendly manner with the translator of this work, for in his prefatory note he states that Muybridge's book is within the reach of all who can read the English language. This is hardly correct, considering that Muybridge's 'Animal Locomotion' costs 100 guineas, but this most comprehensive summary of Professor Marey's work in its English dress is welcomed all the more heartily, and the translator is to be congratulated upon his fluent rendering of the technical and idiomatic French of Marey.

As a record of what can be accomplished by instantaneous photography, the work is most valuable; it is not only of interest to the physiologist and specialist, but it is extremely entertaining to the general reader. After describing the various methods employed in obtaining the chrono-photographic records, the analyses of the movements of all sorts—in fish, birds, and animals—are treated of and illustrated, and the wing and leg movements of insects are also portrayed.

Though the value of a work such as this cannot at first sight be fully appreciated, it will undoubtedly be useful to the artist and sculptor, by enabling them to depict on canvas and in stone more truthfully the various phases characteristic of moving creatures, and it may also lead to a better comprehension of the necessary structure and movements of mechanical adjuncts by means of which human beings may yet hope one day to fly.

ELEMENTARY PHYSIOLOGY. By J. R. AINSWORTH DAVIS, B.A. Pp. 223. Price 2*s*. (London: Blackie and Son, Ltd., 50, Old Bailey, E.C., 1895)

Mr. Ainsworth's book differs from most elementary treatises on physiology, in containing a considerable number of anatomical details and some practical directions for dissecting, and in these features it approaches somewhat closely to a treatise on biology. The practical work on dissection, histology, and chemistry is contained in a separate chapter at the end of the book, and serves more, perhaps, to show the elementary student what to do rather than how to do it, since the details are necessarily brief in a book of this size.

A prominent and satisfactory feature throughout is the explanation of the derivation of the terms used. This will be found very useful by those students who do not possess a knowledge of Greek and Latin, enabling them to remember and understand more easily the host of names and terms which are apt to appal one commencing the study of natural science.

The book, which is well and freely illustrated with cuts and diagrams, is written in a lucid and readable style likely to interest the student. So far as pharmacists are concerned, it may be pointed out that the study of elementary physiology will be useful to those who may wish to keep abreast of the developments of modern medicine, in the direction of employing various animal fluids and extracts in the treatment of disease.

A CELTIC LEECHBOOK.

BY WHITLEY STOKES.

During a recent visit to Leiden, Mynheer De Vries, the learned keeper of the MSS. in the University Library, showed me a mutilated fragment of a Latin medical treatise, which he had found lying loose in Codex Vossianus lat. in fo. No. 96. The fragment consists of two leaves, or four pages. The first page is in a good Irish hand of the ninth century, and contains one Irish gloss—viz. *trom* (gl. sambuci). The other pages are in another and coarse script, generally resembling the Old-Irish, but differing in the shape of the *t*, which rises a little above the line, and is sometimes hardly distinguishable from *c*. The second page contains a number of Brythonic words for trees, plants, and other components of the mediæval *materia medica*. That these words are not Welsh is clear from the absence of a prothetic vowel in *scau* "elder-tree" (W. *ysgaw*), *stlancæs* "the small plantain," and *spern* "thorn." That they are Old-Breton, and not Cornish, is probable from *hoiarn* "iron" (Corn. *hoern*), *till* "lime-tree," *hisœlbarr*, said to mean "mistletoe," and *guocd*, which seems borrowed from Old-French *guaide*, "wead," now *guède*.

The treatise now contains twenty-four paragraphs, of which I shall here give a *précis*.

1. To prevent wrinkles. Smear the face with a mixture of water and the pounded root of wild cucumber. Wash with cold water. "Hóc sí triduo face*re* uolueris mirabile*m* effectu*m* uidebis."

2. To remove freckles. Rub a bull's gall on the face.

3. To cure headaches. Gather plantain-root before sunrise, and tie it on the head. Use also the juice of the seed of the elder-tree, a crow's brain, goat's dung* dissolved in vinegar; swallows' nests† mixed with water, and applied to the forehead; water out of which an ass or an ox has drunk.

4. To purge the head. Pour the juice of cabbage (*brassica*) into the nostrils.

5. For dimness of the eyes. Pound fennel-roots, mix with honey, and boil over a slow fire; add cistern-water or woman's milk. Smear the eyes with the fat of a fox (*adipe uolpis*).

6. Another remedy. Mix a child's urine (*lotium infantis*) with the best honey; add a decoction of fennel-roots ("omnem caliginem mirabiliter discutiet").

7. The beginning of this paragraph has been cut off. The remedies prescribed are butter and *cram occifœth* (garlic . . . . ?), mixed with ram's fat ("per aruinam ariætis‡").

8. "Ad remedium peducli": tansey-root, wormwood, *lanith* (?), bark of holly (*colœnn*), bark of oak (*rusc dar*), bark of rowan (*rusc cœrdín*), leaves of woad (*del guocd*), leaves of the elder-tree, *canturœd*, § "hundred-rooted," *i.e.*, mugwort or ground-ivy (Welsh *canwraidd*), *alan trinion* (coltsfoot, or some such plant), the head of a leek (*penn cœninn*), and *inatt* (perhaps borrowed from the Low-Latin *inanti*, οἰνάνθη).

9. Item ad *guortha sœr*. The ailment intended is unknown to me. The remedies are oak (*dœru*), the root of *alin* (?), laurel (*laur*) rowan (*cœrdin*), mistletoe (*hisœlbarr*), etc, yew-root boiled in butter and honey, horehound, radish, *domœ* (?), swallow-wort, milfoil, the knotty-rooted figwort (*uornœrt* = W. *gornerth*), etc.

10. Item ad quæmlibet doloræm . *tut lob stlancæs platan* et *iar œlilub*. Here *tut* may be from the Low-Latin *tutia* (Sinonoma Bartholomei, p. 42), and *iar* from the Low-Latin *iarus* (*ibid.*, p. 24), *lob*, *-lub* "herb," *platan* from *platanus*, *œli* (infra *eli*) = Welsh *eli* "salve, plaister."

11. Item ad elæuandum os . *boet boror* radix uitonicæ grana *till* herba similis *uottrum* crœscæns in ripa non diminuitur in tempore hiæmali per cæruisam sanat. With the exception of *till* (= Fr. *tille*, Lat. *tilia*), the Celtic words in this prescription are obscure to me: *boet* may be borrowed from Lat. *bēta*, and *boror* may be a scribal error for *beror* "cress" = W. *berwr*, as *colœnn* for *celœnn* "holly."

12. Item ad *uintlum* . *tut lub gulœd* et *iar elilub* cum *stlancæs hœntledán platan hoiarn lub gulœd* et ad quæmlibet doloræm sanat. The ailment intended is obscure—flatulence, perhaps, as *uint* is = *ventus*. In the prescription *gulœd* is = the Welsh plant-name *gwlydd* "alsine, morsus gallinae," Davies, Ir. *flid* "chickweed," *stlancæs* is now *stlanvesk* "the small plantain," and *hœntledan* is = W. *henllydan*, Corn. *enlidan* (gl. plantago), Mod. Br. *hedledan* "the large plantain."

13. Item ad *guœdgou*—"to stop flux (*gou* cognate with χύσις?) of blood" (*guœd* = W. *gwaed*). *Nenneth* radix *briblu abranguenn mor* per cæruisam sanat. *Cœs scau. Cœs spern. Cœs guern. Cœs dar. Cœs* cornu cerui, etc. Here *nenneth* may be cognate with the Ir. *nenaid* "nettle," *brib-lu* with W. *brefai*, *breflys* "pulegium," while *abranguenn* is = W. *amranwen* "whitewort," *mor* means "of the sea," if it is not a mistake for *mer* "mulberry," and *cœs* is the imperative sg. 2 of a verb = W. *ceisiaw* "to seek, to fetch." The corresponding form in Welsh—*cais*—occurs constantly in the *Meddygon Myddveu*, Landovery, 1861.

14. To cure the bite of a dog. Apply two or three onions calcined and boiled with lard and honey.

15. To extract a straw from the eye. Chant the psalm *Qui habitat* (Ps. 90) thrice over water, with which then douche the eye, "*et sanus œrit*."

16. The beginning of this paragraph has been cut off. It ends with the words *diebus aegiptiacis*, *i.e.*, the first Mondays in January, April, and August (see Cockayne's *Leechdoms*, iii., 77).

17, 18, 19, 20. Hygienic rules for the months of March, April May, and June. There are similar rules for each of the twelve months in the *Meddygon Myddveu*, p. 13.

21. Receipts (partially illegible) for *purgatio capitis* and *morbus capitis*.

22. "Ad capitis dolorem. Lapillus qualiscunque ab . . ." The rest of this paragraph is illegible.

23. (Ad) capillos fluentes. Put on the head a hare's stomach boiled in . . . mixed with oil, "et capillos fluentes continet et cogit concrescere." Also goats' hoofs burnt to ashes are useful.

24. Ad capillum crispandum. Calcine a ram's horns, mix with oil and rub on the head. The rest of the paragraph is to me unintelligible. There is something about xerocollyrium (ξηροκολλύριον). Probably two receipts have been confused.

This curious relic of the middle ages will be published in full in the first number of the *Keltische Zeitschrift*, with a glossary of the Celtic words which it contains. Its principal value lies in the Breton names for trees and plants. But it is not without interest for students of folk-lore and the history of medicine.—*Academy*.

* *Cac gabhair* was used also by the Irish physicians (see Mr. S. H. O'Grady's *Catalogue of Irish MSS.*, p. 179).

† So was the clay of the swallow's nest—*cré nit na fainnli* (*ibid.*, p. 196).

‡ In the Latin, as also in the Celtic words, *œ* is constantly written for *e*.

§ MS. carturæd. Or should we read *carth-uræd* and compare the Irish *cart-lann* "water-mint"?

PELAGEINE is the name given by A. B. Griffiths and C. Platt (*Comp. rend.*, cxxi., 451) to the violet pigment of the Medusa (*Pelagia*). They ascribe to it the formula $C_{20}H_{17}NO_7$. It is soluble in alcohol, ether, and in acetic ether, very soluble in carbon disulphide, but insoluble in water.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

EVENING MEETING IN LONDON.

The first evening meeting of the session was held at 17, Bloomsbury Square, on Wednesday, the 13th inst., the chair being taken at 8 o'clock by Mr. Michael Carteighe, President.

The first paper read was on "The Histology of *Andrographis paniculata*," by Professor H. G. Greenish.

The paper is printed at p. 413, and gave rise to the following discussion :—

Mr. J. S. WARD said he had noticed that the same broker had again offered for sale the false chiretta not disposed of at the last auction. He had not heard the whole of the paper, but he gathered that Professor Greenish had thoroughly established that this plant could be easily distinguished from chiretta, or anything else of the kind, which was very satisfactory.

Mr. E. M. HOLMES said it was very gratifying to find that these minute histological details were of such great practical use in distinguishing different plants of similar general appearance. The *Andrographis paniculata* was largely used in India as a chiretta, and was official in the Indian pharmacopœia. Its Indian name signified King of Bitters, which would tend to show that it was as much valued as chiretta; it was also more pleasant and aromatic in taste. It appeared therefore to form an excellent substitute for chiretta. It was used not only by native but also by European doctors in India.

The PRESIDENT here said the point of the paper was that the plant was not chiretta.

Mr. HOLMES said he understood it was called a chiretta in India, of course it was not what was known here as chiretta.

Professor ATTFIELD said he had found the *A. paniculata* referred to by Indian authorities not as a chiretta but as a cheap and useful substitute, used both by natives and medical men in place of the higher priced Himalayan chiretta. It was desirable that it should be used, not under a false name, but on its own merits.

The PRESIDENT in proposing a vote of thanks to Professor Greenish, said the histology of drugs had not been very much studied in England until recently, but this paper served to show the practical importance of the subject. The Council of the Society in appointing Professor Greenish to the chair he now occupied, hoped that he would be able to do something to make up for the neglect into which this subject had been allowed to fall, and he had certainly made a good beginning.

The next paper was by Mr. Martindale on "Infusions and Decoctions." It is printed at p. 415, and gave rise to the following discussion :—

The PRESIDENT said it was obviously desirable for practical purposes to be able to make decoctions and infusions in as short a time as possible.

Mr. J. INCE congratulated Mr. Martindale on the general tendency of his remarks, which was towards simplification; that when it could be attained was always very desirable, as being a step towards uniformity. With regard to the compound decoction of aloes, he observed that formerly the saffron was considered of importance for therapeutic purposes, but he did not know of any medical authority of the present day who held such an opinion. He was in favour of shortening the time employed for infusions, a point first brought forward many years ago by Mr. Barnes, and he had never known of any complaint because of less time being given. In the case of buchu, and the recommendation that the leaves should not be bruised, he might say that years ago the firm with which he was connected always bruised the leaves, producing a mucilaginous preparation, and the medical men who ordered it considered it superior to any they had used.

Mr. C. UMNEY said they had all been taught that freshly-prepared infusions were the best, and some houses, at least, were in the habit of making them every morning, and throwing them away if not used. They should proceed with caution in the case of aloes, for though he thought there was no doubt that the Barbados was superior to the Socotrine, it was very largely used, and should not be lightly altered in character. The infusion of buchu, which Mr. Ince referred to as being so much liked, might have been prepared from *Barosma serratifolia*. One of the most important infusions was digitalis, and it was the general opinion on the Continent that the midrib should be removed in preparing it, and that a temperature of 20° C. was better than any other. He did not like the term "concentrated infusions," but there was, no doubt, a great demand for the things so called, because medical men and the public would not wait for infusions and decoctions to be made. He thought they might be made by the addition of but little alcohol, say 20 per cent. by volume, so as to keep fairly well and represent the drug, and might be made ten times the strength shown by Mr. Martindale in the table.

Mr. HYSLOP hoped that if concentrated infusions were to be sanctioned and used generally, formulæ for them would be inserted in the new Pharmacopœia. In all his experience the main occasion he had had for complaint was in connection with these preparations; they did not keep well, and varied very much as sent out by different firms. It would be a mistake to increase their strength; he had found them keep better of half the strength. In the case of quassia, "shavings" would be a better word to use than "chips." He also made a few other suggestions with regard to infusions of gentian and roses.

Mr. CRIPPS pointed out that in some cases, where it was proposed to reduce the strength, it might lead to an unusually large dose being required, and in the case of chiretta the use of boiling water was said to make the infusion nauseous. It might be dangerous to alter the strength of ergot. Reducing the time required removed much of the necessity for the so-called concentrated infusions, and in some cases he suggested it might be still further reduced. It must be remembered, however, that when the time was so short, the water would be much hotter when strained off, and there might be more deposit thrown down afterwards.

Mr. WRETTS said his firm made fresh infusions every morning, and threw away those made the previous day. Medical men who did not object to the use of concentrated infusions in many cases, always preferred a fresh infusion in the case of digitalis.

Mr. HOLMES suggested that in the case of certain drugs, such as aloes and scammony, which varied very much in strength, it would be well to prepare the infusion from an extract, such as the French used, made *in vacuo* rather than from the crude drug. He thought saffron was now used by medical men chiefly for the sake of its aroma. In the case of digitalis he thought the infusion should always be made from fresh leaves; if they could not be obtained, the succus should be used.

Mr. LUCAS remarked that in Hong Kong it was usual to make an infusion of tea in about half a minute.

Professor ATTFIELD pointed out that the term "concentrated infusion or decoction" was an entire misnomer, for though it would of course be possible mechanically to concentrate an infusion, the result would not be anything like what was wanted, or what the preparations so termed were supposed to be. It was perfectly legitimate that there should be a demand for a supply of a preparation which, when diluted, should form a suitable vehicle for stronger medicines, in the same way as infusions were now used. In considering what name should be given to such a preparation, there seemed only a choice of three, liquores, misturæ, or essentiæ, and for reasons which he explained, he gave the preference to the latter, there being only one or two essences now in ordinary use, and in their case the word "spirit" might be employed. He did not see why useful preparations of this kind should not be made and used; if they deposited, the deposit should be examined, and if it were found to be a useful constituent, means might be devised for preventing precipitation. If not, throw it away and send out the preparation bright. For practical reasons he thought these "essences" should be made as strong as possible. This question had not yet been dealt with by the Pharmaceutical Committee of the Medical Council, nor by the Committee of the Pharmaceutical Society, and he hoped any gentleman who had suggestions to make would send them in.

Mr. MARTINDALE, in reply, dealt with the various points which had been raised referring to the figures given in the table with reference to the strength of the various preparations. Infusion of ergot was generally made by the medical man on the spot where it was to be used, and it was not really so toxic as was generally supposed. He had gone on the same lines as were laid down by Mr. Barnes, and had in many cases still further reduced the time.

The PRESIDENT, in moving a vote of thanks to Mr. Martindale, said he thoroughly agreed with Professor Attfield that if it were desirable to have preparations intermediate between aqueous infusions or decoctions and tinctures, they ought not to be termed "concentrated infusions." He also pointed out that it was very undesir-

able to introduce any alteration in preparations which were in very general use, and had a well-known and distinctive flavour, such as compound decoction of aloes. If changes were to be introduced, let them be in nauseous compounds where the change, if recognised, would only be welcomed.

DONATIONS.

At a meeting of the Library, Museum, School, and House Committee, held on Wednesday, the 13th inst., the Librarian and Curator presented the following reports of donations to the Society's Library, Museum, and Herbarium :—

To the Library (London).

University of London :
Accessions to the Library, 1886–95.
University College, London :
Calendar, 1895.
City of London College :
Calendar, 1895.
Royal College of Surgeons of England :
Calendar, 1895.
Mason College, Birmingham :
Calendar, 1895.
St. Bartholomew's Hospital, London :
Statistical Tables, 1894.
The Hon. the Premier of Victoria :
Mueller, Select Extra-Tropical Plants, 9th ed., 1895.
Mr. F. M. Bailey, Colonial Botanist, Queensland :
Botany Bulletin, No. 11.
Geological Survey of Canada :
Three portfolios of maps.
Royal Medical and Chirurgical Society, London :
Medico chirurgical Transactions, vol. 78.
Professor E. Schaer, Strassburg :
F. A. Flückiger, Nekrolog, 1895.
Dr. A. Dewevre, Bruxelles :
Les caoutchoucs africains, 1895.
Mr. R. E. Bunn, Ipswich :
Madagascar, 1895.
Mr. S. W. Woolley, London :
Pharmacopœia Radcliffeana, 1716.
Dr. C. M. Luxmoore, Harpenden :
Luxmoore, The Oximes of Benzaldehyde and Their Derivatives, 1895.

To the Library (Edinburgh).

Mr. Alexander Kinninmont, Bothwell :
White and Riddle, Latin-English Dictionary, 3rd ed., 1869, 2 vols.
Celsus, Of Medicine in Eight Books, 2nd ed., 1831.

To the Museum.

Mr. J. C. Sawer, Brighton :
Specimen of oil of Tansy, as reported on by Messrs. Schimmel, of Leipsic.
Messrs. Parke, Davis, and Co., Detroit, U. S. America :
Specimen of *Grindelia robusta.*
Mr. H. Humphreys, Hong Kong :
Specimen of cake of expressed tea seed (*Camellia oleifera*).
Messrs. Horner and Sons, per Mr. J. Stead, London.
Specimen of Patchouli leaves and of the oil distilled from them.
Mr. E. J. Eastes, F.I.C., London.
Two fruits of a species of *Quisqualis.*
Mr. G. T. Scott-Elliot, M.A., Newton, Dumfries.
Poisoned arrows used by the Wandarrobo tribe, near Uganda.
Mr. T. Wardleworth, Manchester :
Specimen of the oil and fruits of Kuro-moji (*Lindera sericea*) from Japan.
Mueller, S. W. F. von, K.C.M.G., etc., Melbourne :
Kino from *Eucalyptus viminalis.*

To the Museum (Edinburgh).

Mr. Thos. Stephenson, Bombay :
Specimens of Bazaar drugs, including Calumba root, Kamala, the fruits of *Embelia ribes*, the seeds of *Ipavœa hederacea, Strychnos nux vomica, Psoralea corylifolia, Wrightia tinctoria*, and "Wapubha" flowers.

To the Herbarium.

Mr. A. W. Nunn, Sydenham :
Rose with green flowers.

The Curator :
Specimen of the "white" variety of *Mentha piperita*, found wild in Devonshire.
Henry, Dr. A, Shanghai :
Specimen of *Blumea balsamifera* (Ngai camphor plant), and *Cinnamomum camphora* from Formosa.

CORRESPONDENCE.

[*Letters to the Editor should be written as concisely as possible, on one side of the paper only, and preferably with name and address for publication.*]

BIOGRAPHY OF LIEBIG.

Sir,—Your review of Mr. Shenstone's very readable and charming volume 'Justus von Liebig : his Life and Work' should gain for it many readers amongst members of our body. May I quote from the book the following passage, which appears at page 211 :—"In this year, Liebig, for the first time dismissed an assistant. When he wrote at the time to ask Wöhler to find him a new one he paid a handsome compliment to the pharmacists, saying that he would prefer 'a pharmacist who is accustomed to order, cleanliness, and has a sense of duty.'"

I believe that such a compliment is justly deserved by our assistants as a body, and it is pleasant to acknowledge our indebtedness to those to whose hands our security and interests, not less than those of the public, are largely committed. It was Oliver Wendell Holmes who wrote, "when young I enjoyed praise by the teaspoonful, when older a tablespoonful sufficed, but now I require it in a ladle." Praise from Liebig need not be given in large doses.

The subject suggests reflection on the changes that time has brought over both master and assistant. Evolution apparently favours the latter, who is now very frequently by examination a member of the same profession as his employer. Degeneration is exhibited in the unqualified "store-keeper," whether of the bogus or more genuine class. One wonders how much respect is felt by the qualified assistant for the unqualified employer.

Leeds, November 9, 1895. RICHARD REYNOLDS.

A NEW TEST FOR NITRITES.

Sir,—Under the title "New Tests for Nitrites" (see *Pharm. Journ.*, November 2, p. 365) three reagents for nitrites are mentioned, which have been recommended as new by G. Denigès in the *Journ. de Pharm. et de Chim.* [6], ii., 289, and as offering advantages over those in current use.

Concerning this communication, and more especially relative to the first reagent of Denigès, I beg to make the following remarks :—

1. This first test for nitrites is only an adaptation of my test for phenol, which consists in the use of mercuro- or mercuri-nitrate solution, containing a little nitrous acid (*Fres. Ztschr.*, 1872, p. 175), or the solution known as Millon's reagent (*Arch. d. Pharm.*, 1890, p. 9). Mr. Denigès is therefore mistaken if he attributes this test to Mr. Almen (*vide* original paper in *Journ. de Pharm. et de Chim.*).

2. Another mistake is made by Mr. Denigès in describing his first reagent for nitrites as a new one, for in *Fres. Ztschr.*, 1875, p. 130, I have already published a series of experiments to prove the usefulness of a solution of phenol and pure mercury nitrate as a test for nitrous acid.

In this first reagent of Denigès only the use of acetate in the place of nitrate is new. However, this novelty is not an improvement, as I have distinctly shown by my experiments.

Groningen, November 4, 1895. P. C. PLUGGE.

PHARMACEUTICAL JOURNAL.

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LONDON: SATURDAY, NOVEMBER 16, 1895.

MEDICAL REMINISCENCES.

In the course of a most interesting address delivered by Sir Richard Quain, as President of the North West London Clinical Society, upon the 30th October—that being, as he informed his audience, his seventy-ninth birthday—a number of clinical observations and personal reminiscences, extending far back into the earlier part of the century, were recounted in a manner not only amusing but instructive. In speaking of the demand for medical reform—on the principle that the profession should govern itself with uniformity of qualification and reciprocity of practice—resulting eventually in the creation of the General Medical Council, Sir Richard related an episode connected with the earlier attempts to obtain a Medical Bill restricting the practice of medicine. Application with that object to the President of the Board of Health was met by the question, "Do you mean to tell me I am not to go and consult anybody I like?" And the reply made was, "No—consult whom you like—the greengrocer accomplished in simples, if you please; but we won't allow him to be called Dr. Green." That principle was assented to, but with a reminder of the view which had been expressed by Lord Althorpe when a medical Bill was before the House of Commons and a suggestion was made that nobody should be allowed to prescribe without having a medical qualification. On that occasion Lord Althorpe related that when he was Chancellor of the Exchequer he had a sharp attack of gout while proceeding to the House to make his financial statement, and in order to avoid having to return home he went to a chemist's on the way, where he was given some medicine which relieved him immediately. "Am I," he asked, "not to get such a thing as that? It would never be tolerated!" That tradition—said Sir Richard Quain—still exists in the House of Commons, and no one there would ever say, "You must prevent people from prescribing."

The valuable influence of the power of self-government through the Medical Council is held by Sir Richard as leading to very material improvement of the medical profession. The fact that when the Council declares a man's conduct to be "infamous" there is no appeal, will demand caution in coming to a decision on that point, but as there are degrees of disgrace—less than infamy—which ought to be corrected, Sir Richard considers that for the general good of the profession that should be done by the medical authorities in their by-laws.

The utility of mistura spiritus vini gallici as a means of sustaining life was illustrated by the case of a sufferer from albuminuria for whom "tisane" had been prescribed by Trousseau. Sir Richard Quain had been brought over to Paris to see the patient, and finding him in a very low state prescribed the above-mentioned restorative. Trousseau was horrified to learn that brandy had been administered, until he was told that it was given not as a cure for Bright's disease, but to keep the patient alive while the great French physician's remedies were doing him good. The virtues of blue pill and the perils of Burgundy under similar conditions formed the subject of further amusing narratives relating to other maladies of the same patient, and the toughness of Englishmen under the combined influences of over-feeding, physic, and disease was characterised by the concluding sentence of one of Trousseau's clinical lectures, in which he gave an account of this particular patient. "Had he been a Frenchman he must have died."

Another subject referred to by Sir Richard Quain in his address, was the important service rendered by Dr. Snow—a man probably known to none of his hearers—in pointing out that cholera is propagated by polluted water. Though ridiculed by many, and opposed by Baly, Gull and other eminent men at the time, the historical cases of the Golden Square and Broad Street pumps furnished conclusive evidence that Snow was right, and his view was eventually supported to demonstration by Simon, Parkes and Netten Radcliffe. Snow's name is unknown by nine-tenths of the people now living, and he has not received any tribute of recognition for having been instrumental in saving the lives of millions. But these deficiences Sir Richard Quain hopes to be able to obliterate by securing for him a suitable public memorial.

OBSERVANCE OF THE PHARMACY ACT.

In a note upon the "Negligent Sale of Poison" in the *British Medical Journal*, the proceedings under the Pharmacy Act, 1868, undertaken during the last two or three years, by the Pharmaceutical Society and by the police authorities, are spoken of with approval as being likely to produce beneficial effects, by "restricting the sale of poisons and even of potent medicinal preparations to the hands of persons possessing special knowledge of their dangerous nature." The propriety of such a restriction is considered to be "so obvious" as to outweigh any objection that can be urged against it on the ground that it confers a monopoly of the supply of poisonous articles. That is a correct view of the matter, showing sound appreciation of the Act and of the means by which protection against the dangers of poison is to be secured, and was intended by the Act to be provided, so far as legislative measures would permit. That view of the matter has not been sufficiently recognised and acted upon, and our contemporary suggests that even chemists and druggists are sometimes less scrupulously observant of the precautions held by the Legislature to be requisite in dealing with poisons than is desirable. Two recent inquests are mentioned as showing that in the sale of poison by chemists the precautions of labelling and registration were neglected, and the suggestion is made that in such cases the police authorities should put in force the provisions of the 17th Section of the Pharmacy Act, which can be done independently of the Pharmaceutical Society. It is also suggested that negligence of the kind referred to might well be

taken cognisance of by the Pharmaceutical Society "not only because of the danger attending it, but also because it might be made use of as an argument against the restriction of the sale of poisons to chemists and druggists." This suggestion cannot well be objected to, though it may be hoped that instances offering occasion for its adoption are few and far between.

THE PREVENTION OF POISONING.

THE *Sunday Times* refers to the fact that, at a recent inquest, the jury, with the approval of the Coroner, added a rider to their verdict, to the effect that the sale of poisons should be restricted to qualified chemists, special reference being also made to the ease with which dangerous preparations can be purchased at oil shops without restrictions of any kind. In the course of the proceedings at the inquest, it was stated that more suicides are due to the facility with which people can obtain poison from oil shops than to any other means within the knowledge of those acquainted with the subject. But, the *Sunday Times* observes, it is difficult to see how matters can be improved by following the recommendation of the jury, admirable though it is in the abstract. This conclusion is based by our contemporary on the alleged insufficiency of the requirements of the Pharmacy Act, which, it is stated, "merely enjoins that chemists shall have some knowledge of the person desiring to purchase deadly compounds, a legal requirement which can be easily satisfied by a visit or two to the chemist's shop prior to the purchase of the poison." This assertion is readily refuted, as it is certainly not true of the majority of chemists and druggists. As to the further formality of obtaining an explanation from the customer as to the object for which the poison is desired, "it has only to be mentioned to prove its worthlessness as a protective measure," observes this critic. But every practising pharmacist will bear us out in the statement that, slight as the protection afforded may seem, the requirement of strict proof as to identity and the other particulars usually demanded has a marked deterrent effect. That is why certain customers resort to oil shops, etc., rather than the chemist's, for carbolic acid, strong mineral acids, and other unscheduled poisons. Were such sources of supply closed, the number of poisoning cases would soon show a perceptible decrease. That would be so even in the case of suicides, which the most stringent regulations cannot altogether prevent, whilst cases of poisoning by misadventure would be enormously diminished by reason of the special precautions as to labelling, etc., now adopted by chemists as a matter of course, whether poisons are scheduled or not.

"THE ANTI-CUTTING-RECORD."

A CORRESPONDENT, who does not wish his remarks to be published, is reproachful because of assumed lack of sympathy with the retail trade, presumably because of the concluding words of the note published last week on the new anti-cutting scheme (see page 404). Those words simply expressed an undoubted fact, and for the rest the matter is one for the consideration of the parties mainly interested. Full prominence has been given to the matter, and space will gladly be afforded for criticism of the proposals set forth in the new periodical. At the same time, quite apart from the professional aspect of the question, the feasibility of the proposed scheme is very doubtful, because of the practical impossibility of uniting the chemists and druggists of the country in support of it.

PHARMACY ACT, 1868.

RECTIFICATION OF THE REGISTERS OF PHARMACEUTICAL CHEMISTS AND CHEMISTS AND DRUGGISTS.

We are requested by the Registrar to publish the following list of persons whose names will be erased from the Registers unless they communicate with him on or before December 30 next:—

Those marked (*) are Pharmaceutical Chemists.

Allan, William	15, Argyle Place, Edinburgh.
Astrop, Margaret	Barton-on-Humber.
Bathgate, William Lorimer	23, Canning Place, Liverpool.
*Botham, William	Market Place, Potton, Beds.
Broadrich, Samuel	Dukinfield, Cheshire.
Clause, Samuel Ruthbrook	Faversham, Kent.
Davies, Charles	8, Swan Bank, Bilston.
Dempster, Andrew	52, North Bridge, Edinburgh.
Dickinson, Ann	78, Old Hall Road, Sale, nr. Manchester.
Dickson, David	Moss Lane West, Manchester.
Divors, Hugh J.	Castlebar, Co. Mayo.
Findlay, John	46, Leith Street, Edinburgh.
Greasley, John	17, North Street, Leeds.
Greasley, Moses Frederick	17, North Street, Leeds.
Greenwood, Samuel	11, Whitecross Terrace, Warrington, Lancs.
Haffenden, James	509, Wandsworth Road, London, S.W.
Hopper, James Henry	196, Belsize Road, Kilburn, London, N.W.
Humphrey, Thomas Brigstocke	3, Quentin Road, Blackheath, London, S.E.
Jones, Joshua Evans	Holton Road, Barry Dock.
Kidd, John George, jun.	9, Newington Hall Villas, Highbury New Park, London, N.
McAllister, Robert Dempster	Biggar, N.B.
MacNair, Robert Hunter	247, Leith Walk, Leith.
Maddison, Thomas Harwood	69, William Street, Regent's Park, London, N.W.
Mann, Edwin	40, Kingsley Road, Liverpool.
Moir, David	Yarburgh Street, Whalley Range, Manchester.
Morris, John Buchan	52, North Bridge, Edinburgh.
Newman, Alfred Pointon	6, Victoria Street, Crewe.
Parry, Arthur	66, Jubilee Drive, Liverpool.
Russell, William	52, North Bridge, Edinburgh.
Schofield, John William	Rothbury, Northumberland.
Shepherd, Charles William	Brook Street, Ilkley, Yorks.
Soames, William	Wargrave, Berks.
Walker, Charles Henry	Liverpool Road, Great Crosby, near Liverpool.
Waterhouse, Thomas	Montreal.
Watson, Charles	1, Booth Street, Hulme, Manchester.
Wilson, John P.	15, Granville Terrace, Child's Hill, London, N.W.

EXTRACT FROM THE "PHARMACY ACT," 31 AND 32 VICTORIA, CAP. 121.

Section X.—"It shall be the duty of the Registrar to make and keep a correct Register, in accordance with the provisions of this Act, of all persons who shall be entitled to be registered under this Act, and to erase the names of all registered persons who shall have died, and from time to time make the necessary alterations in the addresses of the persons registered under this Act; to enable the Registrar duly to fulfil the duties imposed upon him, it shall be lawful for the Registrar to write a letter to any registered person, addressed to him according to his address on the Register, to inquire whether he has ceased to carry on business or has changed his residence,—such letter to be forwarded by post as a registered letter according to the Post Office regulations for the time being; and if no answer shall be returned to such letter within the period of six months from the sending of the letter, a second, of similar purport, shall be sent in like manner; and if no answer be given thereto within three months from the date thereof, it shall be lawful to erase the name of such person from the Register, provided always that the same may be restored by direction of the Council of the Pharmaceutical Society, should they think fit to make an order to that effect."

ANNOTATIONS.

PHARMACOLOGY OF THE IPECACUANHA ALKALOIDS. — The publication of our report of Dr. Wild's paper on the pharmacology of the alkaloids of ipecacuanha (see *ante*, p. 405), is unavoidably deferred until next week.

WESTERN CHEMISTS' ASSOCIATION (OF LONDON).—As briefly announced last week, the annual dinner of the above Association will be held on Wednesday next, November 20, at the Café Royal, 68, Regent Street, W., at 7 p.m. for 7.30 precisely. Members can obtain tickets for themselves and friends from the Hon. Treasurer, Mr. J. H. Mathews, 68, Queen's Gardens, W., or either of the Hon. Secretaries. Tickets, 7*s.* 6*d.* each. Mr. R. H. Parker, President of the Association, will take the chair.

ENGLISH-GROWN COFFEE.—The coffee plant is not one that would be expected to be suitable for cultivation in England, from an economical point of view, but at a meeting of the Royal Botanic Society of London on Saturday last, the Secretary, Mr. J. B. Sowerby, drew the attention of the Fellows present to some coffee on the table which he had prepared from berries growing in the gardens of the Society, and invited their judgment on its merits. The coffee was pronounced excellent, and Mr. Sowerby suggested that enterprising nurserymen might cultivate the berries in the same way as grapes and tomatoes, and offer them as English coffee.

DISPENSING FOR THE POOR.—The daily papers report, and refer approvingly to the case of a diver who was prevented by ill-health from following his usual occupation, and consequently obliged to become an inmate of Toxteth Workhouse. Here he was employed in the dispensary and, so reads the tale, "made such good use of his opportunities that he passed the examination of Dublin Apothecaries' Hall, and has now obtained an appointment as dispenser to Woolwich Union at a salary of £90 a year, with free house." No question is raised by our contemporaries as to the sufficiency of the course of training (*sic*) described to fit the diver for his new career, or whether the examination mentioned was a satisfactory test of such fitness. The feeling would appear to be spreading that anyone is good enough to dispense for the poor. Yet we venture to think that "poor dispensing, by the poor, for the poor" would not prove a favourable rallying cry in the election manifesto of a candidate for a seat on a Board of Guardians.

CURRENT SCIENCE.—Biographical sketches begin and end the November issue of *Science Progress*, the life and work of Carl Ludwig, late Professor of Physiology in the University of Leipzig, being descanted upon by Professor Stirling, whilst Dr. Sims Woodhead contributes an interesting record of Pasteur's career. Of the first-named it is said that he "did for physiology, as a whole, what Spallanzani did for a great chapter of chemical physiology"; and Pasteur's claim to honour, it is stated, will "undoubtedly rest upon the work which he has done in elucidating the questions connected with the ætiology and prophylaxis of specific infective disease." The chemical nature of alloys receives further attention from F. H. Neville; Dr. John Beddoe laments the inadequate attention devoted to anthropological research in India, and comments on anthropometrical investigations in the Bengal presidency by H. H. Risley; J. C. Willis deals with the present position of floral biology; and Professor Hudson Beare contributes a paper on the mechanical testing of iron and steel.

'PROCEEDINGS OF THE CHEMISTS' ASSISTANTS' ASSOCIATION.'—The eleventh volume of this publication contains certain of the papers read during the Session 1894-95, with abstracts of the remainder, and reports of the discussions that took place. Reference is also made to the various social meetings of the Association, so that the book may be regarded as a complete record of the year's work. It is satisfactory to find that the financial affairs of the Association are now in such a state as to permit of the publication of the 'Proceedings' in the usual form without too great a strain on its resources, and the committee of publication is to be congratulated on the accomplishment of its onerous undertaking.

INCANDESCENT GAS LIGHTING.—It is not generally known, observes the *Amateur Photographer*, that the majority of mantles or hoods for incandescent gas burners are made of monazite, or the "lonely" mineral. This is compounded of several rare earths and is found in small quantities in Bohemia, Norway, Cornwall, Finland, and North Carolina. It occurs in six-sided crystals and is highly refractory—that is to say, can withstand an intense heat without fusing, hence its use in incandescent gas lighting. A considerable demand having sprung up for it, search was made amongst the river beds in the clefts of the gold reefs in North Carolina, where traces of monazite had been noticed, with the result that very large deposits have been found.

THE MILK STANDARD.—A very important statement has been made on the authority of results obtained by analyses of milk in connection with the late dairy show at the Agricultural Hall, to the effect that the milk of many of the 126 cows entered for competition failed to show on analysis 3 per cent. of fat. The cows in question included nine out of seventeen shorthorns, four red-polls, two cross breeds, two Jerseys, and one Guernsey. Since the animals would have been selected for their supposed value as milkers, as well as for breed and beauty, there cannot be in this case any suspicion of adulteration. Neither can it be supposed that the milk was improperly sampled. Still the deviation from the fat standard (3·2) hitherto adopted by public analysts is sufficient to show that further investigation is desirable, since the general belief is that in natural milk the fat usually exceeds 3·2, and may, in good samples, exceed 4 per cent.

ABSORBABLE TISSUE FOR WOUNDS.—It is reported that a process has been patented in Germany for preparing a tissue for wounds, which can be absorbed. The muscular coating of the intestines of animals is divested of both the interior and exterior layers of mucous membrane, and then digested in a pepsin solution until the muscular fibres are half digested. The substance remaining is then treated with tannin and gallic acid, and, as a result, a tissue is obtained which can temporarily replace the natural skin, and, when laid on a wound, is entirely absorbed during the healing process.

ULSTER PHARMACEUTICAL ASSOCIATION.—This Association has existed but a few weeks, yet already it boasts about forty members, and has as President Mr. William Prott, a life member of the Pharmaceutical Society of Great Britain as well as a member of the Pharmaceutical Society of Ireland. The objects of the Association are to promote the social, intellectual, and business welfare of its members, and the first item in its programme was a highly successful smoking concert held last month. The paper on "Pharmaceutical Organisation," read by Mr. R. W. McKnight, at the meeting reported on page 431, was the first communication presented to this Association which, though young, is vigorous, and should receive the support of all pharmacists in the province it represents.

PROCEEDINGS OF SOCIETIES.

CHEMICAL SOCIETY.—The first meeting of the session was held on Thursday, November 7, the President, A. Vernon Harcourt, F.R.S., in the chair. After the formal business had been transacted a paper was read by Professor Smithells on the "Temperature of Flames and the Acetylene Theory of Luminosity." Since this paper consisted largely of a criticism of experiments made by Prof. V. Lewes, and the theory propounded by him as to the cause of luminosity in flames, the following short account of that theory, as well as the alternative one proposed by Prof. Smithells, is given:—

Views Propounded by Professor Lewes.

Assuming that the cause of luminosity in a gas flame is the incandescence of solid carbon particles, a view which seems placed beyond question by the researches of Heumann, Soret, Burch, and Stokes, Prof. Lewes* supposes that the luminosity of the coal-gas flame is due essentially to the elaboration and subsequent decomposition of acetylene. In order to obtain confirmation of this theory he endeavoured to identify the gases present in different parts of the flame by aspirating the gases through a thin platinum tube placed at different parts of the flame, and then analysing the gases thus obtained. By taking the gases at different heights of the flame he found that the hydrogen diminishes somewhat quickly, as well as the saturated hydrocarbons, but that the unsaturated hydrocarbons diminish slowly whilst the carbonic oxide first increases to a maximum at the tip of the inner cone and then diminishes. According to these experiments, 0·39 per cent. of saturated hydrocarbons and 1·18 per cent. of carbonic oxide escape unburnt into the air.

This increase of carbonic oxide in the flame has been verified by Professor Smithells, working by a different method.

Professor Lewes then estimated the amount of acetylene present in different parts of the flame, and found that from a coal gas containing ·035 per cent. of acetylene, the percentage of acetylene rose to a maximum of 1·41 per cent. at the top of the inner cone, and then diminished to *nil* at the tip of the luminous zone. He also made a series of measurements of the temperature of different parts of the flame, using for this purpose the platinum-rhodium electrical pyrometer of Le Chatelier. In this way he found that in the inner non-luminous portion the temperature gradually rises from 500° to 1267° at the commencement of the luminosity zone, whilst the temperature of the top of flame was 1368°. Further, by passing certain hydrocarbons, such as methane, ethane, and ethylene, through a platinum tube heated to 1000°, he found that acetylene was produced, having first shown that the surface action of platinum can be neglected by replacing it by a clay pipe stem glazed with borax, and obtaining similar results.

From the results of these experiments, he concludes that a flame consists of three zones, as follows:—

(i.) The inner zone, where the temperature rises from a minimum at the mouth of the burner, to between 1000° to 1100° at the apex of the zone, at this point part of the hydrocarbons are converted into acetylene—carbonic oxide and hydrogen being also produced.

(ii.) The luminous zone where the temperature ranges from 1100° to 1300°, where the acetylene is decomposed by heat with the liberation of carbon, which at the moment of separation is raised to incandescence partly by its own combustion (acetylene being formed endothermically) and by the combustion of the carbonic oxide and hydrogen—these changes give rise to the luminosity of the flame.

(iii.) The extreme outer zone in which the cooling and diluting effect of the entering air renders a thin layer non-luminous, and finally extinguishes it. The theory is thus based on the measurements of temperature and analyses of the aspirated gases.

Professor Smithells on "Flame Temperatures."

In the present paper Professor Smithells shows that the experimental data obtained by Lewes are unsatisfactory and unreliable. By using the ordinary form of the electrical pyrometer, Smithells was unable to detect any marked difference in the temperatures of the inner and outer zones of the Bunsen flame, but by using the thermo-couple bent so as to form a semi-circle and follow the zone, it was found that the temperature of the outer zone was from 50°–60° higher than the inner zone. Measurements were also made of the temperature of the different zones of the luminous flame from a Bray's burner, when it was found that the temperature of the outer portion was 1613°, of the luminous sheet 1463°, and of the central non-burning portion 700°–1100°. The temperature was greatest on the mantle, but records of the temperature of the inner part of the flame are unreliable, and it was shown that the temperature of the lower part of the mantle exceeded that of a Bunsen flame, and was above the melting point of platinum. Further, a considerable variance in Lewes' figures for temperature was noticed, as the following figures will show:—

Non-luminous zone.....	–1023°*	–1014°†
Commencement of luminosity zone	–1658°*	–1267°†
Near top of luminous zone	–2166°*	–1368°†

In connection with these temperatures it is to be noted that the melting point of platinum given by Violle‡ is 1775°. From these data Smithells contends that Lewes' measurements of temperature are unreliable. The probable origin of the acetylene theory is the observations on the separation of gases by aspiration from the luminous flame. This method is obviously unsatisfactory, since by the act of aspiration gases are drawn from parts of the flame other than that at the end of the tube, and the gases thus obtained do not correspond to those actually present at the same point in the flame as the platinum tube. But even under these conditions the maximum amount of acetylene found is only 1·41 per cent., and the whole of the luminosity of the gas flame cannot satisfactorily be ascribed to this small amount of gas.

The flame of acetylene itself is very luminous, but according to Lewes it has a relatively low temperature, due to the fact that acetylene at the moment of decomposition deposits glowing carbon—owing to the endothermic character of the gas—and owing to the rapid detonation the thermometer is not affected, hence we have a highly luminous flame at a very low temperature. This explanation is very unsatisfactory. According to Smithells, the acetylene flame is exceedingly hot, and melted his pyrometer. Its bright glow is due to the extremely high temperature of combustion and to its richness in carbon. Cyanogen is also formed endothermically, like acetylene, but with a greater absorption of heat energy, so that according to Lewes' theory this gas should glow like acetylene, which, however, is not the case. If, however, it be burnt in hydrogen, it becomes luminous, but Smithells proves that this is not due to carbon, but to ammonia, proving this by spectroscopic observation. There are then no really satisfactory experimental data for the acetylene theory of flames. Smithells'§ explanation is that in a luminous flame there are two regions corresponding to the two cones in a Bunsen flame. In a luminous flame the inner zone can be seen just at the base of the flame, or better, by lowering the flame when the luminosity disappears and the two zones are distinctly seen. The current of unburnt gases passes from the burner surrounded by a tube of burning gases, and is thus decomposed and deposits solid carbon. This carbon glows owing to the heat of its own combustion, increased probably by the concomitant combustion of hydrogen. In the inner blue zone seen at the base the gases are burnt probably direct to carbonic oxide, hydrogen being set free, without separation of carbon, whilst in the outer zone or mantle the complete combustion of the carbonic oxide, carbon, and hydrogen to carbon dioxide and water takes place. All the known facts agree well with this theory, and though the precise course of the combustion of the hydrocarbons has not yet been determined, there is no need, nor is there any experimental foundation, for the acetylene theory advocated by Prof. Lewes.

The next paper was by—

Dr. Chattaway on "Derivatives of Hydrazine."

There are five possible series of hydrazine derivatives, namely, the primary, symmetrical and unsymmetrical secondary, tertiary and quaternary hydrazines, and of these only the first three series have been prepared. On account of the interest attaching to the properties of the members of the other series, and the possibility of stereoisomerism, the author has endeavoured to prepare the members of those series. He has prepared two members of the quaternary series, viz., tetra-phenyl-hydrazine and tetra-para-tolyl-hydrazine.

These were prepared as well-crystallised bodies by the reaction of sodium or sodium ethoxide on the secondary amines, and subsequent treatment of the sodium derivative with iodine.

The author is continuing his experiments.

* *Journ. Chem. Soc.*, lxi., 323.

* *Proc. Roy. Soc.*, lvii., 453. † *Journ. Chem. Soc.*, lxi., 327.
‡ *C. R.*, 89, 702. § *Journ. Chem. Soc.*, lxi., 204.

The following papers were taken as read:—

"The Action of Acidic Oxides on Salts of Hydroxy Acids," by Prof. G. G. Henderson and D. Prentice; "Sodium Nitroso-sulphate and the Constitution of the Nitroso-sulphates," by Profs. Divers, F.R.S., and Haga; "Normal Hexane from Petroleum Ether," by Prof. Young, F.R.S., and G. L. Thomas, B.Sc.; "The Vapour Pressures, Specific Volumes, and Critical Constants of Normal Hexane," by Prof. Young, F.R.S., and G. L. Thomas, B.Sc.; Acidyl-thiocarbimides," by Prof. A. E. Dixon, M.D.; "Some Constituents of the Root of *Polygonum cuspidatum*," by A. G. Perkin; "Note on Piperovatine," by W. R. Dunstan and F. H. Carr; "Dibenzaconine and Tetracetyl-aconine," by W. R. Dunstan and F. H. Carr; "Note on the Colour Reaction of Furfurans," by Dr. W. H. Laycock; "Periodides of Theobromine," by G. E. Shaw; "Synthesis of Diphenyl-ꝑiazolone," by G. W. Young, Ph.D.; "Note on the Action of Hydrofluoric Acid on Silicon," by G. S. Newth.

Chemists' Assistants' Association.—A very satisfactory audience assembled on the 7th inst. to hear Mr. John Harrison, J.P., Vice-President of the Pharmaceutical Society, discourse on—

Pharmaceutical Politics.

After complimenting the Association upon the good work which had been done by its members, he remarked that pharmaceutical politics should be of paramount interest to his hearers, seeing that it was the rising generation who would be mainly affected by the further powers which he was in hopes would be obtained from Parliament at no distant date. There being now a Government in power possessed of a substantial majority, it was obviously the best time to press on pharmaceutical legislation, and although it was hard to induce chemists to interest themselves in matters which did not personally concern them, it was to be hoped that all petty differences would be sunk, so as to ensure that combination amongst them which did not entail loss of individuality, and was the only road to ultimate success.

Company Pharmacy.

During the twenty-seven years which have elapsed since the last Pharmacy Bill was passed, it has been proved again and again how largely Acts of Parliament can be evaded, even the Public Health Act has also been affected in a similar fashion, having been amended about a dozen times since 1875. The promoters of the Pharmacy Act could not foresee that the Companies Act which was merely passed as a protection to capital would have been so greatly abused, and the unfortunate part of the business was that a certain section of the public seemed to think that the Pharmaceutical Society was a union of monopolists who used its powers in their own interests instead of for the benefit of the community. No one has ever been able to urge against chemists as a body that it does not carry out its obligations under the Pharmacy Act, in fact it has greatly exceeded them, in educational directions particularly, and it is therefore incumbent on the State to fulfil its part of the bargain.

Evasions of the Pharmacy Act.

As an example of gross evasions of the Pharmacy Act, Mr. Harrison quoted a case in which a drug company was registered by an unqualified man, who took 5994 shares out of the total 6000 allotted. In the second a promoter, again unqualified, allots ten to his wife and friends, whilst the remaining 990 stand in his own name. This state of things was, of course, never anticipated, and the gravity of the situation was readily admitted by several members of Parliament, whom the President approached on the subject last session, but it was thought advisable to delay action until some arrangement had been come to with the dentists and veterinary surgeons, who suffer from the same malpractices, so that their combined protests might have more weight. The most important reasons which can at present be urged against the formation of a company are fraudulent purpose and misrepresentation; to these Mr. Harrison would add the evasion of other Acts of Parliament, as he did not doubt that if this were included it would prove a very powerful weapon, and much less would be heard of bogus companies, which were, in many instances, started by men who had failed a varying number of times in the qualifying examination. In New Zealand pharmacists have set us a good example by getting an Act passed which provides that the word person shall be held to mean any society, company, or corporation. The next point alluded to was the

Consolidation of the Pharmaceutical Society.

Statistics show that out of some 15,000 chemists on the Register, but 3800 belong to the Society. This in itself is a source of weakness, but in addition a large proportion of those who are included in the latter figure seem to take but little interest in the affairs of the Society, judging by the scrutineers' reports at the last Council election, when only about half of the voting papers issued were returned. As an explanation of this, it might be said that no answer was intended to be an affirmative. On the other hand, it might be intended to convey that the whole lot were so bad that none of them were worth a vote; but, however that might be, it was unreasonable to grumble at the Society unless they joined and voted when they could influence its policy. The theory advanced by the speaker to account for so many chemists standing aloof was that associates in business did not enjoy the same privileges as members, although they had to pay the same fee for qualification and the same subscription. He was of opinion that this was unfair to a section which comprised a large proportion of the pharmaceutical body, and until some amendment was carried out by which all those who had passed the Minor examination were eligible for election as members of the Society and its Council, it was useless to hope for unanimity amongst the craft. It was absurd to oppose this scheme on the ground that Minor men on the Council would not have the question of education so much at heart, as it must stand to reason that a man who has once obtained his qualification has a personal interest in maintaining its standard, and would not be likely to allow the examination to degenerate in any respect; in fact, the more the associate-members were trusted, the stronger would the Society become by their support.

The Curriculum

was dealt with in a few remarks, in which Mr. Harrison referred to the necessity for the formulation of some scheme to supplement examinations, so that the melancholy spectacle of candidates being rejected several times on account of their absolute incompetence would be rendered much less frequent. As matters at present stood he thought that the present system of examinations answered fairly well, but examinations alone would never work out perfectly satisfactorily. Turning to the—

Administrative Work

done by the Council of the Society, after five or six years' work as a member, he could assure his hearers that there was no ground for saying that trade interests are neglected, for there is no branch which occupies more attention, although a large proportion of the work, being necessarily done in committee, was not credited by outsiders. Exception was sometimes taken to the delay shown by the Society before proceedings were taken; this in many instances was only apparent, as proceedings were always taken where the case was absolutely proved; besides, penalties were often paid into court before the hearing of the case.

The Poison Schedule.

With respect to the question of additions to the Poisons Schedule, Mr. Harrison reminded his hearers that it only comes within the province of the Council to make suggestions to the Privy Council. The sale of carbolic acid and other poisons by grocers, oilmen, and other unqualified persons, is an admitted anomaly that has been brought before the notice of the Government department again and again, only to be answered by communications to the effect that although it is fully recognised, the department does not see its way to restrict the sale of the article to chemists, on account of some supposititious difficulty which would be caused in the event of fever or small-pox breaking out in isolated villages. The root of the evil seems to be that the Government departments are ruled by the permanent officials, so that a matter of this sort does not receive the attention it deserves, but is cut and dried beforehand.

It was only natural that Mr. Harrison should make some allusion to the satisfactory termination of the cases which received judgment in the Scottish Courts last week, and were fully reported. The importance of the decisions in these test cases has not been equalled in late years, as it has now been fully established in Scotland as well as England that in connection with the retail trade the use of the term "Chemist" must be absolutely restricted to those who have been registered under the Pharmacy Act of 1868.

In his concluding remarks the speaker made an eloquent appeal on behalf of the Benevolent Fund, and commended to his hearers' notice the importance of the personal element in pharmacy, for although the law can provide for public safety, it is only by individual tact and skill that the confidence of the public in the chemist is maintained.

will be gathered from the foregoing *résumé* of Mr. Harrison's address that it mostly consisted of a sketch of subjects which

were tolerably familiar to most of his hearers, but what was wanting in novelty was amply made up for in the style in which it was given, and, as one of the speakers subsequently remarked, a modicum of the characteristic North country shrewdness was imported into the subject which, combined with the emphatic delivery, transformed what promised to be a dry subject into a very enjoyable one. A somewhat lengthy discussion followed, in which the President (Mr. E. W. Hill) briefly alluded to the history of previous abortive Pharmacy Bills, and drew attention to the fact that carbolic acid is included in the poison schedules in Australasia.

Mr. C. Morley considered that it would be a national loss if the protection of chemists' rights were not accomplished, as decently educated youths would not join the business. He also described the difficulties he had experienced in persuading customers that it was a necessary precaution to sign the poisons' book on purchasing Easton's syrup.

Mr. R. Melhuish thought that "consolidation" should be the first plank in the political platform of pharmacy, and to this end he thought it absolutely desirable that every qualified man should be eligible as a member of the Society. With regard to the bitterness felt towards the Society by a large section of chemists, he attributed it to the fact that a man who fails three, four, or more times is not very likely to have sufficient regard for the Society to become connected with it. The same speaker struck a true chord when he remarked that a more stringent Preliminary examination is even more needed than the curriculum.

Mr. R. H. Jones also commented upon the reforms needed in the preliminary examination, and advocated its abolition *per se*. Instead, he would have certificates of approved examining bodies accepted, accompanied by a fee of a couple of guineas, and he commended this source of revenue to the attention of the authorities. He was not sanguine as to the good results accruing from making Minor men members of the Society, and did not agree with Mr. Harrison as to the apathy of the average member of the Pharmaceutical Society.

Mr. Crouch thought that with Minor men on the Council, educational movements would not have due value attached to them, and one of the great inducements to taking the higher qualification would be removed.

Mr. W. R. Roberts was possessed with the idea that if "Minors" were allowed on the Council, the drug stores would soon be well represented there.

Mr. Harrison, in his reply, touched on most of the points raised. The question of the sale of Easton's syrup was doubtless a troublesome one sometimes, but he generally found that a little explanation smoothed matters over. With regard to the contention that the chemist was no more apathetic than an ordinary voter, he cited cases where as many as 95 per cent. of the electorate go to the poll, but Mr. Jones got the best of the argument by pointing out that in such instances canvassing was resorted to. Mr. Harrison agreed that the Preliminary examination was defective, and he did not doubt that if the standard were raised there would be far less failures in the Minor. For his part he had, with but two exceptions, always insisted on youths passing the Preliminary before being apprenticed, and the two exceptions confirmed his argument, for in those instances the examination had not yet been passed, although several years had elapsed. He considered that the campaigns in the provinces, undertaken by Mr. Carteighe, had been of great benefit to the Society in securing loyalty amongst its adherents, as well as additions to its ranks.

Mason College Chemical Society.—The annual meeting of Mason College Chemical Society was held on the 5th inst. at the College, Birmingham, Professor Percy Frankland (President) in the chair. The report and balance sheet having been adopted, and the committee elected, the President delivered his annual address, taking for his subject "The Coal-Tar Colours." After pointing out the many varied and beautiful commercial products obtainable from coal-tar, he said that Great Britain consumes far more gas than any Continental country, London alone requiring more than the whole German Empire. In England about nine million tons of coal were annually carbonised for gas, and the principal bye-product—coal-tar—was for long a source of great trouble to gas-engineers. An account was then given of the long chain of discoveries which had resulted in the production from the tar of many beautiful colours; and it was shown how the artificial colours had driven the natural ones—such as madder, indigo, and cochineal—out of the market. In conclusion, the lecturer referred with regret to the manner in which the bulk of the coal-tar colour industry had been permitted to slip through our fingers, and pass into the hands of the Germans; and said that whilst the coal tar, of which we were the chief producers, was exported by the ton, the valuable materials which were elaborated from it were re-imported by the pound, and in some cases almost by the ounce. The lecture was profusely illustrated by dyeing and other experiments, as well as by patterns and specimens.

Plymouth, Devonport, Stonehouse, and District Chemists' Association.—At a committee meeting of the above Association held at the Foresters' Hall, Plymouth, on Tuesday, November 5, the Secretary (Mr. James Cocks), made known the winners of the Herbarium prizes, won in the examination held by Mr. E. M. Holmes, as follows:— 1st, Mr. Fairweather; 2nd, Mr. Barber; 21*s.* and 10*s.* 6*d.* were awarded respectively. Three valuable volumes of 'Curtis's Botanical Lectures,' containing beautiful coloured plates, were received as a gift from Mr. J. Kinton Bond, B.A., B.Sc., who was elected an honorary member of the Association at the recent annual meeting. A unanimous vote of thanks was passed to him for the donation.

Brighton Junior Association of Pharmacy.—The Annual Dinner of this Association took place at the Café Royal, Brighton, on Friday the 8th inst., when about forty, including several members of the senior association, sat down. The President, Mr. T. F. Grindley, occupied the chair, and at his right was Mr. Wm. Martindale, the guest of the evening, who responded to the toast of the Pharmaceutical Society, which was proposed by Mr. W. W. Savage. Mr. A. T. Jeeves proposed the Brighton Associations of Pharmacy, which was responded to by Messrs. W. H. Gibson and T. F. Grindley, the two presidents. The musical programme was sustained by Messrs. A. E. Colman, H. G. Price, W. Lauder, H. Hedgcock, and E. Hedgcock, whilst Mr. Hebb gave a recitation. The evening proved a most successful and enjoyable one.

Liverpool Chemists' Association.—Before a large and appreciative audience of Liverpool chemists and their friends, including many ladies, Mr. Theo. H. Wardleworth, honorary secretary of the local Chemists' Association, delivered in the Lecture Hall of the Royal Institution, Colquitt Street, on Thursday the 7th instant, a lecture on "A Botanist's Rambles in Northern Spain." This was excellently illustrated by lantern slides from photos, many of which had been taken by the lecturer himself "from the life." The excursion he described was taken by him in company with the late Mr. Lomax, who was the botanist referred to, and who made the trip as valuable to himself, botanically speaking, as the new experience of men and things was to the lecturer. They began their travels at Gijou and tramped pretty nearly through the Asturias, collecting specimens as they went and meeting with numerous adventures by the way. Climbing up the mountains they traversed regular zones of vegetation, until, when nearing the summits, they could only observe a few saxifrages on the very edge of the snowfields, and, in fact, one, the *Saxifraga alpina*, was piercing the snow and vigorously fighting for existence well in the middle of the snowfield where the drifts lay thinly. A variety of dwarf juniper, of a curiously-spreading habit of growth, was a usual object seen on nearly all the mountains ascended, and was the last tree, or rather bush, on the way to the summit. A visit was paid to Léon, famous as being the ancient capital of the kingdom of that name, and containing a very beautiful cathedral in the Gothic style. The town of Avila in Old Castile, with its perfect walls and battlements, gave a very good idea of the reason the Moors found it impregnable against all their assaults, for its position on a slight sloping hill running from the Guadarrama Sierra lending itself admirably to the purposes of defence.

Whilst in Avila the lecturer, requiring some simple mixture for a slight ailment, went to a "botica," or pharmacy of venerable appearance, and stated his requirements to "el Señor Boticario," who might have been Washington Irving's village apothecary resuscitated, so old-timed was he. The pharmacist's reply was that if the gentleman were not a doctor, or had not a prescription written by one, he could not supply the required remedy. However, after a little persuasion he consented to break the law, but then came another difficulty—had the gentleman a bottle? If not he could not assist him, for he was bottleless! On turning out the contents of several corners he at last found one and

made up the mixture. When it came to paying, this "ancient relic" charged a "middle-aged" price, which would have caused much surprise and regret to "up-to-date" pharmacists used to "modern prices." It appeared to be quite common in this pharmacy to send the customers down the street to the bottle dealers for the wherewithal to contain their potions and liquid medicaments, a division of labour and responsibility which would scarcely commend itself to English people. Segovia was visited in order to see its Alcazar and Cathedral as well as its noted Aqueduct built by the Romans, bringing now to the town an abundance of fresh water from a distance of eleven miles. When Madrid was reached, the Prado, the Puerta del Sol, the Museum, and the Bolsa were visited, and a trip was made to the Escorial, about ten miles out through a very barren, sun-dried stretch of country at the foot of the Guadarrama.

A hearty vote of thanks was passed to the lecturer at the close of his remarks, on the proposition of the President, seconded by Mr. Wokes.

MISCELLANEOUS NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

THE ROYAL SOCIETY.—The following is a list of those who have been recommended by the President and Council of the Royal Society for election into the Council for the year 1896 at the anniversary meeting on November 30:—President: Sir Joseph Lister, Bart., F.R.C.S., D.C.L. Treasurer: Sir John Evans, K.C.B., D.C.L., LL.D. Secretaries: Prof. Michael Foster, M.A., M.D., and Lord Rayleigh, M.A., D.C.L. Foreign Secretary: Edward Frankland, D.C.L., LL.D. Other Members of the Council: William Crookes, F.C.S., Sir Joseph Fayrer, K.C.S.I., Lazarus Fletcher, M.A., Walter Holbrook Gaskell, M.D., William Huggins, D.C.L., the Lord Kelvin, D.C.L., Prof. Alexander B. W. Kennedy, LL.D., Prof. Horace Lamb, M.A., Prof. Edwin Ray Lankester, M.A., Prof. Charles Lapworth, LL.D., Major Percy Alexander MacMahon, R.A., Prof. John Henry Poynting, D.Sc., Prof. Arthur William Rücker, M.A., Osbert Salvin, M.A., Prof. Harry Marshall Ward, D.Sc., Admiral William James Lloyd Wharton, C.B.

CORNWALL AND SOMERSET HOUSE ANALYSES.—On Tuesday, November 5, at a meeting of the Cornwall County Council, Mr. Digby Collins explained what had been done by the committee, of which he was a member, appointed on August 6 (see *Ph. J.* August 17, page 150), to consider what could be done for the purpose of removing current difficulties in the administration of justice under the Foods and Drugs Acts, arising out of conflicting results of analysis arrived at by the county and borough analysts on the one hand and the Somerset House analysts on the other. It was hoped by the Society of Analysts that the Parliamentary Select Foods and Drugs Committee would meet early next session. That Society felt that great service could be rendered to it by way of strengthening its position by public expressions of opinion, and by public meetings of local bodies. They thought it was desirable that the committee should be reappointed or a new committee appointed to carry on the work submitted to the last committee which had not been done in consequence of Parliament not sitting. The committee was then re-appointed as follows:—Lord Mount-Edgcumbe, Messrs. Digby Collins, Silvanus Trevail, W. C. Pendarvis, and G. J. Smith.

WHAT IS UNGUENTUM HYDRARGYRI?—At the North London Police Court on November 8, Mr. R. B. Cocker, chemist, of Newington Green Road; Mr. Charles E. Johnson, chemist, of 30, Highbury Park; and Mr. John Thomas De Peare, chemist, of 14, Highbury Park, appeared before Mr. Bros to adjourned summonses charging them with selling, to the prejudice of the purchaser, an ointment known as "unguentum hydrargyri," which did not contain the amount of mercury required by the British Pharmacopœia. In Mr. Cocker's case the ointment was found to be deficient to the extent of 66·2 per cent. of mercury; in Mr. Johnson's case the deficiency was 11·3 per cent.; and in Mr. De Peare's case 13·3 per cent.

The defence was that the drug was very seldom asked for. Mr. Cocker said what was now the article of commerce contained a large proportion of lard, and that was what the inspector was supplied with. Mr. De Peare said that he only had 1 oz. of the ointment in his shop, and he obtained the other 2 oz. from Mr. Johnson, in whose shop it had been since 1891. The inspector called later on at Mr. Johnson's shop, and he having just disposed of what he had to Mr. De Peare, told the inspector he had none, and asked what would happen if he refused to supply the ointment. The inspector replied that he would be summoned for refusing to supply the article. On that Mr. Johnson's assistant sent to another chemist and obtained the ointment. It was given to the inspector as received.

Mr. Bros dismissed the last case, but said that the other defendants had done wrong in not supplying the article asked for. They would have to pay 12*s.* 6*d.* each, the costs incurred in the proceedings.

EXCISE PROSECUTION AT CALLINGTON.—John Braund, shopkeeper, of Gunnislake, was charged at the Callington Petty Sessions, on November 7, with selling a proprietary medicine unstamped. The preparation was a lotion guaranteed to cure a disorder applicable to the human body, and as such claimed to be liable to stamp duty. —Defendant was fined £2 10*s.* in one case, and £5 in a second.

THE HODGKINS PRIZE.—Lord Rayleigh and Professor William Ramsay called at the United States Embassy on Thursday, November 7, when Mr. James R. Roosevelt, First Secretary, handed to them a cheque for 10,000 dollars which had been granted by the Smithsonian Institute at Washington as the first Hodgkins prize for their memorandum on "Argon, a New Constituent of the Atmosphere," embodying a most important discovery in connection with atmospheric air.

MR. ALDERMAN HENRY DAVID SIMPSON, chemist and druggist, was unanimously elected Mayor of the Borough of Louth, Lincolnshire, on Saturday last. Mr. Simpson was Mayor in the years 1876, 1877, and 1883.

MR. A. IVATT, M.A., F.C.S., M.P.S., was re-nominated an examiner in pharmaceutical chemistry in the University of Cambridge by the Special Board for Medicine, and the nomination was conferred by the Senate on October 31.

MR. BERNARD WESTLAKE, of Peascod Street, Windsor, has been elected Mayor of that borough for the ensuing year. The election was unanimous, and high compliments were paid him at the banquet held at the Guildhall in the evening. Amongst a large number of guests were the Dean and Vicar of Windsor and Francis Tress Barry, Esq., M.P. The neighbouring chemists, too, were not behindhand in paying their compliments. A correspondent thinks Mr. Westlake is the right man in the right place, and congratulates the town of Windsor upon its selection, because, after the many uncomplimentary remarks that have been made in the papers lately relative to the sanitary condition of the borough, it is right that a gentleman of scientific knowledge and high-class business capabilities should be at the head of municipal affairs in the coming year, which appears will be one of important events, to watch over and carry on the necessary business of the town, to suggest improvements, and to repel and expose unfounded charges which are inimical to the well-being of the community.

LECTURES ON COMPANY LAW.—Mr. T. M. Stevens, M.A., Barrister-at-Law, delivered on November 6, at Winchester House, before the members of the Institute of Secretaries, the first of a course of lectures on "Company Law." At the outset, he remarked upon the vital bearing of the subject with which he had to deal upon the trade of the country; for there was no doubt that the trade of the country during the past few years had been more and more rapidly drifting into the hands of joint-stock companies. Company law was, no doubt, the mercantile law of the future, if, indeed, it was not the mercantile law of the present. Companies were comparatively modern in their structure. In some respects they might be compared with partnerships, and company law was an offshoot of partnership law. When, in 1862, the Companies Acts were first introduced, company law was universally regarded as a branch of partnership law, and it was only recently that the two branches had come to be regarded as entirely separate. They were, however, distinguishable in many ways. One important difference was that a partnership could only consist of from two to ten members in the case of a bank, and in any other case from two members to twenty, while a company might have any number of shareholders

over seven. There was no maximnm fixed by law as the limit of a company's membership. Another point of difference was that partnerships were governed by the common law, excepting in cases coming within the scope of the Partnership Act of 1890, which was merely a codifying measure, whereas joint-stock companies were governed by the Companies Acts, ranging from the first Act passed in 1863 down to the comparatively unimportant measure which became law in 1893. Then, again, beyond the necessity of registering a joint-stock company, the liability of a company could be limited, while that of a partnership could not. Limited companies were further distinguished from partnerships by the fact that no shareholder could interfere with the management in the former case, while any of the members of a partnership could insist upon being permitted to personally manage the undertaking. Besides its difference from a partnership, a company was also distinguishable from a corporation, the great point of which distinction, beyond the mode of forming the two bodies, lay in the fact that the property and liabilities of a corporation were not the property and liabilities of its members, while with a company the reverse was the case.

SELLING CASSIA FOR CINNAMON.—Sarah Parr, 26, Tontine Street, Hanley, described as a chemist, but not on the Register of Chemists and Druggists for 1895, was charged, at the Hanley County Police Court last week, with selling cassia for cinnamon.—Defendant pleaded guilty, but it was explained, in mitigation of punishment, that the business had been bought twelve or fifteen months ago, and the packet of cassia had not been opened until the inspector called.—A penalty of 20*s.* and costs was imposed.

SCOTTISH NEWS.

NEW PHARMACY IN EDINBURGH.—Mr. George Victor Wright, is about to open a new pharmacy at Abbeyhill, Edinburgh, near the railway station.

PHARMACEUTICAL IMPROVEMENTS.—The improvements on the pharmacy of Mr. George Lunan, at 20, Queensferry Street, Edinburgh, have been completed. The premises have now a commanding frontage on the line of the street and are very effectively lighted by electricity.

EXCISE PROSECUTION IN GLASGOW.—At the Glasgow Justice of Peace Court on Friday, 8th inst., Mark Foggitt Thompson, chemist, Gordon Street, Glasgow, was charged with having, on six occasions, sold corn plasters and solvents manufactured by himself without having affixed thereto the necessary Inland Revenue stamps.

The respondent admitted the complaint, but it was pointed, out on his behalf that in the month of July, when most of the sales were made, he was out of town, and the business was in the hands of his assistants, whose fault it was that the necessary stamps were not affixed. Mr. Thompson left sufficient stamps for the purpose, and when he pointed out that his expenditure on stamps for a year came to nearly £100, the Court would see that it was through carelessness, and not because of any intention to defraud the Inland Revenue, that the law had not been complied with. On that account he hoped the Court would impose a modified penalty.

It appeared, however, that the respondent had been already fined £70 for a similar offence, and, as the bench considered the case a very bad one, he was fined £7 for each offence, or £42 in all.

LAUDANUM POISONING IN EDINBURGH.—A woman named Mrs. Macintosh, residing at 14, Murdoch Terrace, was admitted to the Edinburgh Royal Infirmary on November 6, having taken an overdose of landanum at her son's house, 5, Convenient Court, Water of Leith. It appears that the woman had purchased three different bottles of laudanum from three different chemists. She was seen by her daughter-in-law to drink the laudannm, and she immediately sent for the doctor, who had her conveyed to the Infirmary.

ELECTRIC CLEANING COMPOUND.—Castile soap (white) 1 oz.; ether, 1 fl. oz.; glycerin, 1 fl. oz.; stronger ammonia water, 2 fl. drachms; water to make 32 fl. ozs. To 16 fl. ozs. of water add in the following order the glycerin, ammonia and ether. Shake and add enough water to measure 32 fl. ozs. Then add the soap (in fine shavings). Shake constantly for a few hours. Place the article to be cleaned on a flat surface with two or three folds of cloth under the spot; wet a sponge with the fluid and rub hard for a few seconds; then wash with clean water (*Pharm. Era*, xiv., 173).

IRISH NEWS.

PHARMACEUTICAL SOCIETY OF IRELAND.—On Wednesday, the 6th instant, the first monthly meeting of the Council of this Society since the general meeting held in October, took place at 67, Lower Mount Street, Dublin. Mr. William Hayes, ont-going President, took the chair, and the other members present were Messrs. Beggs (ont-going Vice-President), Grindley, Conyngham, Baxter (Coleraine), Lyons (Belfast), Bernard, W. T. Wells, jnr., Turkington (Cookstown), Downes, Montgomery (Belfast), Kelly, Simpson, Evans, and Professor Tichborne.

The President annonnced the death of the Marquis of Waterford, referring in strong terms to the services rendered by him to the Society on the occasion of the passing of the Pharmacy Amendment Act of 1890, and it was resolved that a vote of condolence be transmitted to the Marchioness of Waterford.

Mr. Hayes thanked the Council for their courtesy towards him during the five years he had occupied the presidential chair, and moved that Mr. W. T. Wells be elected President.

This motion having been agreed to unanimously, Mr. Wells returned thanks and took the chair as President.

Mr. Downes was elected Vice-President, and on returning thanks remarked that Mr. Grindley was more worthy of the position, though he understood he had declined to accept it.

Votes of thanks were passed to Mr. Hayes and Mr. Beggs for the manner in which they had discharged the duties of the offices of President and Vice-President respectively during their terms of office.

Mr. Hayes read a letter from Mr. Hodgson, in which that gentleman regretted that he was nnable to alter his decision to resign the office of Honorary Treasnrer. The letter advised the Council not to waste their funds in law suits, except where there had been flagrant breaches of the law. On the motion of Mr. Baxter, seconded by Mr. Hayes, a resolution was passed expressing regret at the resignation of Mr. Hodgson, acknowledging the great services he had rendered to the Society, and wishing that he wonld continue a member of the Council. On the motion of Mr. Hayes, seconded by Mr. Grindley, Mr. Beggs was elected Honorary Treasnrer.

Messrs. Grindley and Simpson were re-elected auditors.

A letter from the Privy Council requested the observations of the Council upon a Memorial of John I. Noone, of Claremorris (who had been fined £2 for an illegal sale of arsenic contained in Cooper's sheep-dipping powder), praying for a reduction of the fine. The matter was referred to the Law Committee, with instructions to send a copy of Sergeant Cormac's report on the case to the Privy Conncil, and to say that the expenses of the prosecution would not be covered by the fine.

The Registrar read the notification of the sitting of the Judicial Committee of the Privy Council on the 2nd instant, at which the application of the Council of the Society to have the name of Richard C. Marshall removed from the Register of Chemists and Druggists was disposed of. The notification stated that "all persons interested and entitled to be heard may appear in person or by counsel." The President gave a narrative of what took place on the occasion, and said it was extraordinary that the months of the members of the Council who attended shonld have been sealed, having regard to the evidence against Marshall, and the fact that he had been twice convicted. It was a very serious matter that the Privy Conncil shonld take up such an attitnde against the Conncil. The Vice-President said they only wanted to have Marshall admonished, and that was the reason why they did not go to the expense of engaging connsel. Mr. Hayes said it wonld not be right to allow what had occnrred to pass in silence. They were asked to appear before the Judicial Committee of the Privy Conncil, and when they did appear—not wishing to do anything harsh—their representative was refused a hearing, and not only that, bnt the Council was severely rebnked for having brought forward the matter at all. Mr. Hayes said he thonght that where the Council gave its time to carrying out the Pharmacy Acts—as Government measures for the protection of the pnblic and not mere trades unionism—it ought to be supported by the Privy Council and not rebnked for carrying out the law. Mr. Turkington said the action of the Conncil in this matter was too severe and had been condemned as snch in the North. The two sections of the Society shonld maintain peace and harmony. The President said the drnggists of the North and the drnggists of the South had it in their power to maintain peace and harmony by obeying the law, and not interfering with the bread and bntter of their pharmaceutical chemist brethren. It was decided, on the

motion of the Vice-President, seconded by Mr. Hayes, to send a letter to the Privy Council expressing regret at the irregular manner in which the application had been brought before the Judicial Committee of the Privy Council, and asking for guidance as to any regulations that could be made under Section 35 of the Irish Pharmacy Act, 1875. It was also decided that no further action should be taken in the case of Mr. Marshall.

Mr. Turkington called attention to the Registered Druggist's examination with a view to its being extended in several particulars.

The President said that in his opinion the examination in question was not what it should be, or what the rules admitted of its being. The subject should be put in order for the next Council meeting.

The following gentlemen were elected examiners:—Preliminary examination, Sparkhall Brown, B.A., Lon., 11, Martello Avenue, Kingstown, and H. C. Tweedy, M.D., Dub., F.R.C.P.I., 7, Clare St., Dublin. Botany and Materia Medica division of the Pharmaceutical Licence Examination:—John Smith, M.P.S.I., 3, Terenure Road, Rathgar, Dublin. Registered Druggist Examination at Dublin:—Thomas William Robinson, M.P.S.I., 12, Clarinda Park, North, Kingstown. Registered Druggist Examination at Belfast:—D. J. M'Kinney, M.D., L.P.S.I., 72, Wellington Park, Lisburn Road, Belfast.

The following resolution, passed at the general meeting of the Society in October, was referred to the House and General Purposes Committee and the Law Committee:—

> "That it be a recommendation to the Council that all persons who have passed the Preliminary examination be elected students of the Society, at a fee to be decided, and with such privileges as may be considered desirable, by the said Council."

Other business having been disposed of, the Council adjourned.

"An Offensive or Noisy Business!"—In a lease granted by the Earl of Pembroke in 1822, in respect to a house in Fitzwilliam Square, Dublin (an exclusively residential square), the business of a druggist and "the art and mystery" of an apothecary are classed with the businesses of a "tavern, ale-house, soap-boiler, etc., or any other offensive or noisy trade, business, or profession whatever." The house having been taken by two ladies, to be used as a private hospital, litigation has resulted, the present Earl claiming that it comes under the above specification, and is therefore a breach of a covenant in the lease.

Case Under the Pharmacy Act.—In the Queen's Bench Division, on 7th inst., before Mr. Justice Johnson, Mr. Justice Holmes, and Mr. Justice Gibson, Mr. J. H. Campbell, Q.C. (with whom was Mr. R. C. K. Wilson), instructed by Messrs. H. and W. Mahaffy), on the part of Mr. Robert H. Cleveland, of 33, Kingscourt Street, Belfast, applied for a conditional mandamus to compel the Council of the Pharmaceutical Society of Ireland to admit Mr. Cleveland to the examination for the licence.—Counsel said Mr. Cleveland had served his full term as apprentice and assistant in the employment of Messrs. Grattan and Co., Limited, chemists, of Belfast, had attended the necessary course of lectures, and had duly passed the Preliminary examination. He sent to the Registrar of the Society the usual certificates and declaration signed by himself and Mr. Green, manager of Grattan and Co., intending to present himself at the Licence examination of October, 1895, and after some correspondence he was informed by Mr. Ferrall that the Council were of opinion that Grattan and Co., being a limited company, were not competent to grant a certificate that would satisfy the demands of the Society. The regulations of the Society required a declaration from the employer that the term had been served "in the sole employment of a firm of legally qualified pharmaceutical chemists, of which the person making the declaration is a member."—Mr. Green had made a declaration in these terms.—Counsel further stated that in 1893 and 1894 the Society had accepted without objection declarations made in similar terms in the cases of two other apprentices of Grattan and Co., and had registered them under the Pharmacy Acts.

Mr. Justice Gibson said the question seemed to be whether the word "firm" in the regulations included limited companies, and it was a most important one.

Mr. Campbell, Q.C., said there was also a question as to how far the Interpretation Act of 1889 rendered companies disqualified from carrying on the business of pharmaceutical chemists.

The Court granted a conditional mandamus.

Ulster Pharmaceutical Association.—A meeting of this Association was held on the 5th inst., in the I.O.F. Chambers, Royal Avenue, Belfast, when a good muster of members and associates were present. Mr. Prott, M.P.S.I. and E., and President of the Association, occupied the chair. After the transaction of some routine business, Dr. Ward, L.P.S.I., Lisburn, and Dr. Watt, L.P.S.I., were nominated Vice-Presidents of the Association, their election, according to rule, being left over to the next meeting. Mr. R. W. McKnight, M.P.S.I., was called upon to read his paper on "Pharmaceutical Organisation." In treating the subject the essayist pointed out—1st, the status the pharmacist is entitled to; 2nd, the order of business as conducted by the early pharmacists in Belfast; 3rd, the present position of pharmacists—its causes and effects; and 4th, to offer a code of recommendations, which, if accepted, would tend to a better organisation and to raise the status of pharmacists in Ulster. All of these points were ably and exhaustively dealt with to the satisfaction of the following critics:—Messrs. Waugh, R. S. Moore, J. Guiler, J. W. W. Agnew, D. Elliott, and the President. As the evening got far advanced and the subject not fully discussed, it was agreed to postpone its further discussion to the next meeting, which will take place on the 21st of the present month.

The Sale of Poisonous Sheep Dips.—At the Sligo Quarter Sessions, before Judge O'Connor Morris, a case of importance to chemists and druggists, as well as farmers, was tried on Saturday last.—Mr. M'Goldrick, who resides at Fivemilebourne, near Dromahair, county Leitrim, claimed £50 damages for that defendants, Messrs. Denning and Sons, chemists, Sligo and Boyle, who, he alleged, were guilty of gross negligence in supplying him with Bigg's sheep dip, which is a poisonous compound, for application to cattle, without giving proper directions as to its use, whereby five of plaintiff's cattle died.—It appeared from the evidence that on the mixture, of the nature of which plaintiff was ignorant, being applied to the cattle they licked one another, with the above disastrous result.—Defendant's contention was that as he had given a pamphlet of instructions with the jar of dip he was not liable.—His Honour held that vendors selling such dangerous componnds should exercise the utmost care and give full instructions as to their use, and gave a decree for the full amount claimed with costs.—Notice of appeal has been lodged.

Pharmaceutical Chemists' and Apothecaries' Assistants Association.—A smoking concert, organised by this Association, was held at the Bijou Theatre, Dublin, on Friday evening, Nov. 8. The entertainment was identified with the re-opening of the Bijou Theatre, after extensive alterations and improvements. The committee must be congratulated on the array of amateur talent with which they inaugurated the opening, and it was difficult indeed to single out one of the artists for especial commendation. Messrs. Lynch, Leslie, and Corcoran, in particular, presented entertainments which would be creditable to any professional. The last-named gentleman was responsible for the stage management, in which he acquitted himself excellently. He also contributed to the programme with the celebrated Tyrolean ditty, "The Spanish Guitar," a song which is associated with his name, and which he rendered in tip-top style. Mr. C. May presided at the piano in his usually excellent style, and the catering was well looked after by Mr. Thunder, the manager.

WELSH NEWS.

Swansea and District Chemists' Association.—The annual dinner of this Association was held at the Longlands Hotel, Swansea, on Thursday, November 7, the company including Mr. N. M. Grose (president), Mr. M. Trick, Mr. Llewellyn Thomas (Morriston), Mr. James Hughes (hon. secretary), Mr. Thomas (Castle Street), Mr. T. Dryden (Landore), Mr. Isaac (Neath), Mr. Powell (Ystalyfera), Mr. Davies (London), Mr. Dryden (Hafod), etc. Letters were received from several members explaining their inability to attend. A convivial meeting followed, Mr. N. M. Grose presiding, with Mr. Llewellyn Thomas (Morriston) in the vice-chair. Capital selections upon the violin were given by Mr. Atkins, and songs were also rendered by Mr. Campbell Thomas, Mr. Powell (Ystalyfera) making an efficient accompanist. A very enjoyable meeting terminated with the singing of the National Anthem. The sum of £1 1s. was unanimously voted towards the Pharmaceutical Society's Benevolent Fund.

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

ALL ARTICLES, LETTERS, NOTICES, AND REPORTS INTENDED FOR PUBLICATION IN THE JOURNAL, BOOKS FOR REVIEW, AND COMMUNICATIONS RESPECTING EDITORIAL MATTERS GENERALLY, MUST BE ADDRESSED "EDITOR, 17, BLOOMSBURY SQUARE, LONDON," AND NOT IN ANY CASE TO INDIVIDUALS SUPPOSED TO BE CONNECTED WITH THE EDITORIAL STAFF. COMMUNICATIONS FOR THE CURRENT WEEK'S JOURNAL SHOULD REACH THE OFFICE NOT LATER THAN WEDNESDAY MORNING, BUT TELEGRAMS CAN BE RECEIVED ON THURSDAY MORNING.

ANY INSTRUCTIONS from Members, Associates, and Students of the Pharmaceutical Society, with reference to the transmission of the Journal, should be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London.

BUSINESS communications—including advertisements, orders for copies of the JOURNAL, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London. Cheques and money orders should be made payable to "Street Brothers."

CORRESPONDENTS who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

DRAWINGS for illustrations should be executed twice the desired size; clean, sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

NAMES AND FORMULÆ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

QUERIES addressed to the "Editor" will be replied to in the Journal as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries." The Editor cannot undertake to reply to queries through the post.

REPRINTS of articles cannot be supplied unless authors communicate with the Editor before publication.

LETTERS.

COMPOUND TABLET MACHINES.

MR. W. A. WALL writes from Rome as follows:—"I have read with much interest the articles on 'Tablets' in two recent numbers of the *Ph. J.* Here in Rome we are on the outskirts of advanced pharmacy, and I should feel much obliged to any colleague in practical pharmacy who would favour me with his opinion on the relative merits of the machines described in your Journal. I want a machine that will enable me to dispense 2 or 3 doz. tablets as quickly as the same number of powders. I have tried Maw's machine for one tablet at a time without success."

CAMPHORATED OIL.

MR. J. F. BROWN, of Dover, writes as follows:—"Would it be asking too much of Mr. Hyslop to enlighten his brother pharmacists as to 'the various greedy solvents that whip up in the cold such an article as camphor, and carry it into any kind of oil one chooses, and that to any strength desired?' The idea has often floated through my mind that such a solvent would be a real convenience; but I know of none answering to this description except chloroform, which is obviously too expensive, if not open to any other objection."

PREPARATION OF TINCT. IODI.

"PHARMACIST" points out that the method of preparing tincture of iodine, described in last week's Journal by Mr. Dyer, was suggested in January, 1892, by Mr. W. G. MacKenzie in a paper read at a meeting of the Pharmaceutical Society in Edinburgh. This was fully reported in the Journal at the time (see vol. xxii. [3], p. 602).

MEDICINE STAMP ACT.

MESSRS. COLE AND ELKINGTON, of 223, High Road, Lee, S.E., have submitted the correspondence between themselves and the Inland Revenue Department, respecting a label used by the firm for quinine and iron tonic. This label had been marked "not liable to duty" when submitted to the authorities some five years ago, though stating that the preparation "is highly esteemed in all forms of debility." These words are now held to create liability to stamp duty, but, under the circumstances, the authorities have agreed to forego the penalty claimed. Messrs. Cole and Elkington consider that this case emphasises the "necessity for periodical examination of all stock labels" by chemists and druggists, so as to ensure freedom from liability to stamp duty.

ANSWERS.

G. WHITTLE.—Phlorizin (named from φλοιός, and ῥίζα, root) occurs mainly in the root-bark of apple, pear, plum, and cherry trees, from which it may be extracted by dilute alcohol. It forms silky needles ($C_{21}H_{24}O_{10}\cdot 2H_2O$) which possess a slightly bitter taste, are sparingly soluble in cold water, readily soluble in hot water or alcohol, but insoluble in ether (*vide* Watts' 'Dictionary of Chemistry') The glucoside melts at 109°. C., becomes solid as the temperature rises, and again melts at 171°. It is lævogyrate, and is decomposed by dilute acids into glucose and phloretin.

PHENAZONUM.—Saccharated calomel powders have proved injurious to children (*Pharm. Journ.* [3], v., 519, 780, 800). Sugar and sugar of milk should be avoided in the preparation of calomel powders if they are to be kept. The sodium bicarbonate also had better be omitted; dilute with starch in preference. Your doses seem suitable.

W. M. BRAMLEY.—In the words pyroxylin, hæmatoxylin, Myroxylon, phylloxanthin, and Erythroxylon, pronounce the "x" as "ks" at the end of a syllable. When, however, the letter begins a word, as in xylem, xylonite, xanthophyll, xenogamy, and xylophone, it should have the sound of "z."

J. H. COLEMAN.—Apply to the Comptroller, Patent Office, Trade, Marks Branch, 25, Southampton Buildings, Chancery Lane London, W.C., for a copy of the official "Instructions to Persons who wish to Register Trade Marks," enclosing a stamp to cover postage. This will give you the particulars you require. The formal application for registration of a trade mark costs five shillings, and the registration fee is twenty shillings. Other payments are requisite in certain cases.

"I. O. M."—No legal qualification is requisite to commence business as a pharmacist in the Isle of Man, but it is reported that steps are being taken to obtain powers to enforce a similar system to that prevailing in Great Britain and Ireland.

H. G. W. DAWSON.—We believe most of the foreign made machines mentioned in the article on "Compressed Tablets" can be obtained from F. Foster, 29E, St. Nicholas Street, Scarborough, who acts as English agent for the different makers. Write to him for particulars. Mr. Foster has favoured us with particulars of another tablet machine of considerable merit, and we hope to publish this information shortly.

"X. Y. Z."—The description given represents the impressions gathered on the occasion referred to, and we are not aware of any reason for taking a different view of the matter.

LEGAL REPORTS.

HOMOCEA TRADE MARKS.

The motion for the rectification of the 'Register of Trade Marks,' by striking out three marks in Class 3 standing in the name of the Liverpool Mortgage Insurance Company, to whom they had been assigned by the Homocea Company, Limited (see *Ph. J.*, August 10, p. 135), again came before Mr. Justice Stirling, on Friday the 8th inst. Mr. Jenkins then stated that an arrangement had been made subject to the approval of the Court that the motion should be dismissed without costs, the order to contain an admission by the applicants, Messrs. Johnson and Johnson, that as far as they were concerned the trade marks were valid. If the Comptroller of Trade Marks (who by his Lordship's direction had been served with notice of the application) had incurred any costs, the applicants submitted to pay them.

Mr. Willis Bund appeared for the applicants and concurred, and his Lordship made the order accordingly.

OBITUARY.

TAYLOR.—On October 24, Charles Taylor, Chemist and Druggist, Walton. (Aged 80.)

MOORE.—On October 25, John Moore, Chemist and Druggist, Liverpool. (Aged 61.)

COMMUNICATIONS, LETTERS, ETC., have been received from Messrs. Addison, Bartlett, Boa, Bramley, Brown, Browne, Chadbourn, Clarke, Cracknell, Daniels, Dawson, Durrant, Ebbage, Ferguson, Freeland, Gilchrist, Grimshaw, Halé, Harrison, Hatfield, Helbing, Hill, Hillmain, Hyslop, Jackson, Keen, Kirkby, Larder, Macdonald, Maish, Mannings, McKnight, Oldham, Reynolds, Robins, Rondell, Russell, Salter, Sartorius, Simpson, Squire, Stephenson, Thomas, Wall, Wardleworth, Watkins, Whyte, Woodward.

THE INTRODUCTION OF PHOSPHORUS AND ITS COMPOUNDS INTO PHARMACY.

Probably the earliest use of a phosphate in medicine was that of album græcum, otherwise known as "spodium græcorum nihil album" or "album canis" (see James' 'Medical Dictionary,' 1745). This material consisted of the excrement of dogs which had been fed upon bones. According to James, it should be gathered in March, and was "esteemed drying, abstergent, discutient, and aperient." It was also used in "disenteries and colical pains," and applied externally for the cure of quinsy and of warts.

Even at that time, the use of this remedy appears to have been on the wane, for, although the 'New English Dispensatory' (London, 1752) makes practically the same remarks as those of James, it is stated in the 'Complete English Dispensatory' (London, 1769) that album græcum was used "only by the common people," and Quincy's 'Lexicon' (1787) dismisses the remedy with the remark that it was "formerly applied as a discutient." In Rees' 'Encyclopædia' (1797, article "Phosphites") it is stated that "the white calcined earth of bones, 'cornu cervi calcinatum,' enters into the composition of one or two pharmaceutical preparations, but without exhibiting any obvious properties."

As already described in the article on the "Early History of Phosphorus" (*Ph. J.* [3], xxv., 937), the presence of that element in animal excreta has been known since the year 1667, but it was not until about one hundred years later (1769) that its presence in other bodies was proved. In that year, the Swedish chemist Gahn is said to have shown its presence in bones (see Boyle's works, abridged by Shaw, iii., 174); but it is stated in Crell's 'Annalen' (i., 17, English translation) that the credit of the discovery is due to Scheele. However that may be, there is no doubt that the process by which phosphorus is now commonly prepared was introduced by Scheele.

After the publication of these discoveries, much experimental work was carried on to ascertain whether phosphorus formed a constituent of other substances, those of animal origin receiving the principal attention, but the members of the vegetable and mineral kingdoms also being examined.

In 1788, Proust published a letter in the *Journal de Physique* (xxxii., 43), stating that in Estremadura he had found extensive rocky strata containing phosphoric acid and lime in the same proportion as in bones, and Werner, Vauquelin (*J. des Mines*, vii., 19), Häuy (*Traité de Minéralogie*, ii., 234) and others followed up the research with such effect that, writing in 1803, Black ('Lectures on the Elements of Chemistry,' ii., 132 and 133) stated that phosphate of lime, the *apatite* of the Germans, occurred in vast abundance in Nature.

By the beginning of the nineteenth century, the presence of phosphorus in many animal products had been thoroughly proved. Hunter ('Natural History of the Human Tooth,' p. 35) first showed that the enamel of the teeth was wholly soluble in dilute nitric or hydrochloric acid, and Hatchett (*Philosophical Transactions*, 1799, lxxxix., 313) found calcium phosphate in this enamel, and also proved its presence in the bones of fish, in horn, and in the shells of crabs and other crustacea. Vauquelin ('Brande's Chemistry,' p. 656) found phosphorus in the brain. Phosphates were found by Meyer in the leaves of many trees, calcium phosphate was found by Thuren ('Annales de Chimie, ii., 308) in *Aconitus napellus*, and by Bergmann ('Bergmann's Works,' v., 96) in various kinds of grain. In 1817, Thomson ('A System of Chemistry,' iv., 188) stated that phosphorus exists as phosphate of potash in barley and other species of corn, and that he presumed that this salt had been often confounded with phosphate of lime. He also said that "phosphate of lime is found in the muscles and almost all the solid parts of animals," as well as in the blood and urine, and that there are not many of the fluids from which it is absent.

There appears to be no evidence that the value of bones as manure was recognised to be due to the presence of calcium phosphate until well within the present century, and such compounds of phosphorus as were employed medicinally, were apparently used without any clear idea of their action.

More specific uses for calcium phosphate and many other phosphorus compounds were, however, soon found. In 1803, Black stated in his 'Lectures,' ii., 133, that calcium phosphate had recently been recommended by a French practitioner as a remedy for rickets, and that "soda phosphorata, which is a phosphate of soda," had been recommended, in 1787, "by Dr. Pearson of London, as a pleasant and effective laxative and purgative." Brande states in his 'Chemistry,' 1841, p. 656, that the rhombic phosphate of soda (the "sal perlatum" of the older writers) was used at that time as an aperient under the name of "tasteless purging salt."

According to some writers, the element phosphorus was first used medicinally by Kunkel in 1721, and according to others, by Mentz in 1751. Its value as a curative agent is doubted by many medical men, but it has been recommended as efficacious in the treatment of nervous diseases, neuralgia, paralysis, etc. A case in which phosphorus dissolved in oil was believed to benefit a patient suffering from diabetes, is quoted in the *British Medical Journal* for 1889, p. 1216.

Phosphorus is usually administered in the form of pills or capsules coated with gelatin and containing solid or semi-solid fats or oils, in which phosphorus has been dissolved (see *Pharmaceutical Journal*, 1868-9, p. 543). The 'United States Dispensatory' (14th edition, p. 1071) mentions an officinal preparation containing phosphorus dissolved in oil of almonds and ether, and refers also to a preparation of cod-liver oil containing 1 grain of phosphorus to 4 fluid ounces of oil.

Zinc phosphide (see 'U.S. Dispensatory,' p. 1617; 'National Dispensatory,' 1894, 5th edition, p. 1728; and Squire's 'Companion to the British Pharmacopœia,' 1894, 16th edition, p. 544) is said to have been first prepared by Margraaf in 1740. It is administered as a substitute for phosphorus, and is recommended by Curie and Vigier, but Dr. R. W. Gardner advises its replacement by zinc hypophosphite, on account of the irritation which the phosphide produces in the stomach.

Ammonium phosphide is said to be useful in cases of diabetes, as it renders the blood alkaline and diminishes the amount of sugar produced in the system. Dr. Rutherford (Squire's 'Companion,' p. 82) states that it has a powerful stimulating action on the liver, but does not affect the intestinal glands.

A solution of *phosphoric acid* is used for a variety of complaints. It is said to be a good tonic, to be free from astringency, and to be valuable in many cases of dyspepsia, and for strengthening the sexual organs. Other uses in medicine will be found described in the 'National Dispensa-

tory' (p. 86). In mineral water manufacture it is used as a substitute for citric and tartaric acids (Napier, *Analyst*, 1885, p. 124), and in baking powders it forms a good substitute for the latter acid.

The phosphoric acid of the British Pharmacopœia contains 66·3 per cent. of ortho-phosphoric acid, while that of the United States contains 50 per cent. Its preparation has been described in the proceedings of the American Pharmaceutical Association by Wenzell (1882), and by Markoe (1875, p. 677), in the *Pharmaceutical Journal* (1879, p. 469) by Horn, and in the U.S. Dispensatory (p. 94). The glacial phosphoric acid, which was at one time much used, has now become practically abandoned on account of the large amount of impurity which it was usually found to contain (see 'U.S. Dispensatory,' p. 94; 'Proc. Am. Pharm. Assoc.,' 1875, pp. 666 and 672).

(To be continued.)

SHORT NOTES ON THE PREPARATIONS AND FORMULÆ OF THE BRITISH PHARMACOPŒIA.

OINTMENTS.

(*Continued from p.* 418.)

Ung. Conii.—Hydrous wool-fat seems a very suitable basis for this ointment, which appears to be in every respect a pharmaceutical success. This formula exhibits a real advance upon those of the four Continental pharmacopœias in which ung. conii likewise appears. The Belgian orders 10 parts of extract to be rubbed with 5 of water and 85 of lard, and the product is of the same humid and changing kind as the ung. belladonnæ of the B.P., 1867. The Russian orders 10 of extract, 10 of S.V.R., and 90 of adeps præp.; this answers a little better. The German specifies 10 of extract, with 90 of ung. cereum (wax, 6; olive oil, 14), which is better still, and the ointment has good keeping qualities. The Swiss prepare a strong tincture of the recently dried herb, which is rubbed up with lard.

Prescribed 6 times in 12,000 prescriptions.

Ung. Creasoti.—This is a very satisfactory preparation, but the creosote gradually disappears whatever base be employed. There should, therefore, be added to the direction "mix thoroughly." "This ointment should be quite recently prepared." The fact that ung. creasoti is seldom prescribed may be due to the vain attempt to keep it in stock. If freshly prepared its value in the cases for which ung. conii is mostly employed seems incontestible, whilst its cleanliness is a distinct advantage.

Prescribed 3 times in 25,500 prescriptions.

Ung. Elemi.—The present formula is by no means a bad one, but this ointment being so little in demand, and being expected to keep so well, it is seldom in good condition when required for use. Probably a simpler basis than "ung. simp." would be preferable—one without benzoic acid at least. Ung. elemi is retained in no less than seven European pharmacopœias besides the British: it would therefore seem a pity to discard it.

Prescribed once only in 25,500 prescriptions.

Ung. Eucalypti.—This would be a better preparation in many respects if the ol. eucalypti were simply triturated with lard or simple ointment. To continually stir essential oils or other volatile ingredients with melted fats or paraffins is a most outlandish and unscientific proceeding, not to mention its wastefulness. This ointment is to be found in the B.P. only: being first introduced in 1885. The defects of the formula for its preparation are quite enough to account for its very limited employment during ten years of existence.

Prescribed not at all in 25,500 prescriptions.

Ung. Gallæ.—This ointment is met with in none of the Continental pharmacopœias, and it seems to be declining in reputation amongst British practitioners. If the present formula is to be retained "galls in very fine powder" should be ordered and well triturated with a fourth part of the lard before adding the remainder. Pharmaceutically it would be better replaced by an ointment consisting of glycerinum acidi tannici rubbed up with lard or simple ointment, but such changes must be subject to the more extended judgment of the therapeutist.

Prescribed twice only in 25,500 prescriptions.

Ung. Gallæ c. Opio.—This ointment is peculiar to the B.P. In spite of a peculiar roughness and nasty odour of benzene which develops on keeping for a few weeks, it has a much more extensive reputation than ung. gallæ, and both of them are popular favourites. A nicer pharmaceutical product of similar properties may be prepared thus:—R. Ext. opii, 30 parts; anhydrous glycerin, 60 parts. Macerate with a little warmth until admixture is accomplished, then add glyc. acid. tan., 150 parts; ung. simp., 400 parts. Triturate to produce a smooth consistent mass.

Prescribed 19 times in 12,000 prescriptions.

Ung. Glyc. Plumbi. Subacet. (1 in 6 1/3).—This is a really good formula; the glyc. plumbi subacet. seems to act somewhat like the acid. boric. in ung. acid. boric. as a friendly third, to maintain the otherwise unstable equilibrium of the two paraffins, furnishing a bland, consistent, soft, smooth, yellowish ointment that seems to remain unchanged for any length of time.

Prescribed 7 times in 12,000 prescriptions.

Ung. Hamamelidis.—The formula gives a product that is too humid, as in the case of the ung. gallæ c. opio; a gas-like smell is developed after a week or two, indicating change in the preservative element of the lard in the ung. simp. When it becomes customary to extract vegetable principles by means of anhydrous glycerin, as well as by ethyl alcohol, we shall have preparations which will mix more kindly with fats and produce better ointments than can be with tinctures and fluid extracts.

Prescribed 15 times in 12,000 prescriptions.

Ung. Hydrargyri.—A good formula, which gives a light slate-coloured product without much rancid odour. Sp. gr., 1·862 to 1·912. Metallic globules are visible when viewed through a good Stanhope lens, and these are not accompanied by black streaks. Nothing of a darker colour is seen by means of the microscope than what is visible to the naked eye.

Prescribed 13 times in 12,000 prescriptions.

Ung. Hyd. Amm.—The white precipitate should be levigated with a fourth part of anhydrous glycerin if the best looking ointment is desired. Then rub in the basis, preferably benzoated lard, which gives a product that keeps its pearly white colour much longer than when simple ointment it used.

Prescribed 19 times in 12,000 prescriptions.

Ung. Hydrarg. Comp.—This is a very good formula. The camphor will, of course, fly off in course of time, but the product may be kept in a cool place for six months without much change. The pharmacist does well to hold himself at leisure for the preparation of such an ointment as this whenever it may be required. He should insist also upon a due respect being shown towards his calling, by his clients patiently awaiting the result of his attentions.

Prescribed 3 times in 12,000 prescriptions.

Ung. Hyd. Iodidi Rub.—This should be prepared as it is required. A combination of mercury and iodine cannot be imprisoned for an

indefinite time within the meshes of any fatty stuff, either more stable connections are formed or the compound volatilises.

Prescribed 4 times in 12,000 prescriptions.

Ung. Hyd. Nitratis.—One has but to follow the directions of his book with ordinary scientific common sense, and the product of this formula is perfect. It is safest to pay a visit to the chemical apparatus manufacturer's place of business for the porcelain vessels necessary to prepare this and some other ointments, as well as for the porcelain pots for storage. There is no more fruitful source of mischief to the ointment than that of being prepared, sent out, or stored in old pots that are not chemically clean. New pots glazed with lead are often quite as bad.

Prescribed 19 times in 12,000 prescriptions.

Ung. Hyd. Nit. Dil.—There seems no reason why this should not be prepared by simple admixture with benzoated lard by rubbing The present formula is one of the worst in the book. Close scrutiny will show the operator that he is mixing incompatibles, and in a few days' time this evil becomes evident by the changes in colour and texture.

Prescribed 22 times in 12,000 prescriptions.

Ung. Hyd. Oxid. Rub.—The best formula ever adopted for this ointment is that of the B.P., 1867, and but for the baneful influence of adulterated wax, the corroded interior of old pots, or the use of dirty knives for the stirring, no complaints about it would have driven us into the paraffin trap. True, the present formula is not so bad as some others which direct the use of paraffin as a basis; but it is bad, and the prescribed manipulation is as clumsy as is the verbiage in which it is couched: "Mix the whole thoroughly" after telling us about the glass or porcelain mortar, as if it were one of the ingredients. It is earnestly suggested that the formula of 1867 be restored, but that the pure block wax (white) be ordered, which can always be obtained at about 3*s.* to 4*s.* per pound.

Prescribed 17 times in 12,000 prescriptions.

Ung. Hyd. Subchlor.—There can be no objection found with the present formula, for the product keeps fairly, both as to colour and odour, for some months, but its uniform consistence and good appearance is much improved by rubbing the calomel with a little anhydrous glycerin to a smooth cream before adding the benzoated lard. The keeping qualities of the ointment are evidently promoted by this plan. Fifty grains of glycerin are quite enough for the 80 grs. of calomel, 1 oz. of lard minus 50 grains being added to retain the same proportion of active ingredient.

Prescribed twice only in 12,000 prescriptions.

Ung. Iodi.—Undoubtedly a really good formula, but anhydrous glycerin should be used in place of the usual watery kind, and a still better looking and better keeping product would be the result.

Prescribed 4 times in 12,000 prescriptions.

Ung. Iodoformi.—This formula does not answer very well; the ointment is of uncertain strength, in consequence of exposure to an elevated temperature during solution and solidification. Moreover, a mysterious blackish, streaky appearance develops up in the course of a week or two and spoils the stock. An alternative formula is proposed as follows:—

℞. Iodoformi præcip.	℥j.
Propenyl hydrate.....	ʒj.
Ung. cerei (wax and oil, 1 p.: 3 parts. *Vide* ung. simplex)	℥ iii.

Simul tere secundem artem.

Prescribed 11 times in 12,000 prescriptions.

(*To be continued.*)

THE PHARMACOLOGY OF THE IPECACUANHA ALKALOIDS.*

BY R. B. WILD, M.D., M.SC.

The author briefly referred to the large amount of chemical research that had been undertaken in connection with ipecacuanha, and to the very discordant results which had been obtained by different workers. No great amount of light had been thrown upon the cause of these discrepancies until Paul and Cownley discovered that the substance which had been known as emetine is not a simple alkaloid, but a mixture of two alkaloids in proportions varying in particular samples of root. Paul and Cownley have named these alkaloids cephaeline and emetine: their composition agrees with the formulæ $C_{14}H_{20}NO_2$ and $C_{15}H_{22}NO_2$ respectively, the difference of CH_2 suggesting that emetine may be a methyl derivative of cephaeline. These alkaloids are distinguished from each other by their different solubility in several liquids, particularly in solution of caustic alkali—emetine being insoluble while cephaeline is soluble.

It seemed particularly desirable to ascertain whether the pharmacological action of these two substances was the same or different, and if different, to what extent? To carry out the experiments recorded in this paper the hydrochlorides of the alkaloids were used. These were kindly supplied by Dr. Paul, to whom thanks were accorded.

The author first detailed his experiments with cephaeline hydrochloride, of which the following is necessarily a condensed account. Doses of 5 mgms. (1/12th grain), and 10 mgm. (1/6th grain) were taken under varying conditions of the stomach by the author and two volunteers. The effect of 5 mgm. was to cause nausea, giddiness, salivation, retching, but no actual vomiting, and a slight fall in arterial tension, which attained its maximum in about one hour. A dose of 10 mgms. produced similar symptoms and after an hour violent vomiting. In other persons the smaller dose produced similar effects, and violent vomiting, but in no instance did vomiting occur in less than forty-five minutes.

From the results of a number of experiments, the chief points to be noted were:—

1. The different doses required to produce vomiting in different individuals.

2. The slow action of the alkaloid.

3. A peculiar feature was the invariable onset of a second attack of nausea and vomiting, probably in consequence of re absorption after the alkaloid had passed into the alimentary canal.

4. Salivation was very marked in all cases, even when vomiting was not produced.

5. The depressing effect upon the pulse, which was in some instances more marked after a small dose when vomiting did not occur, than after a larger emetic dose.

6. Occasionally increased intestinal peristalsis was produced, followed by a loose motion.

7. There was no noticeable effect upon the nasal mucous membrane, the skin, or the secretion of urine, and in the vomited matter there was no excess of bile.

Emetine hydrochloride caused in 5 mgm. doses (1/12th grain) either no appreciable effect or slight giddiness, nausea, and retching: 15 mgms. (1/4th grain) produced giddiness, nausea and retching in twenty-five minutes, there was a greatly increased flow of the nasal secretion accompanied by much salivation; vomiting occurred in forty-seven minutes, and after the elapse of two hours the subject had a loose motion of the bowels. On the pulse the drug caused

* Abstract of a paper read before the Manchester Medical Society, November 6, 1895, for an advance proof of which we are indebted to the editor of the *Lancet*.

a considerable lowering of arterial tension. There was no effect upon the skin or urine.

The conclusions drawn from a very large number of experiments upon animals—very numerous and beautiful tracings of which were exhibited to the meeting—were:—That cephaeline acts as a moderate poison upon voluntary muscle ; it contracts the walls of the blood vessels to a moderate amount, this being due to a local action of the drug ; upon the nervous elements of the heart it has a moderately strong action, but the heart makes a good recovery after the drug is washed out, even two or three successive times.

Emetine is less poisonous to voluntary muscle than cephaeline ; but it has a more powerful effect upon the blood vessels, and recovery is not so complete. Its effect upon the heart is almost precisely the same as cephaeline.

Cephaeline appears, therefore, to be the best emetic, acting in doses of from 1/12th to 1/6th grain. Its action is certain, and it is comparatively free from depressing effects upon the circulation. Emetine is not so active as an emetic, the dose being 1/4th grain. Cephaeline has no action on the nasal secretion, while the effect of emetine is very evident. Both of them cause pronounced salivation.

Although cephaeline is so efficacious as an emetic, its slow action precludes its use as an antidote in cases of poisoning. The author thought that his experiments indicated the use of emetine in febrile conditions, as an expectorant, and for all the uses of ipecacuanha where emesis is not desired. Its action upon the nasal secretion certainly vindicates the use of ipecacuanha in acute catarrh. In conclusion, he referred to the pharmacological significance of the replacement of hydrogen by the group CH_3, which, when introduced into cephaeline to produce emetine, reduces the action upon the convulsive centres in the medulla oblongata, as well as the irritating action upon the motor nerve endings.

The wide variations in the activity of the pharmacopœial preparations of ipecacuanha may not unlikely be due to variations in the quantities and relative proportions of the alkaloids which they contain, and the use of the pure alkaloids may render one of our most valuable remedies of still greater service. It must, however, be remembered that ipecacuanha may possibly contain other substances of therapeutic value ; further experiments are needed to determine this point, and in the meantime we have in cephaeline and emetine stable compounds, of definite composition, which possess at any rate a large proportion, if not all, the actions of the crude drug.

In the course of the discussion which followed, Dr. Wild said that he had kept the alkaloids for six months, and dilute aqueous solution of their hydrochlorides for a week, and the pharmacological action was quite unimpaired.

Determination of Sugar in Urine.—In the *Pharm. Centr.* xxxvi., p. 306, the following modification of the well-known Hoppe-Sezlersche test is given :—Ten C.c. 0·5 per cent. solution of ortho-nitro-phenyl-propiolic acid in caustic soda solution and water are heated to boiling point in an Erlenmayer flask. Let the urine run drop by drop out of a burette till the solution shows a distinctly blue colour. If it takes 3 C c. urine or more to colour the solution it may be concluded with certainty that the urine is free of sugar. If 0·1 to 0·5 C.c. urine are used before the solution colours, it indicates that sugar is contained to the extent of 1 per cent. or more. On diluting the urine a larger amount of sugar can be ascertained in the same way. This test is not appropriate as a sole test for glycosuria, its limit of sensibility lying at 0·4 per cent However, on account of its simplicity this test should prove very handy for clinical purposes.

THE EVOLUTION OF PHARMACY.*

BY J. MACKINTOSH CAMERON.

In tracing the early stages of pharmacy it is well to remember that the craft for many ages—in fact, up to about the seventeenth century—was incorporated with that of the physician, healer, or medicine man. That individual no doubt directed his attention to the uses of the herbs and animal substances, when incantations and charms had failed to give relief. It was also common, when the wearing of precious stones as charms had failed, for those ancient worthies, before having recourse to vegetable remedies, to have the charms administered in the form of powder, with a success which varied according to the credulity of the patient. That is to say, in the administration of mineral as well as vegetable and animal substances, an unbounded faith in the supernatural had much to do with the ultimate result.

It may not be out of place to mention some of the drugs in use during several centuries prior to the beginning of the Christian era. In the writings of various ancient authorities, we find references to such plants as cumin, poppy, henbane, cherry-laurel, lettuce, squill, and Solomon's seal. This last plant is supposed to have been discovered by Solomon, and used in combination with a charm as a remedy for epilepsy. Part of the root or rhizome was concealed in a ring and applied to the nose of the patient. Opium or some preparation of the poppy was undoubtedly used at a very early period, for it is conjectured that the potion known under the name of Nepenthe, prepared by Helen of Troy, and given to the guests of Menelaus to drive away their care, was none other than a wine of opium. This conjecture receives support from Homer, who states that Nepenthe was obtained from Thebes, hence the name given to tinct. opii—Thebaiac tincture. The Thebes referred to is the ancient capital of Egypt, not a city of Greece. Cherry-laurel, or the juice of the leaves, was in demand by the priestesses worshipping at the shrine of Apollo, one authority stating that the use of it often occasioned the death of these priestesses. Such a circumstance in modern times would probably be called death from misadventure, due to the indiscreet use of a poison known as prussic acid.

At the time when the Roman Empire was in the zenith of its power, the dispensing of drugs was in the hands of such men as Asclepiades and Galen. The medical world was divided into various schools, whose modes of treatment differed vastly. These different schools took their origin from several Greek physicians, who, on the fall of the Greek Empire, came to Rome about 200 B.C. Before passing from these Greek physicians it might be well to mention one whose treatises on the medical art have been recognised all through the centuries since he lived. I refer to Hippocrates. Although thoroughly appreciating the effect of artificial means in restoring the health of a patient, he strongly believed in the healing power of Nature.

Were the statements of Pliny to be taken literally, it would seem that Rome was at one time in a particularly healthy condition, for he tells us that for 600 years the Empire got on without a doctor. About the beginning, or perhaps nearer the middle, of the second century there appeared on the stage of medicine in Rome a physician from Pergamos—Galen—from whom came the greater part of European medicine. He believed in the Hippocratic doctrine of humours, which demonstrated that the condition of the body depended upon the proper mixture of the four elements—hot, cold, moist, and dry—and he held that in drugs were to be recognised the same elementary qualities as in the humours of the body, and on the principle of curing by contraries the use of one or othe was indicated. As an indication of the superstition existing at this

* Paper read before the Edinburgh Chemists', Assistants', and Apprentices' Association.

period, Soranus, who was a contemporary of Galen and the biographer of Hippocrates, gravely asserts that honey, which was much in use at that time, owed its virtue to the fact that the bees from which it was procured were hived near the tomb of Hippocrates, rather than to any medicinal virtue contained in itself, and even the virtues which herbs really possess were in those days attributed to the planet under whose ascendency they were collected or prepared rather than to any natural or intrinsic properties of the plants themselves. This no doubt accounts for the fact that at the present day most prescriptions commence with a symbol which is nothing more than a relic of the astrological symbol for Jupiter.

In Europe the period after Galen affords little evidence of anything but a gradual decline in medicine. We have next to look to Damascus and Bagdad for traces of pharmacy. Schools of medicine in conjunction with schools of pharmacy arose in all the chief Moslem centres on the rise of the Mohammedan empire.

But, instead of following any further the progress of pharmacy in the East, let us now look at the state of affairs as they existed in our own island. It is scarcely necessary to refer to the almost unlimited power possessed by the various priesthoods which existed in this country from the time of the Druids down to the time of the Reformation. We have much evidence to the effect that the medicine of those times was, to a great extent, in the hands of those devotees of religion. We have traced, in a fashion, the story of pharmacy down to the time of the Roman supremacy, and it is to the Romans we are indebted for the little knowledge we possess of the early history of our island. Superstition was then more rampant in Britain, if that were possible, than on the Continent. In fact, an extraordinary faith in the supernatural continued down to the sixteenth century, and even in the nineteenth century, if the truth were told, we are not quite free of it.

We have observed that religion and the early practice of medicine went hand in hand, and it is necessary to follow the progress of the former to get some insight into that of the latter. The first religious body we have any record of was that of the Druids, who exercised unlimited power not only over the minds, but over the bodies of the ancient Britons. At that time selago, samolus, mistletoe, verbena, and the oak were all held in great esteem for their medicinal virtues. Selago, or fir-club moss, acted as a violent purgative and emetic, and was used at one time in the Scottish Highlands in the form of an ointment, as a counter-irritant for the eyes. Samolus, brookweed or water pimpernel, used in the form of a syrup, acted as a strong purgative, and the leaves had the property of healing wounds or chaps in the skin. The mistletoe, we are told, to be of any use in the art of healing, had to be cut with a golden knife when the moon was only six days old, and after being consecrated by certain forms, was an unfailing antidote for various poisons. Verbena or vervain was used in cases of fever, and as an antidote for certain snake-bites. The oak was held in the highest veneration by the Druids, and medicinally its virtues were believed to be very great, as we may gather from the fact that the name signified in their language—all-heal. One of their favourite charms was the anguineum, or snake's egg, which was supposed to be produced from the saliva of serpents, and besides its healing properties it got the credit of being able to float against the current.

A modification of this method of effecting cures was apparently all the advance pharmacy made in Britain for several centuries, although such drugs as senna, rhubarb, manna, and cassia, were in use among the Arabians shortly after the downfall of the Romans. We are also indebted to the Arabians for our knowledge respecting camphor, or canfur as they called it, but I wish to deal more particularly with pharmacy in Britain, and it was probably not till well on in the fifteenth century that the afore-mentioned drugs were in use in our island.

When we learn that the literal meaning of the word pharmacy is a practice of witchcraft or a use of medicine, we can readily understand why the two were so inseparable in the curing of disease. The art of healing was practised in Britain by various classes of both sexes, but the monks, from the time of the introduction of Christianity down to the sixteenth century, would probably have the monopoly of dispensing on account of their superior education.

It was not till the beginning of the fourteenth century that the science of chemistry could be said to have done much to aid pharmacy, for prior to that, the sages or philosophers seemed to have devoted their lives to the delusive researches of alchemy, and consequently the hope of any help to our craft from that science had to be abandoned for a time. When, however, they saw the futility of their efforts in that direction, the superior knowledge of chemistry which they had unconsciously acquired gave a fresh impetus to the progress of pharmacy.

This brings us to that period when the foundations of chemical science were laid in England by Roger Bacon, a Franciscan monk who made some extraordinary discoveries in chemistry, and also believed himself to be the possessor of a recipe for a universal elixir which was a mixture of gold, pearl, spermaceti, rosemary, bone, aloes, and the flesh of serpents specially prepared. Thus we have conclusive evidence that pharmacy was being studied diligently in the monasteries at that time, and probably this is the first instance where, in Britain, metallic substances were prescribed for internal use.

The only channels for the diffusion of knowledge throughout Europe at this time being the monks, it was really by their means that a greater acquaintance with the uses of metals in medicine was propagated in England. Experience in this direction has been dearly bought, for these so-called physicians were often nothing more nor less than faddists, who imagined that some rare virtues were possessed by a particular metal, which they prescribed on every possible occasion, evidently with the idea that it would either kill or cure. For example, it was about this time that Basil Valentine, a Bendictine monk, ascribed many virtues to antimony. This he appears to have used somewhat indiscriminately in his experiments on his brother monks, many of whom he cured by killing outright. It is probably due to these faddists, however, that other metals came to be used in medicine about this time, for we read that lead was in use in cases of fever. Several other metals seem to have been used also, but it does not concern us now to know for what particular diseases they were prescribed, as it was not for many years, nay centuries, afterwards that their real properties were accurately defined. In those ignorant times, knowledge was acquired very slowly, and it was only by many years of continual experiment that facts were established regarding the uses of metals in medicine. From what we can gather, the system of prescribing a few centuries ago was that remedies, to be effectual at all, were to be used externally, internally, and eternally.

Pharmacy appears to have made rapid strides when chemistry came to be studied assiduously in the schools of learning, for then systematic experiments were made upon all kinds of plants, with the result that many valuable discoveries were made—perhaps the most important of these being the emetic principle found in ipecacuanha, and the powerful medicinal properties of Peruvian bark, which ultimately led to the preparation of quinine. The progress of pharmacy has not been without hindrances, however, for in many cases the use of certain drugs was controlled by both

Church and State, and several drugs would be discarded for many years, until for some unknown reason a revival would take place and the popularity of those drugs be restored. Hence we see that there existed a fashion in drugs as in the other affairs of life, regulated by the caprice and supported by the authority of a few leading quacks. This has been frequently the occasion of dismissing from practice valuable medicines and of substituting others less certain in their effects and more questionable in their nature. As years and fashions revolve, so have these neglected remedies each in their turn risen again into favour and notice, whilst old recipes, like old almanacs, are abandoned till the period may arrive that will once more adapt them to the spirit and fashion of the times.

It may perhaps be worth mentioning that towards the middle of the eighteenth century a gradual departure was made from the former system of experimenting with drugs. As I have already indicated, the system appears to have been to find a disease for which some particular drug would prove remedial, but physicians now preferred rather to confine their attentions to the most prevalent diseases of the time, and to seek drugs which would alleviate or totally cure these particular diseases; for example, consumption and gout.

Let us now turn our attention for a brief space to the sale of drugs at that period. I speak of the seventeenth or eighteenth century. As has already been mentioned, it had always been the practice for physicians to dispense their own prescriptions. At that period, however, the physician was one of four distinct classes which represented the two classes known at the present day as doctors and pharmacists. In the first instance there were the physicians, who prescribed the remedies. Secondly, the apothecaries, a body formed about a century before this, who undertook the dispensing of those prescriptions. Thirdly, the chemists who were probably the successors of the alchemists, and prepared those chemicals known in medicine; and lastly the drug-vendors, drug-grocers, or druggists who collected the drugs. The two latter gradually merged into one and came to be recognised as chemists and druggists. The apothecaries were rather a strange mixture, inasmuch as in addition to the dispensing of prescriptions they gradually became prescribers, in short, became medical practitioners dispensing their own prescriptions as well as those of legitimate practitioners. The art of prescribing was naturally considered by doctors their lawful perquisite, and they showed their indignation by opening several dispensaries where they kept men to dispense their prescriptions. These dispensaries prospered and enjoyed the patronage of the public to such an extent, that there is reason to believe the assistants employed and instructed in them became dispensing chemists on their own account, and some of the apothecaries finding their returns diminishing, took refuge behind the counters of those dispensaries.

It would be exceedingly tedious to go into details regarding the many years of bitter controversy between the apothecaries and the chemists and druggists, as to who were ultimately to claim the right to be legitimate dispensers. Suffice it to say that this prolonged dispute culminated in the formation of the Pharmaceutical Society. From an interesting document recently discovered and exhibited at an evening meeting in Edinburgh last session (*vide Pharm. Journ.* [3], xxv., 964), it would appear that there was no such antagonism between the druggists and apothecaries in Edinburgh as seems to have existed in London. It is much to be regretted that the Society formed by a coalition of druggists and apothecaries in Edinburgh in 1785, did not take a more prominent and permanent position, for had it done so, Scotland would have figured more largely in the history of the evolution of pharmacy than she has done, and would have taken a position more justly in accord with the comparatively advanced state which pharmacy has actually occupied in Scotland for many years.

Contemporary with the schisms which were disturbing the apothecaries and drug sellers in London there had appeared various editions of that valuable book of instructions known as the Pharmacopœia, for the original production of which we are indebted to the College of Physicians in London. The medicinal compounds contained in the earlier editions were chiefly heterogeneous mixtures of substances, some of which neutralised others, and were selected without any reference to scientific principles. Several substances prescribed in those early editions were not much in advance of the unwholesome mixtures used by the ancients. From the first the Pharmacopœia seems to have been divided into two parts, namely, chemical and galenical preparations. We must not run away with the idea that the progress of pharmacy was altogether confined to England, for as early as 1699 we find that Edinburgh possessed a pharmacopœia. That work passed through several editions between the date of its origin and the middle of the present century, and, although it has now passed out of general use, extracts from it are still to be found in the British Pharmacopœia.

Concerning the progress of pharmacy since the formation of the Pharmaceutical Society, of Great Britain in 1841, there is little need for me to do more than touch upon a few of the outstanding features of its work since that date. To its early efforts we are indebted for the institution of a school of pharmacy and the formation of a regular system of examinations by which students were admitted to enjoy the privileges of membership and thus acquire a legal standing. In 1855 one of its first reforms was a revision of the Pharmacopœia, which resulted in the exclusion of several useless preparations from its pages. In 1868, after years of strenuous effort, the Society was successful in passing the Pharmacy Bill, the terms of which are generally familiar. Since then, although to some the results of the efforts of the Society on behalf of the craft may have appeared more imaginary than real, yet the position of pharmacists nowadays is on a much better footing than ever it has been before, and with the introduction of a compulsory curriculum following upon the extended scope of examination recently introduced there is no doubt but that the chemists of the future will be a much more enlightened body than their predecessors, and by this means be raised in the estimation of the public, on whom, to a large extent, they must depend for the passing of any future Pharmacy Bill. If the progress of pharmacy in the future is to be more marked than in the past, it is a duty devolving upon every member of the craft to assist by all available means the work of that Society which since its institution has become inextricably identified with the evolution of pharmacy in Great Britain.

Barium Thiosulphate for Standardising Iodine Solution.—Plimpton and Chorley recommend the use of barium thiosulphate for standardising iodine solution. The salt is prepared by mixing warm solutions of 40 grammes of barium chloride and 50 grammes of sodium thiosulphate, each dissolved in 300 C.c. of water; the crystalline precipitate is collected, washed and dried at 30° C. The formula is $BaS_2O_3.H_2O$. The salt keeps well, is readily obtained pure, and reacts readily with iodine. In titrating the iodine solution a weighed quantity of the salt is shaken with water in a stoppered bottle, the iodine is run in until the salt is nearly dissolved, shaking well after each addition, and finally the starch indicator is added when the crystals have nearly disappeared (*Proc. Chem. Soc.*, 149, 38).

PHARMACEUTICAL EDUCATION.*

BY WILLIAM KIRKBY.

One's ears are so constantly assailed with complaints of the curtailed turn-over and the diminished profits of pharmacy that it requires something more than a modicum of courage on my part to introduce a subject, the consideration of which is almost sure to provoke a suggestion that will imply an increased outlay upon entering the ranks of qualified pharmacists.

Repeatedly within the last few years attention has been directed to the great and urgent need there is for an improved Preliminary examination. As Mr. Saul, in a paper published about four or five years ago, very clearly showed, the present examination is not a sufficient proof of an education liberal and broad enough to sustain the subsequent technical training and scientific teaching which a student has to undergo before he can proceed to the qualifying examination. This is pretty generally admitted both by examiners and teachers but not so generally by pharmacists as a body.

If chemical science is to be anything more than a collection of isolated facts to the student, he must be so equipped mentally as to understand the relationship existing between physics, as a branch of science, and chemistry, as a branch of science. This he cannot be unless he has at least an elementary knowledge of mathematics and algebra. As has been pointed out again and again—and the statement is verified daily in the experience of everyone here—a pharmacist must be an exact man. A student cannot properly apprehend what exactness means unless he has some acquaintance with mathematics. But there is no occasion for one to attempt to demonstrate the usefulness of other branches of learning. Every additional subject that a young man can embrace in his preliminary education will be an additional help in his after-life. What one would wish to impress upon the trade is that the present standard is too low as compared with the standard fixed for the members of other educated and examined sections of the community.

The pharmacist is the only man who is legally qualified to practise chemistry. Is he a chemist? In the majority of cases he is not. But he should be something more than a chemist. He is required to press chemistry into the service of medicine. In too many cases, alas! we must admit that in this, as in chemistry, he fails the public. It will be at once replied to those observations that the public has no need of the services of this highly developed creature. Is that the fact? Is it not true, rather, that within recent years a considerable body of men has sprung into existence, simply and only because pharmacists have not been so well attached to chemistry as to establish a laboratory in connection with the pharmacy? If the preliminary education of these men had been of a kind that would have enabled them to take an intelligent interest in their chemical studies, their attachment in many cases would have prompted them to cultivate analysis instead of fostering a trade in nostrums and proprietary preparations. The subjects which constitute the Minor and Major examinations are just those subjects, which, if properly assimilated by the student, will qualify him for the analysis of foods and drugs. It is because his chemistry and botany have been acquired through the medium of isolated facts which have some direct relation to pharmacy, because they have been acquired as applied sciences rather than branches of true science. In the majority of cases this is not the fault of the student. His mind has never been sufficiently well prepared for him to take an intelligent interest in what we may call the full circle of science. He is in the position of a farmer who has so studied his own land as to know its capabilities to the utmost, but he is not like the man who has acquired so general a knowledge of agriculture as to enable him to raise a crop of some kind upon whatever soil he may be placed. No one surely will deny that something more than a meagre knowledge of Latin, English, and arithmetic is requisite as a preliminary training for a student who would take advantage of the opportunities offered to him in after-life. Under the present examination system the knowledge of Latin may become a mere shadow, because of the possibility of a student learning by heart the translation of the whole of the matter set. In order to make Latin a real acquisition to a student, a different book should be set every twelve months, with twelve months' notice. With regard to the second most important subject—mathematics—it has already been indicated how useful this branch of study is in cultivating an exact mind, a thing of inestimable value to the pharmacist. Further than that, it is unrivalled in teaching a student the value of every link in a chain of argument or research. Probably the first and second books of Euclid would answer for this examination. Besides these there should be added elementary algebra, English (including composition), elementary French or German, and arithmetic, including the metric system. What is required is to produce qualified pharmacists, not to produce, as has been done so frequently in the past twenty-five years, drysalters qualified to sell poisons. Of course the reply to this will be that the remuneration is not enough to pay for this advanced education and training. That must be admitted if men are content to compete with the oil dealer, the paint mixer, and the proprietary medicine vendor. Instead of doing so the pharmacist must compete with the expert chemist and analyst, and no one can prevent him while the Pharmacy Act (1868) remains what it is.

Coming to the next step, the qualifying step, it may be well, in view of brevity, to consider the training for the Minor and Major examinations, rather than consider the examinations separately. Having looked at the general education in the light of what the pharmacist ought to be, let us now see if he can, under the present system of training, make a really good use of this general education. How frequently a student works up his subject for the Minor in three or six months, and the majority expect to do it in twelve months? Is it possible for one to obtain a fair knowledge of chemistry and botany, and of the application of these two sciences to the specialised subjects of pharmacy and pharmacognosy in the time? Surely not. This is not an opinion. It is abundantly proved by the schools in the case of chemistry, in the fact that they teach not chemistry, but pharmaceutical chemistry. What does that mean? It means that all chemical facts which have not a direct bearing upon pharmacy are ignored. One might as well say that you have produced a Latin scholar when you have made him master of all Latin works on pharmacy. The consequence of this is that a pharmacist's chemistry is distorted. The fundamental principles of chemistry, instead of being of the first importance, are only of sufficient importance for him to acquire such a very elementary knowledge of them as will satisfy the minimum requirements of the examiners. In short, the teaching of pharmaceutical chemistry does not teach pharmacists to think in terms of chemistry.

Further, the present system encourages the habit in the pharmacist of devoting his attention solely to chemicals which are used in medicine. In how many cases this has led him to forsake the field of industrial chemistry and left him unprepared to take advantage of new scientific developments, such as the supply of chemical apparatus and photographic chemicals, whilst now it seems very probable that he will let the supply of bacteriological apparatus and reagents pass into the hands of specialists. How pleased many a medical man would be if he knew he could have a microscopical examination made or an analysis undertaken by the pharmacist next door, instead of having

* Paper read before the Manchester Pharmaceutical Association.

to send into the city. This latter alternative no doubt often deters him from sending the material for examination at all.

In large measure what has been said concerning chemistry applies also to botany, with this further drawback, that the limited time at the disposal of the student causes his botanical knowledge to become a mere catalogue of names—lifeless names. Instead of being prepared with a knowledge of the histology and anatomy of typical plants before he begins to study pharmacognosy, he is at once required by his teacher to consider all kinds of abnormalities and variations from the types.

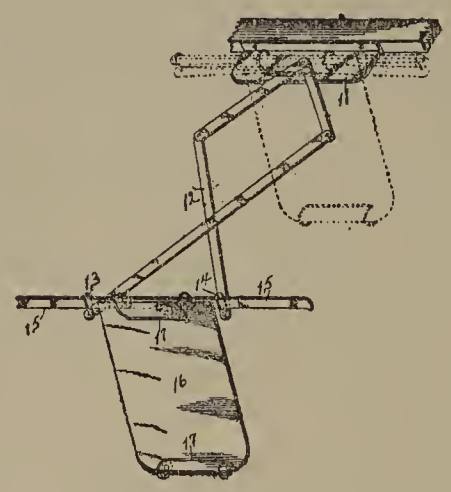
It must be evident that the prosecution of the study of chemistry and pharmacy, and of botany and pharmacognosy, concurrently, is a real hardship for both student and teacher. The former is not in a position to apprehend the importance of statements concerning the morphology and histology of crude drugs, and the extraction and chemical characters of the principles which they contain. And the teacher is frequently pained to find how small an amount of fruit results from his labours, and is tempted to blame the men for small intellectual capacity. It is not altogether an unknown occurrence for him to have to explain English words in fairly common use. But while an improved preliminary training will no doubt remove this last difficulty, it will not avail very much so long as the teaching of chemistry and botany, and their special applications—pharmacy and pharmacognosy—run concurrently. To produce an educated pharmacist from the average man under these conditions is not any more reasonable than to ask one to build the superstructure of a cathedral at the same time that he is putting in the foundation. At present no time is allowed for the laying of the foundation. An opportunity must be afforded to the pharmaceutical student to take a general course of lectures in chemistry and botany before he proceeds to the study of the more technical subjects.

Probably in these remarks you observe the suggestion of a compulsory curriculum. When that becomes an acknowledged fact, no one will be more pleased than myself. But my remarks will fail of their purpose if I do not show how near an approach can be made to the improved state of things which I am advocating. There is, as far as I can see, no impediment to the alteration of the bye-laws so as to include the subjects I have named in the Preliminary examination. But, accepting the present regulations, and premising that the would-be pharmacist has passed this examination before entering upon his apprenticeship, there is good provision made in Manchester for the carrying out of the rest of the programme. At the Owens College, lecture courses in chemistry are provided for evening students. These extend over three years. In the first year the twenty lectures cover the discovery and the chemical and physical properties of the gases, the halogens, and other non-metals. The second year comprises specific heat, crystallography, isomorphism, and the metals with their chief compounds. Organic chemistry is treated in the third year. In botany a course of twenty lectures is delivered every winter on the general morphology of plants. In this city, then, there is no reason whatever why our apprentices should not start their more technical studies fairly well equipped with scientific knowledge, and that, too, at a moderate cost. It may be urged as an objection that these classes are not specially adapted for pharmacists. Of course, from what has been already said, you will gather that so far from that being a disadvantage, it should be considered a positive advantage. If I have succeeded in directing the attention of some budding pharmacist to the facilities for study which lie at his door, facilities which should enable him to prepare himself for successful competition for the Bell Scholarships or the Manchester Pharmaceutical Association Scholarship, I shall be greatly pleased.

NOVELTIES IN PHARMACEUTICAL APPLIANCES.

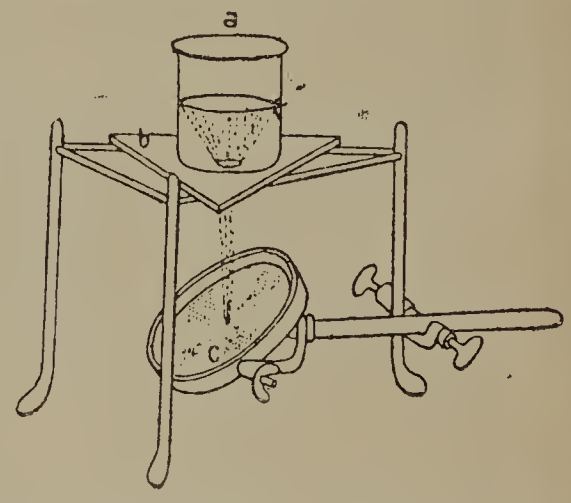
An Improved Prescription Holder.

This invention, by Rudolph S. Vitt, St. Louis, Mo., U.S.A., comprises a plate, 11, and lazy tongs, 12, pivotally connected at one end to the upper surface of the plate, so that the latter forms a horizontal support for the tongs. The guiding loops, 13 and 14, are fixed vertically, one upon each of the free projecting arms of the lazy tongs. The horizontal bar, 15, is loosely mounted so as to slide in these loops, and a vertical plate, 16, is fixed upon the bar in the space between the loops, and provided with suitable clamps for holding the prescription.



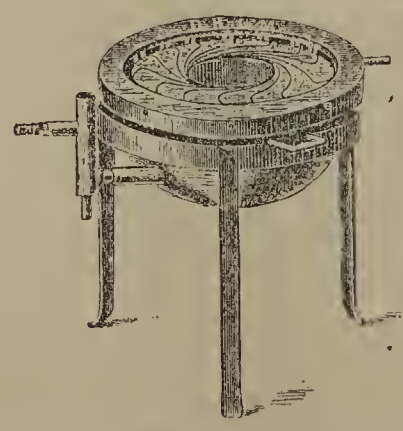
Stand for Colour Reactions.

This is a practical device for volumetric analysis, devised by A. Lupp, and now made by Max Kähler and Martini in Berlin (*Chemische Industrie*, 1895, p. 18). It is intended to supply the operator with a means of readily determining colour reactions, more accurately and with greater precision than is usually the case. The beaker *a* containing the solution to be titrated is supported on a tripod by a triangular board or plate *b* having a small hole in the middle. Through this rays of light are reflected by the mirror *c*, and the liquid is thus brightly illuminated, enabling the change in colour accompanying the end reaction to be noted readily and promptly.



Iris Water Bath.

An extremely convenient water bath is the one manufactured by Franz Hugershoff, in Leipzig (*Oesterr. Zeits. für Pharm.*). In the place of the usual rings it is fitted with a pure nickel iris diaphragm, by which the aperture can be adjusted to any required size. The water bath itself is made of enamelled iron, and is provided with a means for maintaining a constant water-level. It should prove very useful in extractions made in a Soxhlet tube with a reflux condenser, since the heat communicated to the flask can be regulated without disturbing the apparatus.



CORRESPONDENCE.

[*Letters to the Editor should be written as concisely as possible, on one side of the paper only, and preferably with name and address for publication.*]

PHARMACIST OR FACTORY-GIRL.

Sir,—Another refincment of modern pharmacy,which illustrates the advantage (*sic*) of using factory-made articles, has come to my notice during the past week—a parallel case to the insoluble compressed tablets of salol you mentioned in your foot-note on page 367. A medical man wished me to examine a small piece of white substance, which he thought might possibly prove to be of the nature of a calculus. A very cursory examination proved it to be a fat, melting below 170°. On hearing this, the doctor seemed somewhat puzzled, and told me his patient (a lady) was being treated for an internal growth; that stoppage of urine had occurred the day before which had suddenly been relieved on passing two pieces of a white substance, which the patient feared was stone. On my cautiously asking if any suppository or bougie had been supplied, the doctor at once said, "Yes, I had forgotten, I did send a couple of aconite suppositories, and these two pieces must have been the residue." Now, Sir, I venture to think if those bougies had been made by a "duly qualified chemist and druggist," they would have completely dissolved, and one is filled with amazement that such goods as are sent out from factories are considered sufficiently satisfactory by so many members of the medical profession.

London, November 16, 1895. PHARMAKOS.

A CORRECTION.

Sir,—In the *Pharmaceutical Journal* of November 2, there is, at page 366, a statement which I wish to correct. The preparation there described as fer crémol should be called haemolum ferratum, iron haemol. It is a very interesting chemical compound of iron with haemoglobin. While haemoglobin itself contains iron, iron haemol contains a double proportion of iron, both being so firmly combined that very dilute solution of ammonium sulphide does not cause blackening, but dissolves the preparation with a fine red coloration. Iron haemol is adapted for the treatment of chlorotic patients who do not find benefit from ordinary iron preparations, and as I am the discoverer of it I trust you will allow this correction to appear in your Journal.

R. KOBERT,
Rector of the Pharmacological Institute at Dorpat.

Dorpat.

*** The preparation was described as "fer crémol" in the journal from which the note was taken.—[ED. *Pharm. Journ.*]

PHARMACEUTICAL ORGANISATION.

Sir,—Though desirous that others should now take this matter up, I cannot well allow Mr. Roper's letter in your issue of October 26th to pass without comment. The subject under consideration is "Pharmaceutical Organisation" not merely "Organisation of the Pharmaceutical Society." These are two very different things, though I would like them made the same. It is perfectly true that when the Society extends to its Associates all the privileges of membership we shall have a thoroughly democratic Society. But who can regard even that as pharmaceutical democracy? It would still mean government of the pharmaceutical body being in the hands of that section of it within our Society's fold, and that I contend is a most unsatisfactory state of affairs. It is argued truly enough that the door is open for the others to enter, if they will. Just there, however, has been the difficulty all these years; the majority will not enter and it is not unreasonable to suppose they never will so long as the present conditions of entry exist. The Society has been constituted for four purposes. Of these, the first and the last—"advancing chemistry and pharmacy" and "to provide a fund for relief of distressed members," etc.—are entirely voluntary. There is no law compelling them to be done nor should we expect any legislature to make them compulsory, which might be the case if individuals were compelled to enter the Society as at present constituted.

On the other hand, the second and third purposes—"promoting a uniform system of education," etc., and "protection of those who carry on the business of chemists and druggists"—are rendered compulsory by the Pharmacy Acts of 1852 and 1868. Those latter I have rolled into the phrase "maintenance of the Register," and contend that that function should not fall upon the Society as at present, but upon the whole pharmaceutical body.

I observe Mr. Carteighe also advocates the levying of an annual fee upon registration. But it must be borne in mind that involves more than mere clerical work. As already pointed out it involves the second and third of the Society's functions, and I must stoutly maintain that in the event of persons having to maintain these by their annual fees they are entitled to the franchise, so far as these functions are concerned.

There is no warranty for asserting that men at present outside the Society, who would be brought within the organisation consequent upon the adoption of these conditions, would take less interest in its affairs than present members, or that present members would lose the interest they now have. Political matters in general all go to prove the contrary. Just because men are compelled to be "ratepayers" they will have their say, and Britain will hardly deny them.

The inducement to take part in voluntary services should continue at least as strong as before. Besides, it is only fair they should stand upon their own footing.

Glasgow, November 9, 1895. J. ANDERSON RUSSELL.

COMPOUND DECOCTION OF ALOES.

Sir,—The reference in Mr. Martindale's interesting paper to this preparation impels me to make a suggestion. Why not have an infusion instead of a decoction, and thus avoid the over-cooking which possibly injures the product? Eight or nine years ago I worked up the subject of aloes to some extent, and a paper read before the Dover Chemists' Association on February 9, 1887, records the doubts and contradictions which surround it.

On the general ground that prolonged exposure to heat and moisture is detrimental to galenicals as a class, and not from any —even partial—agreement of authorities respecting its effect upon aloes, I devised a working formula for avoiding this difficulty, which I subjoin.

Relying on the authority of Squire that 100 parts of aloes yield 50 parts of extract, I used a choice quality of sun-dried red Socotrine aloes in twice the quality of the extract ordered, and substituted liquid extract of liquorice—also in twice the quantity—for the solid.

Red Socotrine aloes	1 oz.
Saffron	¼ oz.
Boiling distilled water	1 pint.

Stir well together, let stand for twelve hours, and strain through flannel, pouring as much boiling distilled water over the strainer as will make the strained product measure 25 ozs.

Myrrh	¼ oz.
Carbonate of potassium	¼ oz.

Rub the myrrh to a coarse powder, add the carbonate of potassium, and then by degrees, with firm trituration,

Liquid extract of liquorice	4 fl. oz.
Compound tincture of cardamoms	15 fl. oz.

macerate for twelve hours, strain into the infusion of aloes, and add distilled water through the strainer to make 50 fl. oz.

A distinct superiority in aroma and also in permanence, is claimed for the altered formula.

About the same time I made, as follows, a liquid preparation of aloes, in the hope of retaining all the active principles in solution.

Red Socotrine aloes	2 ozs.
Glycerin, by weight	5 ozs.

Digest in a water bath at or near 212° F. for an hour, add

Boiling distilled water	5 ozs.,

stir well, set aside to cool, strain through muslin, and make up the measure, if necessary, with distilled water to 10 fl. ozs.

This was intended to contain 10 per cent. of extract, but, working with double the above quantities, I found the insoluble residue, after washing, drying, and weighing, to amount to no more than 5 avoirdupois drachms, so that 92 per cent. of the aloes had passed into solution, a result which almost equals Mr. Martindale's experience with Barbados aloes.

This preparation retains to a high degree the flavour of the drug, but deposits a yellow pulverulent precipitate—possibly aloin—

which is diffusible by shaking, so that as an ingredient of one of my nostrums I continue to use it.

The precipitate resembles, both in colour and in affecting the sides as well as the bottom of the bottle, that which I have just noticed in some liquid extract of cascara made by percolation.

Whenever the flood of new synthetic remedies, and of quasi-proprietaries, shall leave an observant and competent therapeutist leisure to take up the investigation, a field of useful labour lies fallow in the subject of aloes.

Dover, November 15, 1895. J. F. BROWN.

REVIEWS AND NOTICES OF BOOKS.

A TEXT-BOOK OF FORENSIC MEDICINE AND TOXICOLOGY. By ARTHUR P. LUFF, M.D., B.Sc.Lond. Two vols. Pp. 776. Price 24*s*. (London: Longmans, Green and Co. 1895.)

It is well known that forensic medicine is a serious subject, and the author of the two handsome volumes now under review makes it known to all whom it may concern that it is also a wide one. The first paragraph runs: "Medical jurisprudence, forsenic or legal medicine, embraces every branch of the medical art and science. The importance of it to medical men is obvious, and cannot well be over-estimated. It may be reckoned with almost absolute certainty that a medical man who has been engaged for any length of time in general practice must on several occasions appear as a medical witness in one or other of the courts of law, and that upon his conduct on such public occasions, founded as it must be on his knowledge or want of knowledge of legal medicine, may depend the liberty and lives of some of his fellow creatures."

In conformity with this practical admonition the first chapter deals with the nature of evidence and the proper way of giving it, and the amount of emolument that can be claimed after it has been given. The signs of death, the modes of sudden death, the methods of determining the amount of time that has elapsed between the moment of death and the inspection, and the methods of making post-mortem examinations, form the subjects of succeeding chapters. They are all dealt with in the clearest and most concise manner, and at the same time quite explicitly. One chapter deals with the "Reality of Death," but it is not addressed to lovers of metaphysics, and another gives in full detail the data for determining the "age of skeletons." In forensic medicine this subject is not attacked from the paleontological nor yet from the histological aspect, but it is made clear that the problem is to find out the age attained by the person into whose anatomy the skeleton once entered.

To most readers of this Journal the section of the work which deals with poisons will be of chief interest. The following definition of a poison is given: "A poison is a substance which, either by its direct action upon the skin or mucous membranes, or after absorption into the blood, is capable of injuriously affecting health or of destroying life." The law takes no count how a substance acts, whether mechanically or chemically, so long as it is capable of injuriously affecting health or of destroying life. Thus powdered glass may be as much a poison as powdered arsenic, so long as it is administered with intent to injure. And, moreover, the would-be malefactor may be tried for "attempt to commit murder," although the particular substance he has chosen as a poison may have had no ill-effect on the object of his attentions. It is said, with a savour of humour, that "the sale of poisons—in small quantities, at any rate—is by law restricted to pharmaceutical chemists, chemists and druggists, and medical men."

The detailed account of individual poisons and the methods of their detection, whether present in large or minute quantities, forms a special feature of the work, and the chapters relating to this subject would, taken by themselves, fully justify the existence of the book. Dr. Luff's position as official analyst to the Home Office, serves to give an authoritative character to this part of the work. The symptoms and treatment of cases of poisoning are fully described. There is also a most valuable chapter on ptomaines or alkaloids produced by the decomposition of animal substances. This section of the work concludes with a clear and complete account of poisonous foods, and its value is greatly enhanced by a series of beautiful illustrations of the more important poisonous plants. The second volume begins with an account of blood-stains, and the subject is enriched with a perfect chart of the spectra of hæmoglobin and its derivatives, whilst the book ends with a full account of the various forms of insanity in their medico-legal aspects. The merits of the work may be justly summed up by saying generally that it is equal to the best of the many excellent text-books which already deal with the subject, and in the important section on poisons it is perhaps more complete than any existing treatise. The printing and illustration of the work claim the highest praise Dr. Luff may be heartily congratulated on his work, which is bound to find a wide sphere of usefulness among students and practitioners of medicine, and also among pharmaceutical chemists and others who have to deal with poisons.

YEAR-BOOK OF PHARMACY FOR 1895. Pp. 455. Price 10*s*. (London: J. and A. Churchill, 11, New Burlington Street. 1895.)

The official record of the transactions of the British Pharmaceutical Conference is issued with commendable promptness this year, just three months having elapsed since the meeting at Bournemouth ended. The volume is somewhat thinner than the one that immediately preceded it, the difference being mainly due to the smaller number of papers read at the last meeting. Thus, while the abstracts of papers relating to pharmacy, etc., together with "notes and formulæ," and the bibliography, occupy 247 pages, as compared with 276 in 1894, the "Transactions" of the Conference are on this occasion limited to 174 pages, whereas last year they filled 260 pages. A saving of four pages is also effected in the index, which, however, seems as full and complete as ever, constituting the best feature in the book. The abstracts of chemical papers include some that will probably be new to readers of the Journal, but most of those on materia medica and pharmacy will appear to them as old friends. At the same time, they are undoubtedly in a handier form than in the last volume of the *Pharmaceutical Journal*. It is satisfactory to notice, by the way, that the editor has adopted the plan of commencing all specific names with small letters, the exception on page 155 being probably an oversight. The section "Notes and Formulæ" might with advantage be extended, and would probably be found the most useful part of a book of this description. With regard to the "Transactions," the bulk of the matter has been reprinted from the pages of the Journal. It may be noted that page 282 sadly needs revision. The list of associations that might send delegates to the annual meeting is far from complete, and also inaccurate in that the names of the secretaries are mostly wrong. On the whole, however, the committee of publication is to be congratulated on the production of a handy record of twelve months' work in pharmacy and allied subjects. Its cost to members of the Conference is but trifling, and even at the published price it is not expensive.

ESSENCE OF BERGAMOT, according to Dr. I. Campolo (*Chem. News*, lxxii, 205), is chiefly adulterated with fatty oils and resin. On evaporation of a suspected sample, any excess of residue over six per cent. by weight will probably consist of olive oil.

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REGISTRATION OF CHEMISTS AND DRUGGISTS.

The question that has been raised as to the propriety of levying an annual fee for registration as a chemist and druggist, is one well entitled to consideration by that section of the trade which has—for the last twenty-seven years—borne the cost of maintaining a Register of persons legally qualified to carry on the business. Although the duty of maintaining the Register is, by the provisions of the Pharmacy Act 1868, imposed upon the Pharmaceutical Society as the corporate body entrusted with the administration of the Act, it is only for the purpose of securing the object of the Act—the safety of the public—that this obligation is cast upon the Society. Regarded from that point of view, the Register is the means by which persons possessing "competent practical knowledge" may be recognised by the public and distinguished from pretenders. All the other provisions in Sections I. to XIV. of the Act have the same object in view, and even the powers of self-government, etc., conferred upon the Pharmaceutical Society by the Act and by confirmation of its Charter, are primarily directed to its attainment.

But there is another point of view from which the provisions of the Act present themselves as means by which the interests of persons qualified in accordance with it may be protected and advanced. The necessity of proof that every person placed on the Register of Chemists and Druggists has "competent practical knowledge" is not only intended to secure the safety of the public, but is also a means of protecting duly registered persons in the exercise of their business. It is not unfrequently assumed that because the law insists upon educational qualification of persons carrying on business as chemists and druggists, those persons are entitled to privileges from the State, and it is overlooked that by this restriction of the chemists' business to qualified persons provision is made for all the privilege that can be looked for. In that sense the objects of advancing chemistry and pharmacy and promoting a uniform system of education become obligatory for every registered person, as being the only means by which protection of those who carry on the business of chemist and druggist is to be effected. The degree to which those objects are to be carried out is mainly determinable—in accordance with the powers conferred by the Charter and the Pharmacy Acts—by registered persons constituting the Pharmaceutical Society.

The maintenance of the Register of Chemists and Druggists is, in like manner, an obligation lying upon every registered person. But here the obligation is much more imperative. The Register being the immediate means by which qualified persons are distinguishable from unqualified persons, it has a direct business value. Hence its proper maintenance is, in regard to the interests of the whole body, as much an individual duty as it is a duty of the Pharmaceutical Society in its public capacity. Strictly speaking, the Pharmaceutical Society is under no obligation, otherwise than in its public capacity, to bear the expense of keeping a correct Register of persons who do not contribute to its funds. But hitherto the burden of keeping the Register in both respects has been borne entirely by a comparatively small section of the persons who derive advantage from the work. Independently of the cost that work involves, there has been much difficulty in keeping the Register correct in consequence of the want of information as to changes of residence, etc. There is, therefore, very good reason for the opinion that the cost of maintaining the Register should fall equally upon all. But the levy of an annual registration fee cannot to any extent be made equivalent to connection with the Pharmaceutical Society. That must always remain optional, as involving considerations totally different from payment for a specific service rendered, such as the maintenance of the Register, which is of practical value to every person qualified under the Pharmacy Act. The letters on this subject by Mr. Anderson Russell and Mr. Roper, should awaken interest in the question now raised, and lead to a general expression of opinion.

PRIZES FOR APPRENTICES IN SCOTLAND.

Amongst the local pharmaceutical associations which seek to promote the education of apprentices by offering prizes for competition, the Edinburgh Chemists', Assistants', and Apprentices' Association probably arranges matters upon the most systematic basis. At the beginning of each session a circular is distributed in which the conditions of the prize competitions are fully set forth, and from that just issued the following facts are taken:—The "Ewing Pharmacy Prize" takes the place of the well-known "Ainslie Pharmacy Prize," Mr. J. Laidlaw Ewing, Chairman of the Executive of the North British Branch, having generously offered an annual donation of one guinea to replace that formerly given by the late Mr. Ainslie. The prize is awarded to the apprentice member of the Association who shows the best knowledge of pharmacy, the subjects of examination being galenical pharmacy, the translation and dispensing of prescriptions, and the posology of the British Pharmacopœia. Mr. Aitken, an ex-president of the Association, offers a second prize, value half-a-guinea, in this competition, and Mr. S. G. Crowden will present a copy of the Pharmacopœia to the third best candidate.

The "Association Prizes" rank higher than those already mentioned, being awarded on the results of a more advanced examination. Thus, the candidates must be expert in rendering Latin prescriptions into English, and English into Latin, also in parsing, and a knowledge of the British and Metric systems of weights and measures. In pharmacy, questions may be set on the processes by which the official

liniments, mixtures, plasters, powders, and spirits are made, whilst elementary botany and chemistry also receive a fair share of attention. The first prize in this competition is a ticket, value two guineas, which admits the bearer during one session to the classes in chemistry conducted by Mr. Falconer King or Dr. Stevenson Macadam. The second and third prizes, the latter being offered by the President of the Association, are books of the value of twelve shillings and sixpence and seven shillings and sixpence respectively. It appears that only three candidates competed on the last occasion, and the standard of marks attained did not warrant the presentation of the first prize (see report on page 447). This is not very encouraging, but savours of a decided lack of enterprise on the part of those eligible as candidates. Surely pharmacists' apprentices in Scotland do not differ greatly from other Scottish students who have been content to work for the sake of the knowledge gained. The work involved in preparing for these competitions, if systematically carried on, should constitute a very satisfactory scheme of study during the period of apprenticeship, the results of which should amply repay students, even if they obtain no prizes.

After considering this unsatisfactory record, however, it is not altogether surprising to find that the winners of the Pharmaceutical Society's Scholarships so rarely hail from Scotland. One of the present holders of the Jacob Bell Memorial Scholarships was, we believe, the first successful candidate who actually sat for the examination in Scotland, and the name of the only other Scotchman who appears to have won one of these Scholarships is in the list for the year 1883. That is to say, during the past thirty-five years Scotland has apparently been represented by only two names in the list of sixty-nine Bell scholars. This is not as it should be, and it is to be hoped that the mere indication of the fact may induce Scottish students in pharmacy to emulate their English brethren, and remove the implied reproach that the existing disproportion conveys. A youth who has taken one of the Edinburgh "Association Prizes," and perhaps also the "Ewing Prize," should find little difficulty in acquiring the extra knowledge required to equip him for the Scholarship competitions, and he ought to attempt this, even though the event should prove that the history of the present year does not repeat itself. At any rate, one is loth to believe that Scottish students act on the principle of a fixed maximum of knowledge—that requisite for the qualifying examination—though the lack of interest taken in the prize competitions already referred to, and the fact that so many Scotchmen refrain from presenting themselves for the Major examination, almost compel the admission that such must be the case.

THE CONSUMPTION OF ALCOHOL IN FRANCE.

The annual meeting of the French Anti-Alcohol League took place on the 17th inst. in the Hôtel des Sociétés Savantes. M. Siegfried, member of the Chamber of Deputies and late Minister of Commerce, presided, and in his address gave some disquicting information concerning the increase of alcoholism in France. According to his statistics, it was shown that whilst in 1830 the annual consumption of alcohol per person was 1·12 litre, in 1894 it had reached 4·04. In 1830, for every 113 persons there was one house for the sale of spirituous liquors, and now the proportion is one for eighty-four inhabitants. The deleterious effect of this increase is proved by the occurrence of more numerous cases of mental diseases and suicides, and also increased exemptions from military service. In Sweden the annual consumption of alcohol had decreased by one half, and in England from 2·86 litres per person it had fallen to 2·70, this being due, it was assumed, either to the lowered duties on tea and coffee, or to the repressive action taken by those countries. The various methods for arresting the growing evil were discussed, and the intervention of the Government was proposed in order to restrict the number of wine shops. A motion was adopted for the amalgamation of the various societies interested in the question, in order to form a commission composed of eminent medical men and other influential persons, who will be charged to present a Bill to the French Parliament to amend the regulations respecting the sale of spirituous liquors. The proceedings terminated by the distribution of prizes to those members who had done most service in furthering the object of the League.

PHARMACOPŒIA NOTES.

The article on "Ointments of the British Pharmacopœia" now appearing in the Journal, is the first of a series in which it is proposed to give the results of practical experience and suggestions as to improvement of the official formulæ for various classes of preparations. The opinions expressed may not, in all instances, meet with general approval, and discussion of the points raised will be welcomed not only as showing interest in an important subject, but also as a means of arriving at useful results.

WESTERN CHEMISTS' ASSOCIATION (OF LONDON).

The annual dinner of this Association last Wednesday, at the Café Royal, afforded opportunity for a very agreeable gathering of the members and their guests, including among the number Mr. John Harrison, V.P.P.S., and Mr. Charles Umney. The chair was taken by Mr. Parker, and, after the usual loyal toast, he proposed the "Western Chemists' Association," coupling with it the name of Mr. Hyslop, the new President. Mr. Parker dwelt upon the advantages of local associations and the improved relations now existing between chemists in consequence of the better acquaintance made possible by them. Mr. Hyslop in reply expressed the satisfaction it was to him to follow the previous occupants of the President's chair and hoped the time would come when those engaged in carrying on the art of pharmacy would be generally known as pharmacists, and content with that designation as an appropriate indication of their calling. In proposing the toast of the Pharmaceutical Society, coupled with the name of Mr. John Harrison, the Vice-President, mention was made of the great services that have been rendered by the Society to all engaged in the business and the claim it has upon their support was warmly urged, as well as the increasing necessity of keeping abreast of the scientific knowledge of the day if the chemist desires to maintain his position as a person of superior information. The toast was responded to by Mr. Harrison, who referred to the probability that in the next session of Parliament there may be opportunity for taking steps to remedy some of the evils experienced by chemists, and impressed upon his hearers the necessity of placing the Society in a sufficiently representative position to undertake the work of introducing a Bill for that purpose. There was an attractive musical programme, the items in which pleasantly interspersed the speeches, and the performances of the Meisterin Mandoline Trio deserve special commendation.

ANNOTATIONS.

EVENING MEETING IN EDINBURGH.—An evening meeting of the Pharmaceutical Society will be held in the Society's House, 36, York Place, Edinburgh, on Friday next, November 29th, at 8.30. Mr. J. Laidlaw Ewing, Chairman of the Executive of the North British Branch, is expected to take the chair, and the inaugural sessional address will be delivered by John Gibson, Ph.D., F.R.S.E., Professor of Chemistry in the Heriot Watt College, Edinburgh. Recent additions to the library and museum will be exhibited during the evening.

THE RECENT DECISIONS AT EDINBURGH.—In an article referring to the recent decisions in Edinburgh, and complimenting the Pharmaceutical Society upon its effective administration of the Pharmacy Act, 1868, the *British Medical Journal* expresses surprise that the opportunities afforded by the Act have not been taken advantage of more generally by registered persons for the advancement of their own interests, but that "the majority of chemists and druggists have regarded the provisions of the Act rather as interfering with the free exercise of their business, than as affording a basis for its protection, which might be developed by them almost to the extent of constituting a monopoly."

THE 'PHARMACEUTICAL REVIEW.'—It is announced that the old-established *Pharmaceutische Rundschau* will appear henceforth under the title of tho *Pharmaceutical Review*. Dr. Frederick Hoffmann will continue to act as Editor, being assisted in his editorial work by Dr. Edward Kremers, whilst Professors Caspari, Curtman, Lloyd, Prescott, and Simon, with Drs. Carl Mohr and F. B. Power, will also co-operate. The *Review* will be an illustrated monthly journal, and mainly printed in English, only such German contributions as would suffer by translation being published in the original. As in the past, however, both German and English versions will sometimes be given. In its new guise the paper ought to be even more successful than heretofore, and the conductors are cordially congratulated upon their enterprise.

CHEMICAL SOCIETY.—The number of the 'Proceedings of the Chemical Society" just issued gives the text of the telegram sent to Madame Pasteur, on the death of her husband, as follows:—"The Chemical Society of London, in common with the entire scientific world, mourns the loss of its illustrious Foreign Member, and begs to express to you its deepest sympathy." This was signed by the president, treasurer, and secretaries. The text of the address presented to the Institute of France, on the occasion of its centenary, is also published. Abstracts are given of the papers taken as read at the meeting of the Society reported last week, including that by A. G. Perkin on "Some constituents of the root of *Polygonum cuspidatum*." The principal constituent of the root bark was found to be a glucoside—cuspidatin, $C_{21}H_{20}O_{10}$—which crystallises in lustrous, yellow needles, melting at 202°–203°. On hydrolysis, this yielded 61·82 per cent. of emodin. A second glucoside, found in small quantity, also yielded emodin on being hydrolysed and subsequently treated with sulphuric acid at 160°. Other substances found were a small amount of free emodin and a wax, $C_{18}H_{28}O$, identical with that found in the root bark of *Morinda umbellata*. Dunstan and Carr describe a simpler method of extracting piperovatine from *Piper ovata*, based on percolation of the material with ether, by which it is stated crystals can be formed in a few hours.

PHOTOGRAPHY IN NATURAL COLOURS.—A further advance in the direction of preparing photographic prints in natural colours is recorded by E. Vallot (*Moniteur de la Photographie*), who appears to have proved the soundness of Wiener's theory that colours may be formed on films in which silver salts are replaced by other substances, each ray isolating the colour common to it and destroying the others. Solutions are prepared as follows:—(1) Aniline purple, 0·20 Gm., alcohol, 50 C.c.; (2) Victoria blue, 0·20 Gm., alcohol, 50 C.c.; (3) turmeric, 10 Gm., alcohol, 50 C.c. The finished solutions are mixed, the paper is allowed to float on the mixture and dried, then exposed to sunlight under a coloured glass positive for three or four hours. According to the *Amateur Photographer*, the results are encouraging, though perfection has not yet been attained.

A NEW FORM OF ACCUMULATOR.—An accumulator, in which a large surface of material is exposed, and having very small resistance, is described by H. N. Warren (*Chemical News*). The negative element is a plate of pure porous lead prepared by compression of spongy lead obtained by slow precipitation of a solution of the acetate by means of zinc. An intimate mixture of metallic lead and litharge (40 per cent.) covers the plate, which is tightly compressed into a thin flat porous pot. The positive element is prepared by incorporating barium carbonate with lead, so as to obtain a granular powder, then digesting this in hot hydrochloric acid to remove the barium carbonate, and afterwards mixing the purified lead with a sufficiency of lead peroxide. The mixture so prepared is used as a charge for the positive cell. The accumulator, when completed, is rapidly charged by small batteries and is said to retain the current admirably.

OBJECTIONS TO THE USE OF STERILISED MILK.—The liquid sold as sterilised milk has frequently undergone considerable transformation, according to Flügge (*Zeit. f. Hygiene*), and E. Duclaux (*Ann. de l'Inst. Pasteur*) has recently investigated the subject. It is known that, normally, the formation of lactic acid from milk sugar precedes the coagulation of the casein in milk by a special ferment, and Pasteur showed that milk may be coagulated by ferments in a neutral medium. The coagulum, however, may be dissolved by a diastasic substance—casease—associated with the casein ferments, which is antagonistic in its action to that which causes the coagulation. The passing coagulation may easily be overlooked, though resulting in a great change in the milk, for the albuminoid matter formerly suspended in the milk is now completely dissolved and partially decomposed into the intermediary products leading to leucine and other bodies. Nevertheless, Duclaux is of opinion that milk may be rendered harmless for ingestion by infants if heated to 70° to 75° C., the lactic ferments being thus destroyed, though those affecting casein are not.

THE ROYAL SOCIETY'S MEDALS.—It is understood that at the approaching anniversary meeting of the Royal Society, on Saturday, November 30, the Davy medal will be presented to Professor William Ramsay, F.R.S., in recognition of his work in connection with the discovery of argon and helium. Dr. John Murray will receive a Royal medal in acknowledgment of the services rendered to science by his labours on the reports of the Challenger expedition; Professor J. A. Ewing will be similarly honoured for his investigations into magnetic induction in iron and other metals, and the Copley medal will be presented to Professor Karl Weierstrass for mathematical researches.

PROCEEDINGS OF SOCIETIES.

EDINBURGH UNIVERSITY CHEMICAL SOCIETY.—On Monday, 11th inst., Professor Crum Brown, M.D., F.R.S., delivered the opening address of the winter session to the members of the Edinburgh University Chemical Society, on the subject of "Osmotic Pressure," in the chemistry tutorial class-room of the University New Buildings. There was a good attendance of members and friends.

Professor Crum Brown, who was cordially received, having thanked the Society for re-electing him president, said the facts to be observed in connection with the subject of osmosis were first brought to the notice of scientific men about the middle of the last century. Abbé Millet tried an experiment by which he found that if a bladder containing alcohol, and closed up, were placed in a vessel and covered with water, and left there long enough, so much of the water would get into the bladder and the alcohol would escape only to a trifling extent, with the result that the bladder would ultimately burst. An expansion of this experiment showed that all liquids which had a tendency to mix with one another, if they were brought into similar conditions, would mix with one another until there was a uniform mixture if one chose to wait long enough. This was the important subject of osmosis. For a very long time experiments were made with bladders with closed ends and with various sorts of solutions, the introduction of water being called endosmosis, and the extrusion of the solution being called exosmosis, but nothing like a law of osmosis was obtained.

After the preliminary stage, during which the existence of this thing was observed, it was not till 1877 that Traube made certain observations on osmosis which had an important bearing on physical and chemical questions. These investigations were first made in the interests of biology, and it could easily be seen how important it was to the biologist, the zoologist, and to the chemist, to find out how the operation went on in the case of membranes in the glands of animals and vegetables, where certain substances were secreted. Traube discovered an artificial membrane which answered the purpose far better than the bladder, and could be prepared and stretched upon the ends of tubes and round jars. He pointed out that the bladder, while it was permeable to water, was not altogether impermeable to the solutions used, so that they thus had an imperfect experiment. Traube's membrane, though perhaps not quite impermeable, was nearly so. The results of many observations which had been made had caused inquirers to be very shy of saying that any substance was absolutely non-volatile, and the lecturer gave illustrations of this statement; but Traube's experiments showed that no perceptible amount came through the area of the membrane with which he worked. Traube's membranes were precipitation membranes. One of the first precipitates which he used was tannin and gelatin—not ordinary gelatin, but a dilute solution of beta-gelatin, and he made a firm precipitate of the two liquids, which he placed on the ends of a tube, and so formed a sort of skin. He also made use of salts, such as copper sulphate and potassium ferrocyanide, with which he worked with the view of ascertaining the nature of various kinds of membranes, which he called semi-permeable. The next step taken was to make such semi-permeable membranes so that they could bear pressure both inside and outside. Pfeffer, a botanist, next took up the subject, and after a great deal of time he got to such skill in making these walls that he could be sure of making them accurately.

Professor Crum Brown then explained the principle on which osmotic pressure was calculated by the perfected experiments made by Pfeffer. He found not altogether inconsiderable differences in the osmotic pressure with different membranes, but notwithstanding they were now able to say that those differences were due to experimental errors, either by some of the membranes not being wholly impermeable to sugar, the solution with which he worked, or to what Pfeffer's were always liable—a slight leak between the wax and the clay, or between the wax and the glass. The Professor next described a biological experiment made by De Vries with the walls of certain plants, and particularly with *Tradescantia*. The cell walls of this plant he said were permeable to most things, and he showed how by the use of a solution of salt the protoplasm went away from the corner cells, so that they would have corners left bare of protoplasm altogether. He illustrated the osmotic principle by a reference to Boyle's law, and said that the osmotic pressure of a sugar solution had the same value as the pressure that the sugar would exercise if it were contained as a gas in the same volume as is occupied by the solution. After explaining the reasons for the difference between the pressure on the particles of water and the particles of any solution, Professor Crum Brown said that another way of calculating osmotic pressure than by the use of the membrane had now been found. The data for this had been obtained by the use of a tube with a membrane and a barometric tube, and they were then applied to an experiment with three barometric tubes standing parallel to one another. At the close, Professor Crum Brown, on the motion of Mr. George Coull, B.Sc., was awarded a vote of thanks for his interesting and instructive lecture.

GLASGOW AND WEST OF SCOTLAND PHARMACEUTICAL ASSOCIATION.—On Thursday the 14th inst., at the invitation of the President and Council of the Glasgow and West of Scotland Pharmaceutical Association, the members and their lady friends spent a most interesting and enjoyable evening in the Cockburn Hotel. The guests were received by Mr. and Mrs. Currie, and while assembling selections were played on the pianoforte by Mr. Ferrier. Tea was served on side tables round the room, and soon the visitors were quite "at home." Among the guests were Professor King, Drs. Love, A. M. Robertson, and O. Hawthorne; Messrs. Laidlaw Ewing and J. Rutherford Hill, both of Edinburgh, Mr. Harland (S. Maw, Son, and Thompson), Mr. Taylor (Burroughs, Wellcome, and Co.), Mr. Cunningham (T. and H. Smith and Co.) Mr. McAdam (Glasgow Apothecaries Co.), Mr. Black (W. and R. Hatrick and Co.), etc., etc.

After tea, the President (Mr. Currie), in the name of the Council and himself, welcomed those present. He said it was delightful to see such a large and brilliant turn-out of ladies. It had been said that chemists were selfish, and confined their festivities to suppers and smoking concerts, but after such an evening as that he hoped the members would see the error of their ways, and by similar gatherings encourage the presence of ladies at their meetings. Afterwards a delightful musical programme was gone through, and, at the conclusion, votes of thanks were accorded to the President, to the singers, and to the committee who had charge of the arrangements.

The exhibits were of a particularly interesting nature. Messrs. T. and H. Smith and Co., Edinburgh, showed a great number of rare alkaloids; Mr. Hassard, a large collection of optical instruments, the audiphone, etc.; Messrs. Baird and Tatlock, reproductions in glass of rare jewels, precious stones, various electrical apparatus, showing electric current passing through a vacuum, etc.; Mr. David Lees, mounted botanical specimens, etc., etc. Through the kindness of Mr. J. Rutherford Hill, a series of living objects were exhibited under microscopes, and a spectroscope with photographs taken by Messrs. Currie and Miller also came in for a lot of attention.

CHEMISTS' ASSISTANTS' ASSOCIATION.—The annual conversazione and dance of this Association was held in the Portman Rooms, Baker Street, W., on the 14th inst. The programme included a reception, which was timed to commence at 8 o'clock; this was followed by a concert which was arranged by Mr. H. H. Robbins, and was much enjoyed. The various items were contributed by Miss Isabella Bennett, and Messrs. Bernard Fuller, Langton, Lyons, G. Robbins, Hora, and others, after which dancing commenced in the large hall. All the arrangements had been satisfactorily carried out, and several hours were enjoyably spent under the guidance of Mr. T. C. W. Martin, who acted as M.C. with his customary efficiency. At twelve o'clock supper was served, after which the toast of "The Ladies" was ably proposed by the President (Mr. E. W. Hill); Mr. Carteighe following with that of "the Chemists' Assistants' Association." Both toasts were drunk with enthusiasm, after which dancing was resumed and continued until about 4.30 a.m. Amongst those present were Mr. and Mrs. Carteighe, Mr. R. Bremridge, Mr. E. W. Hill, Mr. R. H. Jones, and Messrs. Guyer and Melhuish (Secretaries of the Association). Some three hundred were present, the only drawback being the somewhat small proportion of ladies.

HALIFAX AND DISTRICT CHEMISTS' ASSOCIATION.—On Thursday, November 14, the members of this Association had supper together, this being the first of a series of gatherings intended to be held during the season. The company numbered about thirty, and included Messrs. Jonathan Jessop, James Farr, George Hanson, J. B. Brierley, and Herbert Ainley, Dr. Topham, and others. In the absence of Mr. W. C. Hebden, the President of the Association, Mr. J. Swires, one of the Vice-Presidents, occupied the chair. After the repast, Mr. Swires submitted the usual patriotic toast, and then read apologies from several gentlemen who were unable to attend.—Mr.

Farr, in proposing "Success to the Chemists of Halifax and District, said they lived in a time when it was essential that those who entered upon the discharge of the duties and obligations of a chemist and druggist were obliged to be well equipped. The training which many of the gentlemen present had received gave them a nobility of character and a standing in life such as nothing else could possibly confer. As they were qualified by their training, so he trusted they would succeed in the attainment of the great desire of their heart, whether it was in the matter of £ *s. d.* or not, because he conceived that no man, whatever his position or calling—and especially that of a chemist and druggist—could follow that calling for any length of time without conferring upon others, as well as upon himself, advantages of no mean order. Therefore he wished them much happiness and very great success in the work in which they were engaged.

After a little musical diversion, Mr. Hebden entered the room, and was warmly received.

Mr. Walton (Sowerby Bridge), then responded to the toast proposed by Mr. Farr, speaking in high terms of the fraternal feeling existing among the members of the Association.

Mr. T. Coulson, in proposing the health of "The Guests," observed that there was more unanimity among the chemists of Halifax than those of any other place where he had been. He had no doubt that social entertainments of that kind would do much to promote and cement the unity and good fellowship that prevailed among them. Other toasts followed, and altogether a most enjoyable evening was spent.

EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.—The opening meeting of the eighteenth session was held in the Pharmaceutical Society's House, 36, York Place, Edinburgh, on Friday, November 15, at 9.15 p.m., Mr. J. Mackintosh Cameron, Vice-President, in the chair.

The minutes of last meeting having been read and approved, the secretary intimated apologies for absence from Professor Gibson and Messrs. Laidlaw Ewing, Storrar, Lunan, Fraser, Forret, McGibbon, and A. Gibson.

The Secretary then read the report on the Association prizes competition. The Committee expressed regret that only three candidates had competed, and that the standard of marks attained did not warrant the presentation of the first prize. The second prize (Vines' 'Text-Book of Botany') was awarded to James Strachan Guthrie, 119, George Street, with 65 per cent. of marks; and the third prize (Bentham's 'Flora of the British Isles') to John Robert Thompson, 48, Haymarket Terrace, with 62 per cent. of marks. The report also noted the fact that a former prize-man of the Association, Mr. George Senter, had recently gained a Jacob Bell scholarship.

The report having been adopted, the prizes were then presented to the successful competitors by Mr. Peter Boa, President of the Edinburgh District Chemists' Trade Association, to whom, on the motion of the Chairman, a hearty vote of thanks was awarded.

The Vice-President (Mr. Cameron) then proceeded to deliver the inaugural address. After referring to the regrettable resignation of the President of the Association—Mr. Alexander Sutherland—through ill-health, he proceeded to deal with the evolution of pharmacy (see address on p. 436), and concluded by saying that there is doubtless a glorious future before pharmacy, and a wide field for discovery, if each individual member of the craft performs his unit of work by exerting himself to the utmost to promote the interests of that body—the Pharmaceutical Society—which has done so much to further the interests of pharmacists up to the present time. No better means of discharging this obligation could be suggested than that of taking an active and lively interest in the work of the Association, which in the past has taken a worthy place in the advancement of pharmacy.

Mr. George Coull, B.Sc, in moving a vote of thanks to the Vice-President said he was sure they would all cordially re-echo the wish that Mr. Sutherland might soon be restored to his wonted health. With regard to the Chairman's remark that pharmacy had been indebted to chemistry, he was reminded of an observation he had often heard made by Professor Crum Brown, that chemistry was much indebted to pharmacy, and if chemistry had aided the progress of pharmacy it was only repaying an old debt. It was pleasant to see an old prize-man of the Association occupying the position which their Chairman now so ably filled.

Professor Patrick Geddes, in seconding the vote of thanks, said he had to congratulate Mr. Cameron, for the thought and style of his address and the clear and forcible way in which he had stated his case. He did not know whether any of them had seen a picture which was recently exhibited in the Academy, but it was of interest, for its subject was that of a witch among the standing stones of an ancient Druidical circle, gathering simples under the shadow of the sacred oak tree. It was extremely interesting to trace the process of evolution in pharmacy from the beginning up to its present embodiment in the British Pharmacopœia. The study of this historical development could be made helpful in many ways. He might suggest, for instance, that when the present walls of the hall in which they were met became begrimed and dusty they should be painted in panels, bearing portraits of men such as Theophrastus and Dioscorides, or, coming nearer our own time, Paracelsus, who had never been sufficiently appreciated. Possibly by that time their present Chairman and Secretary would have taken so high a place in this process of evolution that panels would be devoted to them also. It was in no jesting spirit that he said the study of pharmacy was an exceedingly interesting one, for it brought them in contact with the history of botany, chemistry, and medicine, many distinguished exponents of those sciences having been members of the pharmaceutical craft. One other point he would like to mention. Since he became an examiner of pharmaceutical students he had been struck by the evidence of careful preparation and steady and good work in many of the young men who had come before him, and he thought that was largely due to their system of apprenticeship. The same system used to prevail in the medical profession, and some of the most distinguished men in that profession were those who had been trained under the old apprenticeship system. He was speaking the other day to Sir William Turner on this subject, and he referred with pride to the fact that he had undergone the discipline of such an apprenticeship. That question of discipline was one that deserved full appreciation. The ample leisure of other students was in some respects a danger. They sought for discipline in athletic pursuits or in some other way—and sometimes athletics came to be regarded as the principal object in life. He thought the discipline of the pharmaceutical student was superior, for it was obtained in the serious duties of apprenticeship, which involved constant accuracy and a sense of responsibility. The evolution of pharmacy was a continual process, and it was not yet ended. Many great names were associated with their craft. They might not be all aware that in the list of apothecaries in Florence there was found the name of the illustrious Dante. They had a great tradition to support, and that could be done by each endeavouring to elevate the individual pharmacist. Let each one magnify his office and expand his individuality. That could be well done by taking a historical view of their craft, for thereby they could see it, as it were, *sub spacia æternitatis*. As a means to this end he would recommend them to make their business or profession their philosophy.

Messrs. C. F. Henry and Hill having spoken, the Chairman acknowledged the vote of thanks, and extended an invitation to the visitors to attend any meetings of the Association during the session.

A letter was read from Mr. Sutherland resigning his office as President, on account of ill-health. The resignation was very regretfully accepted, and the Secretary was instructed to convey the good wishes of the Association to Mr. Sutherland.

Mr. J. Mackintosh Cameron was unanimously elected President, and Mr. James McBain was unanimously elected Vice-President, in room of Mr. Cameron.

The meeting then closed.

MIDLAND PHARMACEUTICAL ASSOCIATION.—A meeting of this Association was held on Monday evening, at the Grand Hotel, Birmingham, for the purpose of hearing an address by Mr. E. J. Smith (Birmingham), on "Undue Cutting in the Retail Trade." Mr. R. Darton Gibbs (President) occupied the chair, and amongst those present were Messrs. A. Southall, W. Jones, F. H. Prosser, G. Perry, Gibson, M. Magor, Fletcher (Coventry), Hinds (Coventry), Arblaster, Blackham, Boucher, Owen, Weaver, Shorthouse, Wakefield, Richards, etc.

The Chairman, in opening the proceedings, said the difficulty that met the Council in connection with that Association was the vast amount of indifference that was shown by the bulk of their members to the efforts they were constantly making on their behalf. The interest taken in the valuable scientific papers given from time to time was far too small, and therefore it had been decided during the present session to give two or three papers on the trade side of pharmacy, in the hope of arousing more enthu-

siasm. In doing so they did not wish to imply that they placed less value on the scientific side of pharmacy, but they thought the trade side should go hand in hand with the other side, and if by discussing the trade side they could bring any relief to pharmacy they would be doing good to the scientific side also, and they would be getting more interest shown in their educational work. It was in that sense they had invited Mr. E. J. Smith, who had consented to address them.

Undue Cutting in the Retail Trade.

Mr. Smith, in the course of a long address, said he happened to have several friends in the profession of pharmacy, and among them was one—Mr. Prosser—who had been following with the closest attention the movement amongst grocers, with which his name had been identified during the last few years. He had reason to speak well of a certain patent medicine, and believed that in purchasing that medicine from the nearest chemist he was conferring some benefit on the chemists of Birmingham. They might judge of his astonishment, therefore, when he found that in exchange for giving the chemist the trouble of passing the medicine over the counter, the shopkeeper was getting no profit out of the transaction. He was quite sure, therefore, they would feel interested in knowing what he proposed to do in the grocery trade, because as a matter of fact what he proposed seemed at first sight to meet their case, as he would only have to cross out grocer from his scheme and insert chemist, and then they would have exactly the remedy which they required in order to put their business on a profitable basis. He was approached by the Grocers' Federation, and informed that grocers were giving a large number of articles away without any profit on them. The reason for that was that everybody made a leading line of something, and in order to induce people to shop with them, they gave something away in the hope that they might buy something else on which there was a profit. There were a large number of people, sometimes calling themselves limited liability companies and trading with somebody else's capital, who opened large establishments, and consented to drop so many thousand pounds by giving articles away, in the hope of deluding the public into buying articles on which there was a profit. That was a state of things everyone deplored, and everyone wished to remedy, but which no single individual could remedy himself, and that was the exact question which they had always to discuss in connection with that combination movement. The scheme he drew out for the grocers was a big one. It was so comprehensive that it included every manufacturer of grocery goods in the kingdom; it included every importer in this country and every exporter in other countries. It fixed established charges for the commodities which grocers sold, without doing injustice to a single customer, and absolutely prevented anyone selling anything without getting some profit on it. Although that scheme had not been accepted, it was being carefully considered, and he was confident the principle would grow upon them, and there would be a demand for it, as there had been in his own, the bedstead, trade. If he ventured to suggest a remedy to chemists, it would be the same in effect. He wondered whether any gentleman present was satisfied with the immorality of the practice which was bringing down their business to the level of no profit, if not of a loss, and whether they were anxious to uphold the principle of giving some things away in order to bring customers to the shops, and merely increase the turn-over. If so, they did not stand on even terms. He believed the present system was ruining the trades of the country, and was doing more harm to the chemists than anything else. He entirely disagreed with the principle which some people believed in, namely, that if they could only increase their turn-over they were certain to make some money in the end. Under some extraordinary circumstances that might be done, but in the majority of cases it was wrong, and could only end in ruin. They were in business to make money, and if they could show him any way in which he could increase his profits, he did not care what they did with his turn-over. When a tradesman believed if he could only increase his turn-over he could make more money he forgot one thing, and that was that if it was right for him to increase his turn-over simply for the benefit of working expenses, it was right for everybody else to do the same. They could not however, increase the turn over beyond a nominal amount without increasing working expenses, try how they might. He knew they did not give all articles away, but if there were some articles they were giving away he dared say they wanted to know the remedy. Probably they agreed they could not do it individually, because they would lose custom, therefore it followed they must do it in some other way, and the only way was to do it collectively. Combined they could do anything, but striving to beat each other they could do nothing but get beaten. Because if there were fifty chemists in Birmingham each one had forty-nine competitors and forty-nine chances against him, but if there was a combination of the whole fifty then every one was helping the other forty-nine, and all were trying to carry out a principle which would do him good as well as every one else. He took it they wanted combination of that kind in Birmingham. Was there any chance of their being united? If he were to propound a scheme which they might think would remedy all their complaints, what chance had they of getting all the chemists in Birmingham to agree with them and join the movement? And supposing they did join nominally, what protection would they have against anyone who cared to break it? He thought they had a fair claim to some further protective legislation, and speaking as one of the public not interested in any way in their trade, when he knew how chemists were affected by legislation, he was strongly of opinion that grocers should be prohibited from selling even what were called homely remedies. The chemist was compelled by his qualification to know what the drugs were, but the grocer was not. That was one of the things they could remedy by combination. They must also have the power to compel men in their trade to do what they knew to be fair. Some people called that coercion and boycotting, and all kinds of names, but personally he did not care what they called it. There were two kinds of coercion. There was the coercion that killed, and the coercion that saved. He said the coercion such as was instituted by the large establishments where large sums were set aside for advertising and brought others down was the coercion which killed, and therefore if he could find out a way against that unfair way of business and defeat its purpose he had a perfect right to do it. They had a chemists' association in Birmingham, and he imagined that in that association they had two-thirds or three-fourths of the chemists, therefore they could refuse to buy or sell any article which was supplied to any chemist in Birmingham who did not sell it at a profit. That was the coercion that would save. Such a scheme could only be carried out under an agreement signed by all parties in the trade, and that such a combination was possible had been successfully demonstrated in the bedstead trade. They had no workpeople answering to those of the manufacturer, but they had at their disposal a class of *employé* of a most responsible kind and of a most indispensable character, with whom it seemed to him easy to make an arrangement which would be thoroughly effective, and certainly assist them considerably in any plan they might have. The assistants might have an association, one of the conditions of which might be the refusal of any assistant to work for any chemist breaking the agreement with reference to selling an article without profit. All it needed to carry out the principle successfully in the retail or the wholesale trade was simply the determination amongst themselves to start the plan, and the courage to carry it to a logical conclusion.

The Chairman said that he was certain they were all more than pleased with the address Mr. Smith had delivered. As regarded the wholesale trade, he for one was quite willing to endorse all Mr. Smith had said, and there was no doubt that the cutting of prices which had gone on for the last few years had affected the whole trade, from those engaged in the distribution to the public, right up to the manufacturer. He was quite sure those present connected with the wholesale trade would give their support to any scheme considered most desirable for the benefit of the great body of retail pharmacists. There were already some successful combinations in the trade in materials, such as in mercury, iodine, the German synthetic preparations, ammonia, quinine, etc., but in the retail trade there were a great many units. From his knowledge of the chemists of Birmingham, he did not think any scheme would bring half of them in, and he would like to ask, supposing twenty-five leading men in the town came together in mutual support, how far it was likely such a scheme could be started? If they waited to get the whole of them in, it would be years to come before they succeeded.

Mr. Smith said he was supposing it was absolutely necessary before they could put in practice a combination like that successfully, that they must get a preponderance of the buying power of the town, because they must make it worth the while of everyone who sold to sell only to them.

Messrs. Southall, Wakefield, Thompson, Magor, Belcher, Gibson (Wolverhampton), W. Jones, F. Barlow, and Arblaster, having briefly joined in the discussion,

On the motion of Mr. Jones, seconded by Mr. G. Perry, a resolu-

tion was carried unanimously, affirming that if any scheme could be drafted in conjunction with Mr. Smith, or otherwise, it would be acceptable to the majority of the chemists of the city, and that those present would be ready to join such movement in carrying it to a successful issue.

It was afterwards decided to call a general meeting of the chemists of the city to further consider the matter.

Liverpool Pharmaceutical Students' Society.—A more than usually interesting meeting was held on the evening of November 14, in the University College, when there was a good attendance of members.

The usual formal business having been transacted, Messrs. S. D. Pickering and W. J. Pugh were elected members, and the President, Mr. T. S. Wokes, then asked for miscellaneous communications.

Mr. Mitchell said he had had to frequently send out a mixture of equal parts of cod-liver oil and Parrish's syrup, and as it was anything but a sightly compound when finished, he tried to make an emulsion, using mucilage of acacia or tragacanth. That answered fairly well but the dose was too much increased in bulk, so he had to try and devise an alternative, and found this in tincture of quillaia, as suggested in the case of chlorodyne by Mr. H. Wyatt, jun., at the last meeting. If 30 mimins of tincture of quillaia be used for each ounce of oil in the mixture, a perfect emulsion is at once formed, and as elegant a preparation as is possible with such a combination of ingredients is the result. As an instance of the peculiar way in which the directions of some prescriptions were drawn up he would put before the meeting the following:—

Kali iodid. .... ℥iii.
1 to 5.

Directions.—Six drops to be taken in half a wineglassful of water three times a day, five or ten minutes to half an hour before meals, or five or ten minutes to an hour or two after meals.

Mr. Mitchell asked on behalf of Mr. Williams what should have been dispensed for syrupus hypophosph. in drachm doses for a child. Evidently B.P.C. compound syrup could not be meant as the dose of strychnine in that might be dangerous. The general opinion of the meeting was that the liq. hypophosph. co. B.P.C. or some similar compound, but in syrup form and without alkaloids, was probably intended by the prescriber.

The next communication, provided by Mr. Pierson, was in relation to a rather nice point in dispensing. He had dispensed a mixture of quinine, iodide of potassium, and hydrobromic acid, made up with peppermint water, and was surprised to see after a short time unmistakable evidence of iodine being liberated from the iodide. The iodide on examination proved to be free from iodate, and the other ingredints pure also, except the peppermint water, which in the stock bottle had a distinct odour of nitrous ether. This was finally explained by a mixture containing spirit of nitre having been made up direct by pouring the peppermint water into the bottle in which the mixture was dispensed, and the volatile nitrous ether passing into the peppermint water stock bottle by displacement had thus contaminated the whole lot. This peppermint water readily liberated iodine from an acidulated solution of an iodide. The President said he had had a similar experience with distilled water spoilt with elixir phosphori, and Mr. Wyatt gave an instance in which distilled water had become contaminated with ammonia. These distilled waters should always be poured into a measure before filling up dispensing phials with them, or bottles fitted with glass taps should be used, and then the contents can be run off without any risk.

A specimen of piper clusii or poivre de clusius used by the West African natives as a condiment was shown by Mr. T. H. Wardleworth, and passed round for the members' inspection.

The President then called upon Mr. John Welsh to read a paper on "Fermentation." This dealt with the subject most exhaustively, but is unavoidably omitted from the Journal owing to the great pressure on space.

At the close an interesting discussion occupied the members for a short time, but owing to the late hour it had to be rather curtailed. A hearty vote of thanks was passed to Mr. Welsh for his instructive paper, and he was elected a member of the Society unanimously.

A letter from Professor Harvey Gibson to Mr. Wardleworth asking him as a member of the L.P.S.S. to bring before the students at the earliest opportunity a promise he—Professor Gibson—had had from the Pharmaceutical Society of a grant of money towards providing for the students the nucleus of a suitable museum of materia medica was then read. The authorities of University College had decided to provide a curriculum of lectures and practical work specially devised for pharmaceutical students, and were determined to try by all possible means to make the experiment of placing within the reach of Liverpool students the advantages at present only to be obtained by their more fortunately situated brothers in London succeed. If the L.P.S.S. would apply to the Pharmaceutical Society for the promised contribution towards the provision of a suitable series of materia medica specimens they would be helping along very considerably the scheme he was sure they must be in sympathy with.

On the proposition of Mr. H. Wyatt, junr., seconded by Mr. Mitchell and supported by Mr. Morgan and others, it was decided to apply to the Pharmaceutical Society for assistance on the lines suggested in Professor Gibson's letter.

Manchester Pharmaceutical Association.—At the opening meeting of this Association on Wednesday, November 13, Mr. G. S. Woolley, President, occupied the chair, and a paper was read by Mr. William Kirkby on "Pharmaceutical Education." This paper is printed in full at page 439. After reading it Mr. Kirkby proposed that the following resolution be adopted by the meeting:—"That this meeting considers it is desirable for the public welfare, and for the advancement of pharmaceutical education, that the preliminary examination should be extended in its scope; and it ventures to suggest to the Council of the Pharmaceutical Society that steps should be taken to accomplish that object."

The President, in seconding Mr. Kirkby's proposition, said that he agreed with most but not all of the opinions which had been expressed. It was in his own opinion certainly desirable that the scope of the present Preliminary examination should be enlarged, and that at least one, if not more, of the modern languages should be added. The Latin and English subjects were stringent enough; at least that was the opinion he formed on looking over the papers of a candidate who successfully figured in a recent Preliminary examination. The value of mathematics could scarcely be over-rated, and he quite agreed with Mr. Kirkby that in this direction the Preliminary examination might well be extended. He objected to riddles being set before candidates, and really some of the questions he had noticed appeared more like such than mathematical problems.

Mr. J. Rymer Young said that those who took apprentices should insist that they pass the Preliminary examination before coming into the business. He regretted that there were some who did not do this, and it was nothing short of injustice to the youths whom they undertook to teach their business; he would not be sorry to see the Pharmaceutical Preliminary examination done away with, and that of the College of Preceptors or the College of Surgeons accepted in lieu of it. The ridiculous and childlike questions which were every week asked in the columns of the pharmaceutical papers were evidence of the neglected studies. How could a youth learn his business in a house where nearly every tincture, infusion, and pharmaceutical preparation was purchased from a wholesale dealer, or in a town of five or six chemists who possessed amongst them all two Pharmacopœias, a "Squire," a "Beasley," and a suppository mould?

Mr. Slack said he had listened with much pleasure to the address of Mr. Kirkby and felt considerably elevated, but his feelings had since had a considerable drop down. If the coming chemists were to be educated to such a high pitch, what were the old-fashioned ones to do? They were, however, as yet able to hold their own, and in his opinion the man who was not so highly educated could wrap up with quite as nimble fingers and could fulfil his ordinary duties quite as well as he who had a higher education.

Mr. Bowden did not think that the medical man of to-day would condescend to send to the neighbouring chemist, however able that chemist might be to do the work, when he required an analysis; he would rather send to the specialist or to his wholesale house.

Mr. Kemp having expressed himself as being in favour of the higher education, Mr. Kirkby briefly replied to the criticisms, and on the resolution being put it was unanimously carried. A most successful smoking concert was held at the close of this meeting. The President occupied the chair, and songs were sung by Messrs. L. Burch, J. F. Chapman, J. K. Dixon, J. H. Franklin, and E. S. Johnstone, all of which were thoroughly enjoyed. Some excellent recitations were given by Mr. Lisenden. Mr. A. H. R. Balmforth, as accompanist, performed his duties with taste and judgment.

MISCELLANEOUS NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

PHARMACEUTICAL FOOTBALL AND CRICKET CLUB. — The annual smoking concert of this club was held in the Council Chamber at the Holborn Restaurant, on Friday, November 15. Professor Henry G. Greenish occupied the chair, and was supported by a large number of officers and members of the Pharmaceutical Society and friends. Amongst those present were Mr. M. Carteighe (President of the Pharmaceutical Society), Messrs. Allen and Warren (Members of Council), Mr. Bremridge (Secretary and Registrar), Professor Green, Dr. Paul, Messrs. Ince, Butt, J. C. Umney, Tanner, E. White, Bateman, Mathews, Martin, T. E. Greenish, G. S. Taylor, J. S. Ward, Bird, Turner, Taubman, Castle, Jones, Short, Young, Andrews, and Fothergill. The programme, which was prepared by Messrs. Ernest A. Umney and Francis U. Stamp, was well appreciated. The artistes, who were Messrs. Allen, Chater, Coles-Webb, White, Stamp, Westlake, Jenner, Walker, Tapley, Wilkinson, and E. A. Umney, were much applauded. The ventriloquial sketch of Mr. Fred Russell and the comic songs of Mr. Alan Dale were enthusiastically encored. The new pharmaceutical song, "Fiat Mistura," composed by Mr. A. J. Freeland, of Kibworth (see *Ph. J. Supp.*, Nov. 16, p. i.), was sung by Mr. L. Westlake, and was also thoroughly appreciated. Messrs. G. W. Allen, H. Jenner, and Gordon gave great satisfaction as accompanists. On the motion of the Chairman a unanimous vote of thanks was accorded with acclamation to Messrs. E. A. Umney and F. U. Stamp for the way in which they had organised the concert, and a similar vote of thanks was also accorded to the Chairman, on the motion of Mr. E. A. Umney. The proceedings were closed in a very hearty fashion by the singing of "Auld Lang Syne."

ARSENIC ADMINISTERED IN MISTAKE FOR MILK OF SULPHUR.—The *North Devon Herald* reports that, at Yagland Farm, Hartland, on November 13, Mr. J. F. Bromham, County Coroner, held an inquest on the body of Mary Elizabeth Burrow, aged eight years, daughter of Mr. Wm. Burrow, who died under peculiarly distressing circumstances on the previous Sunday.—Elizabeth Burrow, the mother, stated that her three children being a little out of health lately, she had been giving them milk of sulphur. Shortly before eight o'clock on Sunday she instructed the servant girl (Bertha Squires) to get some of the sulphur from the kitchen.—Squires returned with a teacup three-parts filled with what witness believed to be sulphur. The morning being dark she did not notice the colour of it, and gave a dose to her child Mary. A few minutes afterwards the deceased began to urge and to be sick. —Witness's husband said "You haven't given the child anything wrong, have you?" and she replied, "No, of course not." On examination, Mr. Burrow discovered, however, that they had given the child arsenic, and Dr. Keays was sent for, but shortly after his arrival the child died. Witness knew there was arsenic in a pot in the kitchen cupboard. The sulphur was partly kept in a canvas bag and partly in a pot. The servant had been with them over seven years, and they had always found her reliable, good, and fond of the children. She felt quite certain that Squires brought the arsenic by mistake. She could not persuade the child to take some hot milk and water after her husband left for the doctor. There was no label on either pot, but that which contained the arsenic was tied down.—William Burrow, father of deceased, corroborated. He kept the arsenic for killing vermin and for the purposes of sheep wash. The arsenic was well out of reach, and it did not occur to him that it was dangerous to keep it in the cupboard.—Bertha Squires also gave evidence. She explained that she had never before fetched any sulphur from the kitchen cupboard. She recollected that a long time ago arsenic was kept in the cupboard, but forgot all about it on Sunday morning. She quite believed when she took the arsenic out of the pot that it was sulphur. It was dark at the time, and she did not notice the colour.—P.C. J. Patt, of Hartland, also gave evidence. His impression was that the girl innocently made a mistake about the matter.—Mr. T. Keays, medical practitioner, of Hartland, said the child died from a dose of arsenic administered to her, in his opinion, by mistake. Even if medical aid had been available immediately after the dose had been taken, it was very doubtful whether the child's life would have been saved. The mother informed him that the child took nearly a teaspoonful, and that was sufficient to poison fifty people.—A verdict of "Accidental Death" was recorded.

THE ROYAL BOTANIC SOCIETY OF LONDON.—This Society has drawn up a memorial on its position and claims, contending that its history and present work are "worthy of far more support than is afforded by the public or by the Parliamentary keepers of the public purse." It is pointed out that "the Royal Society, the Royal Academy of Painters, the Society of Antiquaries, the Geological and Linnean Societies, the Royal Academy of Music, even the British School at Athens, receive aid from Parliament; but the Royal Botanic Society of London is left without aid or subsidy, and is besides encumbered by a heavy rent to her Majesty's Commissioners of Woods and Forests. Up to 1891 a total of £23,000 had been expended in permanent buildings, in addition to the other large costs of forming the gardens. Over 800 students each year have free admission, and about 50,000 cut specimens are annually issued to such students gratuitously. Other features in the Society's work are the encouragement of the cultivation of plants and flowers, the improvement in the quality of British-grown fruit, and the utilisation of flowers, etc., for domestic purposes. For these objects exhibitions have been yearly held in the gardens since 1843, at a large expenditure to the Society, the payment in prizes alone since that year amounting to over £54,000. The aggregate cost of the maintenance of the gardens, and the scientific work carried on in them, is shown by the Society's accounts to be about £6000 per annum. Under these circumstances, the Council feels that the Society has a strong claim to further assistance in continuing the work in which for so long a series of years the Fellows of the Royal Botanic Society have been engaged, remembering that so many other societies are assisted by public grants, or aid in other ways."

REVENUE PROSECUTION AT NORTHAMPTON.—On Saturday last, Evan Ashford, chemist, of Northampton, was charged at the Northamptonshire Assizes with feloniously and fraudulently mutilating stamps (see *ante*, p. 385).—It was alleged that the prisoner purchased some stamps for the purpose of pasting them on some patent medicine, cut them in two, and fastening each piece on separate packets so as to make it appear that half the stamp was covered by the label. By doing this he cheated the Revenue of three farthings on each shilling packet.—Ashford pleaded guilty to six indictments. —The Judge said as the offence was not a common one, he did not see the necessity of making an example of the prisoner. That a man in his position should resort to scheming of this miserable character in order to raise money seemed scarcely intelligible. He would be let off for the present on giving security in £100, and finding a surety in a similar sum, to come up for judgment if called upon.

METROPOLITAN COLLEGE OF PHARMACY.—The second annual dinner of the Metropolitan College of Pharmacy was held at the Holborn Restaurant, on Saturday evening last, when Mr. Patrick Gardiner occupied the chair, supported by Mr. W. Watson Will (Principal), Captain David Peters, Messrs. Calder, Lawson, McGlashan, and several Forfarshire friends. Mr. Will received the guests to the number of about 110, and at 7 p.m. all proceeded to the Caledonian Salon, which had been tastefully decorated for the occasion. Here an excellently-served dinner was followed by an enjoyable musical programme, and this interspersed with speeches passed the time speedily. The chairman proposed "The Metropolitan College of Pharmacy" as the toast of the evening, coupling with it the name of Mr. Will, whom, in the course of a felicitous speech, he congratulated upon the continued success which had resulted from his efforts during the second year of the school's existence. Reference was made to the fact that during the last twelve months 71 per cent. of the Minor and 75 per cent. of the Major candidates who had presented themselves from the school had been successful in their examinations, and he wished specially to mention that an additional success had been gained by Mr. F. H. Tully, one of their demonstrators, who had won the Pharmaceutical Society's Bronze Medal in the last Council Prizes Examination, and he trusted that some amongst them would succeed in emulating his example. Mr. Gardiner's remarks, which were relieved with one or two anecdotes hailing from the "Land o' Cakes," were keenly appreciated by his hearers, who joined him in enthusiastically toasting Mr. Will, with musical honours.

Mr. W. Watson Will, in responding, chiefly confined himself to thanking them for the kind manner in which his name had been received. He referred to the fact that starting with only about

half a score of students, the Metropolitan College of Pharmacy now numbered ten times as many, and he expressed his obligations to the demonstrators who had proved such able coadjutors in the work which had been carried on. The other toasts included the "Demonstrators," proposed by Mr. H. E. Boorne, and responded to by Messrs. G. T. Branch and F. H. Tully; "Students Past and Present," proposed by Mr. James Lawson, responded to by Messrs. R. Ling and A. H. Tuffin; and the "Visitors," proposed by Mr. T. Kempston and responded to by Captain Peters. A most enjoyable gathering terminated close on midnight by the singing of "Auld Lang Syne" in true Scottish fashion.

THE SALE OF PHOTOGRAPHIC CHEMICALS.—A correspondent of *Photography*, who signs himself "Analytical Chemist," betrays his ignorance and rancour in the following letter:—"We have read a good deal lately about the sale of photographic chemicals, and the appeal case in the High Court of Justiciary at Edinburgh reported in last week's *Photography*, should make a fitting opportunity for photographers, amateur and professional, as well as photographic dealers, taking some steps to remedy the inconvenience which has arisen, and is bound to arise, under the Pharmacy Act. The first absurdity is that druggists should be entitled to designate themselves chemists. They are as a rule almost, if not entirely, ignorant of chemistry as a science. The knowledge of chemistry required by a druggist is extremely small, and is forgotten as soon as he is through his Minor examination. A druggist sells his goods either by a popular name or by prescription, giving the Pharmacopœia title. If the average druggist be asked for calcium hypochlorite, he will ask you if it is a new patent medicine, or some other ridiculous question; but say 'bleaching powder,' or 'chloride of lime,' then he knows what you mean, even though the name chloride of lime is erroneous, it matters nothing to him. It appears to me somewhat strange that druggists have usurped the term chemist and not architect or some other; why do they discard the proper term pharmacist? Regarding the sale of poisons, everybody knows that the list of poisons is very incomplete, and, apart from that, there are poisons used in photography which the average druggist does not stock. On one occasion I ran short of potassium oxalate, and sent to a local druggist for some. The messenger returned without it, stating that it was a 'chemical' and he did not keep it. On the other hand, consider the men who deal in chemicals, photographic and general. They are, as a rule, well acquainted with the sciences of chemistry and physics, and know in the majority of cases the properties of the chemicals which they sell. I trust it will be possible to turn the tables entirely, and probably prohibit druggists from calling themselves chemists."

SINGULAR ACCIDENT IN A CHEMIST'S SHOP.—A singular accident occurred on Tuesday afternoon, November 12, in the shop of Mr. Munday, chemist at Tiverton. A son of Mr. Fisher, farmer of Higher Coombe, Templeton, bought a small quantity of nitric acid, and whilst putting the bottle in his waistcoat pocket, the cork flew out and the contents spurted into the eyes of the purchaser. Fearing serious consequences would ensue unless immediately attended to, Mr. Munday called a cab and had Mr. Fisher removed to the Infirmary, where he was attended to by Dr. Welsford and Dr. Chilton, house surgeon. It is believed that his eyesight has been destroyed.

DEFICIENT SPIRIT OF NITROUS ETHER.—At St. Augustine's Petty Sessions, on Saturday, November 9, F. H. Neale, chemist, of Herne Bay, was summoned for selling adulterated spirit of nitrous ether.—Defendant urged that the difference found by the analyst was not due to adulteration, but to evaporation.—The magistrates, however, said they had no option but to fine defendant, who was ordered to pay 15*s.* and 12*s.* 6*d.* costs.

OBITUARY.

FOWLER.—On October 29, Philip H. Fowler, Chemist and Druggist, Manchester. (Aged 50.)

BUCK.—On November 2. Jos. E. Buck, Chemist and Druggist, Luton. (Aged 53.)

TUBBS.—On November 2, T. K. Tubbs, Chemist and Druggist, Lynn. (Aged 80.)

GREAVES.—On November 4, Joseph Greaves, Chemist and Druggist, late of Malvern. (Aged 61.)

HARRISON.—On November 10, Henry Harrison, Chemist and Druggist, late of Southport. (Aged 63.)

SCOTTISH NEWS.

EDINBURGH MERCHANTS AND THE RECENT PHARMACY PROSECUTIONS.—At the annual meeting of the Edinburgh Merchants' Association, held on November 13, Mr. W. D. MacGregor moved the following resolution: "That the recent prosecutions at the instance of the Pharmaceutical Society reveal a state of the law as to the sale of poisons that calls for immediate amendment, the present provisions of the law constituting a harassing and uncalled for interference with legitimate trade; and this association resolves to memorialise the Lord Advocate, the Solicitor General, and the members of Parliament for the city on the subject, and also resolves to co-operate with other public bodies for the amendment of the Pharmacy and Sale of Poisons Act." He pointed out that grocers and others might under the Act be prohibited from selling matches, as they contained a large amount of phosphorus, which was one of the poisons sheduled under the Act. Liquid blue, which was in daily use by nearly every housewife, might also be prohibited, because it contained oxalic acid. Mr. William Foster seconded the motion. Councillor John Jamieson suggested that the matter should be remitted to a committee in order to make fuller investigation and ascertain what were really the provisions of the Pharmacy Act. Mr. J. M. Turnbull pointed out that under the Act confectioners could be prohibited from selling medicated lozenges, because they contained a few grains of opium. Ironmongers and seedsmen also broke the Act, because they sold any amount of poison used for plants. Painters could be prohibited from selling certain colours which contained arsenic, and the same applied to the sale of fireworks. The Act would also be applied to horticulturists and gardeners. An artist would also have to sign a poison book before he could buy a tube of any colour. A curious anomaly was that in the photographic trade some poisons were scheduled, while others of a more deadly character could be sold without let or hindrance. Mr. D. R. Macgregor, the chairman, and others supported Councillor Jamieson's suggestion for delay. After some further discussion, Mr. W. D. Macgregor withdrew his motion, and it was unanimously resolved that the matter be remitted to the general committee for consideration and report, the meeting expressing no opinion on the subject.

FOREIGN NEWS.

MUNICH ACADEMY OF SCIENCES.—An extraordinary meeting of the members of the Munich Academy of Sciences was held in Munich on November 15, a number of corresponding members were appointed, including the following Englishmen:—Dr. Henry Swete, of Cambridge, in the Philosophical and Philological section; Sir Archibald Geikie and Professor Nevil Story-Maskelyne, in the Mathematical and Physical section.

PROFESSOR ADOLF BASTIAN, the well-known Professor of Ethnology in Berlin, attains his seventieth birthday on June 26 next, and a Committee has been formed, under the presidency of Dr. Virchow, to present him on the occasion with a volume of essays on various departments of ethnology, anthropology, and kindred sciences, written specially for the purpose. It is to be handsomely got up, and the necessary funds are to be raised by voluntary subscription.

DEATH OF PROFESSOR WOITOFF.—The death is reported of M. Woitoff, Professor of Bacteriology in Moscow, who has fallen a victim to his favourite science. A year ago he was experimenting with a view of obtaining the bacteria producing putridity, when the phial containing a culture of septic micro-organisms suddenly burst, and a fragment of the glass wounded him slightly in the neck. The wound soon healed, and all precautions were taken, but illness supervened last summer, and the Professor, despite a tour abroad, developed fatal symptoms. His system had been fatally poisoned, and he has succumbed in the Crimea, whither his doctors had sent him.

NATIONAL PHARMACEUTICAL CONGRESS AT MARSEILLES.—More than 3000 pharmaciens were represented at the National Pharmaceutical Congress held in the Town Hall at Marseilles. The questions discussed were of an important nature from a commercial point of view, embracing matters that materially affect the welfare of the profession. M. Sermant, President of the South East Federation of France, opened the meeting by an address in which he explained the reason which had caused the annual assembly to be converted into a National Congress. He was gratified

to see that so large a number of syndicates, emanating from all parts of France, had responded to his invitation, and after welcoming them in the name of his society, desired that a representative committee should be formed. The first proposition, which was unanimously approved, related to the advisablity of forming local federations of pharmaciens, for while it was recognised that the General Association was of great service, it was considered that additional advantages could be gained in the grouping of district pharmaciens, who, by amalgamation, would constitute a solid bulwark for the protection of their craft.

A question of great interest discussed was one concerning the formation of vigilance committees in order to repress the sale of sophisticated drugs by unscrupulous members of the trade, whose aim was to gain the suffrages of the public by selling at low prices drugs the inferior quality of which could not be determined by the consumer. A vigilance committee already exists in the Department of the Seine, and it was considered of such great utility by the Congress that it was deemed expedient that the Departmental Syndicates should form similar committees, and that official recognition should be obtained from the Government, who would be asked to appoint as president a public official (the Prefect, for instance). The latter clause, however, met with considerable opposition, on the grounds that it would be placing the chemist in a subordinate position, and interfere with independent action. After a lively discussion, the following motion was proposed and carried:—"That the National Congress of Pharmaciens expresses a wish to have constituted without delay vigilance committees in each department, in order to supervise the quality of medicines supplied to the public, and invites the Departmental Syndicates to form such committees."

M. Pehl, the President of the General Pharmaceutical Association of France, then drew attention to the injustice attending the interpretation of the existing law on trade marks. As it now stands the law grants the right to any individual, whether pharmacist or not, to register the name of a new medicine as a trade-mark, thus constituting it private property. It suffices for the sole right of use of the registered name to be conceded to any one chemist in a district to prevent his *confrères* from designating the drug by that name, although actually selling the substance that has been obtained direct from the maker. It was contrary to commonsense that any person, qualified or not, should become the proprietor of the name of a medicine, and be able to stipulate conditions to chemists for its sale. He thought it just that the particular manufacture should he the subject of a trade mark in order to distinguish the product of one maker from that of his competitors, but that the name of a chemical should be private property was arbitrary and intolerable. The following proposition was voted unanimously:—"The names of medicines should remain public property, and not be made the subject of a private title, and thus constitute a trade mark."

The Deputy of Marseilles, M. Carnaud, addressed the meeting, promising to give the pharmacists his support at the Chamber of Deputies when the project for the new pharmacy laws is discussed, and he would endeavour to obtain the adhesion of his party in order to protect the interests of the pharmaceutical profession.

The report of the second day's proceedings, relating to the sale of specialties, will be given in next week's Journal.

Novel Treatment of Snake Bites.—What promises to be a new departure in the treatment of snake bites was the object of a communication by MM. Physalix and Bertrand to the Académie des Sciences on Monday. These savants believe that the blood of venomous reptiles constitutes a real antidote to their virus. They have confirmed their opinion by repeated experiments on guinea-pigs, when the effects of a fatal dose of the poison of a viper were counteracted by an injection of four drops of the blood of the snake. M. Bertrand finds that the serum of hedgehogs and adders possess similar antidotal properties. Should these observations be further borne out by experience, a new field of experiment will be opened out in the treatment of bites from other and more deadly snakes such as are common in some parts of India.

Madrid College of Pharmacy.—Chiefly owing to the exertions of Senor Eduardo Talegón, President of this College, the Government has granted it a charter of incorporation, so putting it on the same footing as the State organisations of a like character. To show their high appreciation of Senor Talegón's efforts in their behalf, the collegians gave a banquet in his honour at the Hotel de Rusia, which was largely attended.

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

All Articles, Letters, Notices, and Reports intended for publication in the Journal, Books for Review, and communications respecting Editorial matters generally, must be Addressed "Editor, 17, Bloomsbury Square, London," and not in any case to individuals supposed to be connected with the Editorial Staff. Communications for the Current Week's Journal should reach the Office not later than Wednesday, but news can be Received by Telegraph until 4 p.m. on Thursday.

Any Instructions from Members, Associates, and Students of the Pharmaceutical Society, with reference to the transmission of the Journal, should be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London.

Business communications—including advertisements, orders for copies of the Journal, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London. Cheques and money orders should be made payable to "Street Brothers."

Correspondents who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for illustrations should be executed twice the desired size; clean, sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Queries addressed to the "Editor" will be replied to in the Journal as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries." The Editor cannot undertake to reply to queries through the post.

Reprints of articles cannot be supplied unless authors communicate with the Editor before publication.

LETTERS.

Compressed Tablet Machine.

Mr. F. Foster, of Scarborough, writes:—"In reply to your correspondent, W. A. Wall, who wants to meet with a machine that will 'enable him to dispense two or three dozen tablets as quickly as the same number of powders,' there is not any machine that will do this. In all the automatic feeding or measuring machines the powders must have certain preparation, as described in the article on 'Compressed Tablets,' or they will not feed evenly, and the tablets will vary in weight. In all other machines in which tablets are made from separately weighed powders, the time required to compress the powders into tablets is much greater than is required to fold up the powders in papers."

ANSWERS.

J. H. Thomas.—There is no preparation in the Pharmacopoea Nederlandica under the name you mention, but perhaps the Tinctura Ipecacuanhae there official is what you require. That is prepared by macerating 1 part of powdered root-bark of ipecacuanha in 10 parts of dilute spirit (s.g. 0·887 to 0·892) for eight days.

"Laboratory Assistant."—Please read the notices to correspondents, with reference to anonymous contributions.

R. H. Brackenbury.—(1) To assay coca leaves or preparations, extract with ammoniacal ether, then follow the usual procedure for alkaloidal determinations; (2) Attfield's method is a fairly good one for determining the diastasic value, but a malt extract should digest its own weight of starch in thirty minutes. See also *Pharm. Journ.* [3], xx., 481, as well as vol. xxiii., 889 and 931.

"Legal."—Under the circumstances, since no stipulation appears to have been made when the engagement was entered into, we should imagine you are entitled to the week's salary only.

Communications, Letters, etc., have been received from Messrs. Allen, Baxter, Bayley, Blackburn, Brackenbury, Brown, Clarke, Davis, Foster, Goldby, Gordon, Graeme, Griffith, Hallaway, Harvey, Henry, Hill, Holmes, Hughes, Jackson, Jenkins, Kirkby, Martindale, McKellar, Morgan, Neal, Newbury, Pearce, Powell, Proctor, Robinson, Roper, Russell, Scott, Simmonds, Smith Stokes, Taylor, Thomas, Tudor, Vogt, Ward, Wills, Wright.

"THE MONTH."

Metallic Silicides. The high temperature obtainable in the electric furnace has enabled H. Moissan to prepare silicides of iron, chromium, and silver respectively, by the direct union of the metals with crystallised silicon. The iron compound was obtained in small prismatic crystals, possessing a brilliant metallic lustre. Chromium silicide occurred in small prisms, and silver silicide in transparent hexagons. It is found that the silicides may be formed by the direct union of the silicon and the metals experimented with, either in the solid or liquid state, or the silicon may dissolve in the liquid metal without entering into combination and separate in the crystalline form when the metal solidifies. In a later communication, M. Vigouroux describes the silicides of nickel and cobalt, obtained by Moissan's method. Both are crystalline, possess a metallic appearance, and are steel-grey in colour (*Comp. rend.*, cxxi., 621, and 686).

New Sources of Alcohol. The possibility of obtaining pure ethylic alcohol from *Asphodelus ramosus* and *Scilla maritima* by fermentation, has occupied the attention of G. Rivière and M. Bailhache, who have experimented with pure cultivated wine yeasts. They have previously shown that, by the aid of such yeasts, it is possible to obtain alcohol of good flavour without rectification, from beetroot juice or malted grain. The alcohol obtained from the asphodel and squill is described as being of equally good quality, and the investigators think its manufacture from those sources may constitute a profitable industry, especially in Algeria and Tunis, where both plants grow wild and in abundance (*Comp. rend.*, cxxi., 659).

New Aconine Derivatives. Whilst endeavouring, without success, to synthesise aconitine and benzaconine from benzaconine and aconine respectively, W. R. Dunstan and F. H. Carr have obtained two new derivatives of the last-named compound. Dibenzaconine, $C_{24}H_{37}(Bz)_2NO_{10}$, crystallises from ether in rosettes of needles (m. p. 265°), but is insoluble in water. Its hydrobromide and aurichloride have been prepared. Tetracetyl-aconine, $C_{24}H_{35}(Ac)_4NO_{10}$, is also insoluble in water, but readily soluble in ether and in alcohol. It crystallises in small prisms (m. p. 196°) from either of those solvents (*Proc. Chem. Soc.*, 155, 178).

Volemite and Volemose. In the course of his researches upon the saccharine bodies contained in species of the genus *Lactarius*, E. Bourquelot some years ago extracted from *L. volemus*, Fr., a crystalline compound resembling mannite. To this he gave the name "volemite." It was obtained in fine needles by extraction with alcohol and subsequent crystallisation, and the crystals, which possessed a sweet taste, melted at 140°–142°, the resulting colourless liquid losing water when heated above 200°, and an odour of caramel being developed. Volemite was shown to be very soluble in water, but only slightly soluble in cold alcohol, though the presence of certain organic compounds enabled the latter liquid to dissolve it readily. The aqueous solution deviated the plane of polarised light freely to the right, the rotatory power approaching two degrees. The attention of Emil Fischer was recently directed to the substance for the first time, and he has converted it into the corresponding sugar—"volemose"—which he was able to isolate under the form of osazone. Analysis of this showed that volemite should be represented by the formula $C_7H_{16}O_7$, and that it is therefore the second heptite found in the vegetable kingdom, being clearly separated by its physical properties from perseite and other isomeric alcohols (glucoheptite and galaheptite) prepared synthetically. Fischer gives the melting point of volemite as 141°-142°, and its rotatory power in a 10 per cent. aqueous solution: $[\alpha]_D^{20°} = +1{\cdot}92$ (*Journ. de pharm. et de chim.* [6], ii., 385 and 390).

Toxicity of Acetylene. In view of the probable increasing use of acetylene as an illuminating agent, the experiments of N. Gréhant possess considerable interest. The gas used in this investigation was prepared from calcium carbide supplied by M. Moissan, and the subjects of the experiments were dogs and rabbits. As a result it is stated that toxic effects are produced when acetylene is present in air to the extent of 40 to 79 per cent. The gas is, therefore, much less poisonous than ordinary illuminating gas. The risk of explosion when mixed with air is very great in either case (*Comp. rend.* cxxi., 564).

Serotherapy in Cancer. In a communication presented to the Academy of Sciences some months ago (*Comp. rend.*, cxx., 948), J. Héricourt and C. Richet described the treatment adopted in a case of sarcoma, serum obtained from animals into which the extract from a tumour had been injected being used with beneficial results. They now summarise the results of the same treatment in cancerous cases generally. Pain has been diminished, ulcerations ameliorated, tumours reduced in bulk, the progress of disease checked, and the general condition of the patients improved. No absolute cures have yet been effected, however, and it is difficult to affirm with certainty whether or not the serum is a specific in cancer. The serum is said to be quite harmless in use, and Héricourt and Richet consider that it produces great improvement more rapidly than any other known remedy. The effects are also described as being such as almost to approach the cure of the disease (*Comp. rend.*, cxxi., 567).

Emulsin of Aspergillus. E. Bourquelot and H. Hérissey have further investigated the properties of the ferment found in *Aspergillus niger* and *Polyporus sulphureus* (*vide Ph. J.* [3], xxiv., 263), and find that, in addition to amygdalin, salicin, and coniferin, it decomposes arbutin, esculin, helicin, populin, and phlorizin, but has no action on solanin, hesperidin, convallamarin, convolvulin, and jalapin. The only respects in which this ferment seems to differ from the emulsin of almonds are that the latter does not affect populin or phlorizin, whilst the ferment of *Aspergillus* does not act upon milk sugar, which Fischer finds is decomposed by the emulsin of almonds (*Journ. de pharm.* [6], ii., 435).

Purification of Oils. M. Villon, being of opinion that pure oils should never become rancid, has sought to purify commercial oils by removing all mucilages, albuminoid matters, fatty acids, colouring substances, etc., by a process of filtration. He makes use for this purpose of a commercial product named "algosin," which resembles algin, and, like it, is obtained from marine algæ. It resembles tragacanth in appearance, and combines with alkalies to form non-crystallisable salts, which look like

gelatin and are very soluble. A concentrated solution of algosin, agitated with olive or similar oil for some time, frees it completely from foreign substances, a deposit forming that can be filtered out after the oil has stood for twenty-four hours. After treatment the oil is said to be practically unalterable, a sample remaining free from rancidity or disagreeable taste after being exposed to the air for more than twelve months. Comparative experiments on ordinary and "sterilised" oils, exposed to the air for fifteen months, yielded the following results:—

Oil.	Original acidity.	Acidity after treatment.
Olive	1·23 per cent.	0 01 per cent.
„ after 15 months	6·18 „	0 03 „
Sesame	1·25 „	0·00 „
„ after 15 months	6·80 „	0 03 „
Earth-Nut	2·55 „	0·01 „
„ after 15 months	15·71 „	0·02 „

(*Rev. de chim. indust.*, through *Journ. de pharm.* [6], ii., 423).

Liquefaction of Gelatin. Under certain conditions A. Dastre and N. Floresco find that hot solutions of gelatin remain fluid on cooling. This loss of the power of gelatinisation may be caused by the prolonged and repeated action of boiling water on gelatin or even by the fleeting action of water at a very high temperature, or by saline solutions, and also under the influence of gastric and pancreatic ferments or of certain microbes. As a matter of fact, it is stated that contact with warm water always modifies gelatin to some extent, but the change only becomes evident when the treatment is prolonged. The product of the change is "gelatose" or protogelatose, which is characterised by its inability to gelatinise, non-precipitation in the presence of excess of sodium chloride, and the entrance of water into its composition, that liquid having combined with the gelatin from which the gelatose is derived. Gelatose is also formed by the action on gelatin of the microbes (*microbes liquéfacteurs*) which are distinguished by their power of liquefying culture media, as well as by the action of certain neutral salts, such as alkaline iodides and chlorides. This "saline digestion" strongly resembles that caused by the action of gastric and pancreatic ferments, and is readily effected by the use of 10 per cent. solutions of the salts, the transformation of gelatin into gelatose being then complete. The extent to which the change has taken place is readily determined, since the gelatinising power of the solution is inversely proportional to the amount of gelatose that has been formed, and is not entirely lost until the whole of the gelatin has been converted (*Comp. rend.*, cxxi., 615).

Fermentation of Cellulose. V. Omelianski is of opinion that the *Bacillus amylobacter*, which is generally regarded as the especial cause of the fermentation of cellulose, is not a separate species, but includes a number of forms which act as butyric ferments, and that none of these possesses in any marked degree the property of decomposing pure cellulose. On adding Swedish paper, chalk, and a trace of Neva mud to a solution containing potassium phosphate, and magnesium and ammonium sulphates, a lively fermentation occurred when the mixture was exposed to air at a temperature of 30°–35°. The paper became yellow, transparent, then gelatinous, and finally disappeared, the chalk being also dissolved. By utilising Winogradsky's elective culture method, the bacillus supposed to be the cause of this decomposition of the cellulose was obtained in a pure state, and is described by Omelianski, who proposes to deal with the phenomena it provokes in a subsequent communication (*Comp. rend.*, cxxi., 653).

Essential Oil of Cannabis Indica. Vignolo finds that the essential oil of *Cannabis indica*, purified by distillation in a current of steam and extraction with ether, is a mobile liquid boiling at 248°-268°. After repeated distillation from metallic sodium in order to remove a stearopten, it yields a sesquiterpene, $C_{15}H_{24}$, as a mobile colourless oil of aromatic odour, which boils at 256°, has a density of 0·897 at 15°·3, and is slightly lævo-rotatory. This oil soon resinifies on exposure to air, and on adding concentrated sulphuric acid to its chloroform solution the liquid becomes first green, then blue, and red on heating. Vignolo concludes that the "cannabene" prepared from this essence by Personne was a mixture (*Gazzetta* and *Jour. Chem. Soc.*, lxviii., 623).

Opium for Tincture. The percolation of finely powdered opium alone having been found impracticable as a process for making that tincture in the United States, the addition to the fine powder of 50 per cent. of precipitated calcium phosphate was directed in the last edition of the U.S.P. The use of coarsely powdered or "granulated" opium has, however, been received with increasing favour during late years, and in a recent paper by L. F. Kebler and C. H. La Wall, comparative results are stated, which seem to prove conclusively that this method is decidedly preferable. In a number of experiments it was found that the loss of morphine when the tincture was made by the U.S.P. process varied from 1·40 to 2·42 per cent., whilst the granulated opium process showed a loss of 0·15 to 0·65 per cent. only. In addition, the time occupied by the official process was from sixty hours to six days, but by the alternative process ten to thirty-six hours sufficed. Economy is effected, therefore, in two respects (*Amer. Journ. Pharm.*, lxvii., 554).

Ants and Orchids. According to J. H. Hart, the presence of ants seems to be essential to the well-being of certain orchids. Whether the effects produced are directly due to ants, or to some indirect cause, has not yet been determined. The author is inclined to the opinion that the ants confer benefit on the plant by providing it with the mycelium of a fungus to cover its roots, this organism enabling it to take up food which would otherwise be unavailable. It may be that the presence of stinging ants protects the plant, but Mr. Hart thinks it is almost certain that the fungus, which grows in the material that the ants accumulate round the root, plays an important part in the nutrition of the plant by providing it with food material (*Nature*, lii., 627).

Oil from Rubber Tree Seeds. The seeds of the rubber tree yield a large quantity of oil which compares favourably with linseed oil. At present this oil has been extracted in small quantities only, but with more systematic regulation of the rubber industry it is probable that the rubber tree seed will be included among the more valuable economic products. If it proves that such oil, similar to linseed oil, can be obtained in paying quantities from these seeds, it is probable, says *Popular Science*, that from this will be produced the ideal rubber substitute. The nearest approaches to a substitute for indiarubber have been made from linseed and kindred oils, and perhaps the oil of the rubber seeds may be exactly what has been looked for.

Test for Sugar in Urine. Schreiber recommends the use of a test solution consisting of :—

Cupric sulphate	2 parts.
Sodium salicylate cryst.	2 „
„ carbonate „	8 „
Distilled water to 100 parts.	

The filtered solution has a dark green colour, and the reducible constituent is cupric salicylate. On boiling 5 C.c. in a test tube the precipitate formed is from grey to black, with a coating of the same colour upon the surface of the tube, consisting of cupric oxide. When the same quantity is mixed with a few drops of saccharine urine and boiled, a dirty green precipitate is formed, together with a yellowish deposit upon the sides of the tube, which is cuprous oxide. On adding some more of the saccharine urine the reduction is more complete, and the whole of the precipitate assumes a yellow colour. In applying the test a mixture of 5 C.c. of the solution and 5 C.c. of the urine to be tested is boiled in a test tube until a precipitate is formed. If that be grey or black, the urine is free from sugar; but if it be yellow, the urine contains sugar.

If 5 C.c. of the test solution	requires 2 C.c. of urine to produce a yellow precipitate,	the urine contains 10 per cent. of sugar.
„ „	2·1	8·0 „ „ „
„ „	2·2	6·0 „ „ „
„ „	2·3	4·0 „ „ „
„ „	2·4	2·0 „ „ „
„ „	2·5	1·0 „ „ „
„ „	2 6	0·8 „ „ „
„ „	2·7	0·6 „ „ „
„ „	2 8	0·4 „ „ „
„ „	2·9	0·2 „ „ „
„ „	3 0	0·1 „ „ „
„ „	3·1	0·08 „ „ „

—(*Apotheker Zeitung*, x., 781).

Lead Ointment Without Fat. Gawalowski states that when sugar of lead is dissolved in glycerin, and the solution gradually cooled until crystallisation takes place, the lead salt separating on stirring closely resembles tallow in appearance : it is soluble in water, melts at the temperature of the body, and is readily absorbed by the skin. After some time the preparation becomes crystalline, and consequently it must always be prepared at the time it is required (*Pharm. Post*, 1895, 566).

Cardol. Spiegel and Dobrin have analysed the oil occurring together with anacardic acid in the pericarp of the cashew nut (*Anacardium occidentale*) and find that its composition is represented by the formula $C_{32}H_{50}O_3H_2O$, the molecular weight being 500. The formation of an acetyl compound showed the presence of one hydroxyl group. Reduction with sodium gave a product having the formula $C_{32}H_{52}O_2$, and distillation with zinc dust a hydrocarbon C_8H_8 cardene apparently related to styrol. Oxidation gave oxalic acid and a nitrogenous compound $C_{30}H_{52}NO_{12}$, and cardolic acid $C_{15}H_{28}O_7$. Oxidation with permanganate gave anacardic acid, $C_{13}H_{24}O_5$; and cardenic acid, $C_{16}H_{30}O_7$. Physiological experiments showed that the blistering action of the oil is probably due to the presence of substances dissolved in it (*Pharm. Gesellsch.*).

Fellitin. A preparatiom made under this name by K. F. Tollner, of Bremen, for prevention of chilblains, is said to consist of purified ox-gall in the form of a natural soap, and to be useful as a cosmetic (*Pharm. Centrh.*, xxxvi., 679).

Application for Burns. Leistikow calls attention to the remarkable efficacy of ichthyol in relieving the pain of burns. He recommends its use as powder in soft paste and as a salve mull, giving the following formulæ :—

Powder—

Zinc oxide	20 parts.
Magnesium carbonate	10 „
Ichthyol	1 to 2 „

Paste—

Calcium carbonate	10 parts.
Zinc oxide	10 „
Starch	10 „
Olive oil	5 „
Lime water	10 „
Ichthyol	1 to 3 „

—(*Monat. f. prakt. Dermat.*, 1895, 441).

Detection of Poivrette. A reagent for this purpose is made by digesting 1 gramme of phloroglucin in 50 to 60 C.c. of hydrochloric acid for three days, and decanting the clear solution. To a few grains of the pepper add enough of the reagent to cover it, and heat cautiously till fumes of hydrochloric acid begin to be evolved. Martelli states that poivrette and like substances, such as ground shells of almonds, nuts, walnuts, give an intense, cherry-red colour, easily distinguished by the naked eye, while genuine pepper is coloured yellow or faintly red-brown. On adding water to the mass and decanting, a violet-red mass is left, consisting almost wholly of poivrette stained by the reagent (*Public Health*, viii., 56).

Distinctive Test for Antifebrin, Phenacetin, and Antipyrin. These substances give the following results when heated with zinc chloride in a test-tube :—

Antifebrin	Aromatic vapours.
Phenacetin	Pungent vapours, acetic acid.
Antipyrin	An odour resembling carbon bisulphide.

—(*Répert. de Pharm.*, 1895, 407.)

Iodoformin. Under this name a preparation has recently been introduced which has been produced at the suggestion of Dr. A. Eichengrun by Dr. L. C. Marquardt, of Bonn, under a patented process. It is a colourless pulverulent substance, without smell, and very sparingly soluble in ether. By contact with acid or alkaline liquids, iodoform is separated, and while its efficacy as a substitute for iodoform is due to this property, it has the advantage of being in itself free from the objectionable smell of iodoform. It is stated to be a chemical compound containing about 75 per cent. of iodoform. E. Konteschweller suggests that this substance may be analogous to, if not identical with, a compound obtained by him some years ago by mixing alcoholic solution of iodoform with an alcoholic solution of hexamethylene tetramine (Schering's urotropin). Chloroform solutions may be used, and the precipitate formed on mixing is decomposed by contact with water, evolving iodoform (*Pharm. Centrh.*, xxxvi., 651).

Emperor Butter. A patent has been granted in Germany for the preparation of easily digestible fat by admixture of lævulose, or substances containing it. Such a mixture is said to emulsify readily in the stomach or with water at a temperature of 37° C., and consequently to be more easily digestible. It is prepared by stirring butter at 70° C. with a solution of lævulose at the same temperature, and continuing the stirring until the mass is cold (*Pharm. Centrh.*, xxxvi., 680).

PHARMACEUTICAL TESTING.

BY BARNARD S. PROCTOR.

Pharmacists apparently require frequently reminding of their responsibility regarding the sale of any article named in the B.P. to supply it of B.P. quality, and the consequent necessity of examining preparations which they do not make for themselves. Probably few now make mercurial ointment. In my establishment there has been none made for fifty years, excepting one or two experimental batches, and our purchases during the same period have only yielded us two samples that raised any suspicion of questionable quality. One of these looked unusually pale in colour, and proved to have globules of mercury still visible; the other was unusually dark. Both were obtained from makers of high repute, and both proved to contain the legitimate proportion of mercury; nevertheless, it may interest the trade to have an account of a simple method of dispensing counter testing I have recently adopted, which yields fairly accurate results in the hands of Minor men. It may be performed as follows:—

Mercurial ointment, ℈ij. Put it in a small flask and add—

Benzol	℥ij.
Water	℥ij.
Iodide of potassium	℥ss.
Iodine	gr. 23.

Warm till the ointment melts. Shake till the iodine dissolves. The brown colour should disappear, the resulting liquor being turbid and rather dirty looking but not brown, otherwise there is a deficiency of mercury. Two grains more iodine being added the brown colour is permanently restored. The theoretical quantity of iodine for neutrality is 24·6 grains, and the defining of the quantity as between 23 and 25 is probably as close as should be looked for in pharmaceutical work, and that no doubt would have sufficed to save our North London friends from the annoyance of public prosecution.

A test for the strength of tannin solutions which I devised some years ago, but have not hitherto published, may also have some interest, though not in relation to drug adulteration. It was brought into use a few days ago when a lady brought a few ounces of a tannin gargle, which she had obtained in another part of the kingdom, and desired we should prepare a further supply of the preparation having the same tannin strength.

Though tannin is slowly and imperfectly precipitated from its aqueous solutions by iron salts generally, the ferric salts are precipitated better than ferrous, and the acetate better than the chloride, and the presence of alcohol renders the precipitation speedy and complete. A solution was prepared by mixing—

Tinct. ferri perchlor. B.P.	℥ss.
Liq. ammon. acet. fort.	℥ss.
Spirit meth.	ad. ℥ij. M.

This solution was found to effect the complete precipitation of the tannin from an equal volume of a solution containing ℈i. of tannin in 2 ounces, the solvent being weakly alcoholic. When the solutions are mixed a thick, black magma is immediately produced, in which settling of the precipitate would be quite hopeless, but if a drop is let fall upon bibulous paper, a black spot is formed, surrounded by a nearly colourless margin, and the neutrality of this margin may be readily indicated by its not developing colour when touched by a drop of either of the reagents—iron or tannin.

The most convenient mode of operating is to make a number of spots of the iron solution upon white blotting paper. Mix half an ounce of the gargle with an equal volume of methylated spirit, add to this half a drachm of the iron liquor, stir well, and let a drop of the mixture fall upon the blotting paper very near to one of the iron drops, so that the spreading of the liquor in the substance of the paper causes the filtered margin of the drop to come into contact with the iron stain, where it will cause a dark line if the tannin be still in excess. Further additions of iron liquor to the tannin are to be made in the same way, testing after each, and making the additions smaller as the increasing faintness of the dark line of contact indicates that the neutral point is approaching. When the dark line ceases to be produced, count the number of minims of iron solution that have been used. Every 16 minims used indicates 1 grain of tannin in the half ounce of gargle operated upon. The gargle tested was found to contain honey also, but that did not interfere with the accuracy of the indications, as was proved by preparing a gargle of the calculated strength, containing honey, and repeating the tannin determination with the same results.

SHORT NOTES ON THE PREPARATIONS AND FORMULÆ OF THE BRITISH PHARMACOPŒIA.

OINTMENTS.

(*Concluded from p.* 435.)

Ung. Picis Liq.—This formula gives a faultless result. The ointment seems as if it would retain its pliant and consistent softness indefinitely—a desideratum long aimed at in vain.

Prescribed twice in 12,000 prescriptions.

Ung. Plumbi Acet.—Contemporary pharmacopœias order the lead salt to be rubbed smooth either with a little oil or with a little water before adding the basis. A competent pharmacist might always include this in his view of the directions "mix thoroughly," but as one object of a pharmacopœia is to guard against incompetence, here, as in other formulæ, the directions might be more explicit. Anhydrous glycerin in a very small quantity is better than either water or oil.

Prescribed 7 times in 12,000 prescriptions.

Ung. Plumbi Carb.—The remarks on ung. plumbi acet. apply with almost equal force. Although the plumbi carb. is ordered to be in very fine powder a little gentle levigation into a creamy mass is absolutely necessary to procure a good result. Oil, water, or even paraffinum molle would do, but pure glycerin is far the best. There is a formula for this ointment under the term "ung. cerussæ," in all contemporary pharmacopœias except that of Rome.

Prescribed not at all in 25,500 prescriptions.

Ung. Plumbi Iodidi.—This is truly an elegant ointment when properly prepared. Simple ointment, however, is not a suitable basis. The best result seems to be obtained by rubbing the iodide with an equal quantity of pure anhydrous glycerin, and using as a basis benzoated lard, as ordered in both the French Codex and in the U.S. Pharmacopœia. It may be necessary in some cases to inform ointment makers that metallic tools must be discarded in the manufacture of ointments that contain metallic iodides or free iodine.

Prescribed 6 times in 12,000 prescriptions.

Ung. Potassæ Sulphuratæ.—It is worth consideration whether this ointment should not be deleted. The writer has not seen a sample worth handling, nor has he been able, after repeated attempts, to prepare it to his own satisfaction.

Prescribed not at all in 25,500 prescriptions.

Ung. Potassii Iodidi.—This ointment, if kept in stock, is seldom met with in a presentable condition, but if pure glycerin be used in the preliminary trituration instead of water, and the whole finished off with clean bright knives and attention to other minutiæ, a very good-looking, odorous, and stable product is obtained, without the least grittiness or other objectionable appearance.

Prescribed 10 times in 12,000 prescriptions.

Ung. Resinæ.—This formula might be simplified as follows:—

Take of—

Pure beeswax, Almond oil (English), Amber resin	of each	8 parts.
Prepared lard		6 parts.

Melt together the wax and lard in the oil with the heat of boiling water, and whilst quite hot, add the resin in powder by sifting it over the surface of the hot fat, stirring meanwhile until well mixed and dissolved; then remove from the source of heat and keep stirred diligently until cold.

No straining is required if the ingredients be clear and good, and by this mode of procedure an ointment is obtained which leaves nothing to be desired as to colour, texture, and keeping qualities.

Prescribed 7 times in 12,000 prescriptions.

Ung. Sabinæ.—The unsatisfactory nature of this preparation is an old grievance. The antiquated notion of maceration in hot fats with subsequent straining is by no means a survival of the fittest. A pharmacist would naturally think that since ol. sabinæ is fairly representative of the active qualities of the drug it would suffice to mix the oil with lard or simple ointment.

Prescribed twice in 12,000 prescriptions.

Ung. Simplex.—Contemporary pharmacopœias all give a formula for ung. simp., and most of them are more simple than ours, the ingredients being either wax and lard or wax and oil. It might be well to have two ointments—one of wax and oil the other of wax and lard, not benzoated. Both would come very handy to the pharmacist at times, and most likely to the therapeutist as well.

Prescribed 10 times in 12,000 prescriptions.

Ung. Staphisagriæ.—This is described as containing "about 10 per cent. of oil of stavesacre." A neater ointment with better keeping qualities might be prepared by triturating exactly 10 per cent. of the oil with lard or simple ointment.

Prescribed not at all in 12,000 prescriptions.

Ung. Sulphuris.—There seems every reason to be satisfied with the present formula, but the directions might be extended with advantage. "Triturate the sulphur to remove its usual grittiness, then add a fourth part of the basis, and mix well, finally add the remainder and mix the whole thoroughly."

Prescribed 8 times in 12,000 prescriptions.

Ung. Sulphuris Iodidi.—There seems to be no reason why lard or simple ointment should not be used in this preparation. There would not then be any need for heating, nor for the somewhat clumsy method of adding hot melted grease to a cold substance in a cold mortar. Rub the sulphur iodide with a little alcohol, and mix in the basis.

Prescribed not at all in 12,000 prescriptions.

Ung. Terebinthinæ.—The following modification of the present formula is proposed:—

Take of—

Oil of turpentine		8 fluid parts.
Amber resin, in coarse powder		1 part.
Pure beeswax, Prepared lard	of each	4 parts.

Melt together the wax and lard by the heat of boiling water, let the resin be distributed over the surface of the melted fat, stirring diligently the while so that all may be dissolved. Now remove the vessel from the source of heat and stir; when the mass is about to congeal, add the oil of turpentine and continue the stirring until it is quite cold.

Prescribed not once in 25,500 prescriptions.

Ung. Veratrinæ.—This formula is not at all satisfactory. The following answers perfectly well:—

Take of—

Veratrine	8 grains.
Absolute alcohol	1 fluid drachm.
Benzoated lard	1 ounce.

Dissolve the veratrine in the alcohol and rub together with the lard in a mortar so as to mix thoroughly.

Prescribed not once in 25,500 prescriptions.

Ung. Zinci.—The present is a very good formula indeed, and has tended to enhance the reputation of zinc ointment very much, both in the popular and the professional spheres. It is much to be wished that the proper kind of zinc oxide to be used should be mentioned; whether the yellowish, which is prepared by ignition of the carbonate, or the perfectly white obtained by precipitation, for then the common white kind obtained by combustion and containing particles of metallic zinc would be excluded.

Prescribed 46 times in 12,000 prescriptions.

Ung. Zinci Oleati.—If this formula is to be retained, the yellow variety of paraffinum molle should be ordered. When prepared with either white or yellow it will not keep very well, but the white variety mixed with oleate of zinc very soon goes wrong; the yellow under the same conditions will keep a month pretty well. The following seems to be a better formula:—

Take of—

Oleate of zinc	1 part.
Pure beeswax	$\frac{1}{4}$ part.
Prepared lard	$\frac{3}{4}$ part

Melt together with as little heat as possible, and stir constantly whilst cooling.

Prescribed 8 times in 12,000 prescriptions.

THE PREPARATION OF MONSELL'S SALT.

BY G. E. WESTLEY.

This salt, $FeSO_4 \cdot (NH_4)_2SO_4 \cdot 6H_2O$, is much used in volumetric analysis to titrate such solutions as $K_2Cr_2O_7$ and $K_2Mn_2O_8$, these being required for the determination of several pharmacopœial products, especially ferrous salts and reducing agents generally. The method usually to be met with in books (*vide* Sutton, ed. 1890, p. 107), has not been a success in my hands, and acting upon the method for making ferri sulphas granulata, B.P., a product of a very satisfactory nature has been produced, which, like its prototype, is in a fine granular form, and assays 100 per cent. with pure bichromate. The plan adopted was as follows:—

Take of—

Ferrous sulphate	278 grains
Ammonium sulphate	132 „

According to this equation—

$$FeSO_4 \cdot 7H_2O + (NH_4)_2SO_4 = (NH_4)_2Fe(SO_4)_2 \cdot 6H_2O + H_2O$$

278 132 392 18

These two sulphates are dissolved in a small quantity of cold water, the solution filtered if necessary, and warmed gently at 35°–40° C. to promote chemical action. Too great heat must not be used, or the solution will be decomposed with production of a ferric oxysulphate. The solution thus formed is poured into methylic alcohol, which precipitates the ferrous ammonium sulphate in fine granular crystals. These are collected on a calico filter, washed with a little methylic alcohol of the strength of proof spirit, and finally dried at a moderate temperature (35°–40° C.), or better, in the air, avoiding dust, etc.

PRACTICAL MICROSCOPY.

Varnish for Finishing Slides.

In selecting a varnish for finishing slides on which microscopic objects are mounted, it is well to bear in mind that the cedar oil used with immersion objectives is a powerful solvent, and may irretrievably damage valuable slides finished with a varnish containing ingredients soluble in the oil. Since it is generally found advisable, for the sake of uniformity, to use one and the same varnish always, this should be selected with due regard to the possible use of cedar oil as an immersion fluid. One of the simplest varnishes to make and use—sealing wax varnish—is also unaffected by cedar oil. It should be made by dissolving the finest sealing wax (preferably black) in methylated spirit, and of such consistency as to flow readily from the brush. Before applying the varnish, the cover-glass should be firmly cemented with caoutchouc cement Beale's formula: Dissolve separately equal parts of bottle india-rubber and shellac in mineral naphtha, then mix with the aid of heat, and thin with naphtha to desired consistence) or the Gram-Rützou composition (Canada balsam, 5 Gm.; shellac, 5 Gm.; absolute alcohol, 5 Gm.; ether, 10 Gm.). When the cement is quite dry, and not before, apply a thin coat of the varnish. A somewhat important point is the kind of brush to use. Best of all are sable "writing pencils," "crow" and "small duck" being suitable sized quills. These do not come to a point when in use, and form perfect rings with less trouble than those that do. They should be carefully washed after use in alcohol, mineral naphtha, or turpentine, according to the nature of the cement or varnish employed.

Preparation of Clear Nutritive Agar.

In preparing a nutritive medium from agar-agar, difficulty is often experienced in obtaining a clear product, filtration being very tedious. A simple apparatus, devised by Dr. M. Bleisch (*Centralb. für Bakt. und Parasit*, xvii., 403), obviates the necessity of filtration and yet enables a clear preparation to be obtained. A cylindrical glass vessel of about two litres capacity has openings at top and bottom. A perforated rubber cork closes the lower opening, and through it slides a glass tube, long enough to reach the top of the cylinder. Fix the latter in a retort-stand clamp, and pour in the prepared agar until it nearly reaches the top of the sliding tube, then place the whole apparatus in an oven at 50°–60° C., until all the solid particles have been deposited. The apparatus is now removed, a rubber tube with a clamp is fitted to the lower extremity of the glass tube, and the latter then drawn down a few centimetres below the surface of the agar. On opening the clamp, the clear agar runs through and is collected in a suitable vessel, and the glass tube is gradually lowered from time to time until the whole of the clear fluid is removed. It is stated that precipitation of the solid particles may be facilitated by substituting sodium phosphate for the carbonate generally used.

Storax as a Mounting Medium.

Permanent preparations can be mounted in storax, according to Dr. H. G. Piffard (*Med. Record*, 1895, 547), if it be prepared as follows:—The storax is liquefied on a water bath, then filtered through two or three thicknesses of cheese-cloth on a hot-water funnel, and when cold mixed with an equal weight of xylol. Shake well several times daily, for at least two weeks, then filter two or three times through absorbent cotton or Swedish filter-paper, and evaporate at a gentle heat to the consistency of treacle. Finally, to each two parts of the fluid add three parts of naphthalin monobromide, and heat gently until a clear amber-coloured fluid is obtained. Preferably, the refractive index of the medium should be brought to 1·625, by adding more of the ingredient that may be found deficient, and the product will then be found suitable for work with the highest powers.

The Staining of Cellulose.

Varying results may be obtained on staining cellulose, according to its age, young and soft tissue absorbing stains with least difficulty, whilst maturer tissues may remain unaffected by the same stains. Dr. E. G. Love, whose paper was recently reprinted in the Journal (*ante* p. 290), studied this subject and made comparative tests with a view to determining the value of different stains. He found that some stains, such as hæmatoxylin, require no mordant to fix them, whereas carmine stains generally require a mordant, such as alum. The mordant may be mixed and applied with the stain, or it may be used subsequently, or, again, the tissue may be impregnated with the mordant before the stain is applied. There are thus four ways of staining tissues. The last-mentioned was found best for preparations that are difficult to stain. In the specimens of cotton and linen fibres treated the cellulose was, of course, not in such a receptive condition as young and soft cellulose tissue, for in proportion as the cellulose increases in density it offers a greater resistance to the action of stains. Thus, Grenacher's solution of carmine in alum was found to produce a slight reddish tint only after twelve hours; Thiersch's solution in oxalic acid, a dull rose colour after eighteen hours; and borax carmine, with oxalic acid as a mordant, was no better than Grenacher's solution. The cotton-fibres were stained light blue by hæmatoxylin and alum, but any depth of colour could be obtained by applying a mordant (alum, aluminium acetate, copper sulphate, or acetate) first. Methyl green produced a deep green when the fibre had been previously mordanted, but light green if stained first.

Rough Double Staining.

The purpose of the foregoing note is to show that staining, to be satisfactory, should not degenerate into a mere rule-of-thumb process. But, according to F. Ritchie (*P. M. Club*), vegetable sections may be almost instantly double-stained by dipping them for a few seconds into a watch glass resting on a piece of white paper and containing half a teaspoonful of ammonia carmine solution and one drop of aniline green solution. On removal of the sections, it is recommended that they should be freed from excess of staining fluid by means of blotting-paper, "then float and dabble quickly in alcohol and draw off excess, float in clove oil, and mount in balsam or dammar." The most brilliant effects, it is observed, are gained after bleaching the sections. From an educational point of view, however, the effects produced would possess no value whatever. The process of staining to be of any assistance in study and research must be conducted with as much care and attention to details as chemical experiments of any other kind.

Oil of Cassia as a Medium.

Oil of cassia has a higher refractive index than cedar oil, and Dr. H. G. Piffard finds it brings objects examined in it into sharper contrast. In a paper read before the New York Academy of Medicine, he stated that he had worked with a sample having a refractive index of 1·593. Bacilli examined in this oil exhibited an unrivalled brilliance and sharpness of contour. The minuter details also, such as spores, flagella, etc., are shown with a distinctness impossible in cedar oil. The oil of cassia, like the oil of cloves tends to abstract the colour from bacilli stained with some of the aniline dyes, a disadvantage not shared by cedar oil, but it is stated that this does not take place with sufficient rapidity to interfere with the diagnostic examination.

PHOTOGRAPHY FOR CHEMISTS.

Lantern Slide Making.

One feels that with the departure of summer the camera should be put away, and attention turned to lantern slide making, or the use of the camera confined to merely indoor work. It may, however, be taken for granted that some of the finest pictures are to be obtained in the winter and late autumn, and notwithstanding the discomforts of rain, cold feet and hands, the camera should not be put on the shelf till next spring. Still, during the long winter evenings when outdoor work is actually impossible, lantern slide or transparency making fills up very well the spare moments, as the whole of the work can be done by artificial light.

There are two distinct methods by which lantern slides can be made—by contact printing, and by reduction. For the former, all that we require is a negative, a printing frame, and some lantern slides, besides, of course, the usual developers, dishes, etc.

The usual size for lantern slides is $3\frac{1}{4} \times 3\frac{1}{4}$ inches; therefore unless we made our negatives on plates of that particular size it is obvious we can only include a portion of the view. To determine what particular part to make into a lantern slide it is just as well to use one of the black paper lantern masks and shift this about over the negative till the subject appears suitably arranged, then noting the position of two opposite corners of the mask, as regards objects in the negative, place the lantern plate in contact with the negative, the two films being, of course, together, and then carefully fit the back of the printing frame in, taking care not to shift the plate in any way, fasten down the springs, and all is ready for exposure.

It would possibly be as well to consider the choice of a lantern plate. There are three distinct kinds—the bromide, the chloro-bromide, and the chloride plates. The first are coated with an emulsion of bromide or bromo-iodide of silver, the second, as their name implies, with an emulsion of chloride and bromide of silver, the third with pure chloride of silver emulsion. The bromide plate will give either black or warm purple, or brown tones according to their method of manufacture, the length of exposure, and the developer used.

The chloro-bromide plates will also give either black or warm tones, and with suitable treatment much warmer tones than the pure bromide; whereas the chloride plates will do the same, but give even warmer tones than the chloro-bromide, and require as a rule the use of magnesium ribbon for exposure.

The following is a list of the leading makes of lantern plates with their relative speeds, the most rapid being stated as unity, so that the values represent the necessary exposures under equal conditions:

Imperial Special	1
Paget Rapid	1
Barnet	$1\frac{1}{4}$
Cowan's Chloro-bromide	2
Ilford's Special	$2\frac{1}{2}$
Paget Slow	$2\frac{1}{2}$
Imperial Slow	$3\frac{1}{2}$
Cadett	5
Edward's Special	5
Mawson	7
Thomas	7

It will be found that the variety of tones obtainable is extraordinary, even with one make of plate, by merely prolonging the exposure and altering the constituents of the developer, usually the addition of more water and bromide giving greater warmth of tone as photographers call it.

The exact reason of this is somewhat shrouded in mystery, the only explanation being that the silver is deposited in a different physical condition, and it is curious because it is possible to obtain silver in this way ranging in colour from a bright pink, through red into browns, purples, and finally black. No proof has yet been advanced, nor, it may be confessed, is it likely at present that such proof will be forthcoming, that the various allotropic modifications of silver are anything but pure metallic silver, probably in varying degrees of fineness of grain.

The tone or colour of the slide must be suited to the subject; for instance, to see a snow scene in brilliant red would be incongruous, whilst the cold, bluey black, suitable for snow, would in many cases be unsuitable for sunlit landscapes, sea pieces, etc. Considerable variety of opinion exists as to the best colour for a slide, but speaking from a very wide, and sometimes painful, experience of having to judge innumerable lantern slides, the conclusion has been come to that a warm sepia brown is, unless utterly incongruous to the subject, the one that shows best on the screen. It seems to possess more depth or luminosity in the shadows, and therefore does not produce those harsh and positively painful contrasts on the lantern screen which too often are seen. This particular colour is most readily obtained by pyro. and ammonia, and such slides have the peculiar property of being frequently slightly dichroic, that is, reflecting purplish colour to the eye, whilst by transmitted light they are a rich brown; possibly complementary colours may come into play.

For the sake of illustration may be taken one particular make of lantern plate that is frequently used, the Imperial Dry Plate Company's "slow" lantern plate. One of these has been placed in a printing frame in contact with a negative, by the usual light of the dark room, though actually a much brighter light may be used for all lantern plates than for negative work.

As in negative work so in lantern slide making, exposure is still the crux, one of the self-lighting gas taps fitted with a No. 5 Bray burner should be used, and may be assumed to be the one adopted by the student. On a shelf or box, placed so that the centre of the printing-frame is in line with the centre of the gas flame, mark out two distances, 12 and 18 inches; at these distances the printing-frame is to be placed, the 12-inch for ordinary density negatives, and the 18-inch for thin ones. With a negative of ordinary density, then, place the printing-frame at the 12-inch mark, turn on the light, and expose for fifteen seconds; turn off the gas and prepare the developer as follows, using either the ordinary solutions for negative work or preferably with the addition of more sulphite:

The Actual Developer.

Pyro	1 grain.
Liq. ammonia ·880	3 minims.
Ammonium bromide	1 grain.
Distilled water	1 oz.

Instead of using water it is preferable to use equal parts of a 25 per cent. solution of sodium sulphite and water. Having mixed this developer, and it is quite enough to cover a lantern plate in a flat-bottomed quarter-plate dish, there being no need to buy lantern-size dishes, the plate is placed in the dish, the developer flooded over it, and the tray rocked. If the exposure was correct the image will appear in about forty-five seconds, and gradually gain in density. It must now be examined by transmitted light till the right density is reached; how far this is experience alone can decide, but considerable assistance may be gained by using the "appearance factor" of Watkins, as mentioned in the article on development (*ante*, p. 330). The slide should look denser than is actually required, and, when thought finished, rinse well under the tap, and fix in clean hypo. solution, 1:4. Allow to remain for ten minutes, and then remove, wash well, and examine against a naked gas flame with a piece of tissue paper between or an opal globe.

A perfect lantern slide should have very little bare glass except

in the sky, no black shadows, and be full of soft gradation and detail; it possesses a totally different appearance to a negative, and a little experience enables one to at once say, even before the plate is fixed, whether it will be a good slide or not. Wash very thoroughly after fixing, and then treat to a clearing bath of citric acid and chrome alum, again wash, and allow to dry in a place free from dust. When dry it is ready for mounting.

With all lantern plates the makers issue instructions for developing, giving fairly full formulæ. As a rule, the chlorobromide and chloride plates are so slow that gas is not powerful enough. It is therefore advisable to use magnesium ribbon, which can, of course, be obtained at very reasonable rates now; ribbon, not wire, must be used, and see that it is bright and not tarnished; about 2 inches burnt at a distance of 6 inches is quite enough for any ordinary negative and the chloride plates. Hold the ribbon in a pair of forceps or tweezers—not with the fingers, and light with a small spirit lamp.

Lantern plates may be reduced or intensified exactly the same as ordinary negatives, the only precaution to take being to remember that the film being much thinner the solutions act much more quickly.

In the next article the method of making slides by reduction will be treated, and, later, the subject of mounting.

THE USE OF INDIGENOUS DRUGS IN INDIA.

The following is an excerpt from a resolution of the Government of India, in regard to the desirability of a more extended use of indigenous drugs in that country :—

"1. In the section of Pharmacology and Indian drugs of the Indian Medical Congress, eight papers were read on the use of indigenous drugs, the most important being those by Dr. G. Watt, M.B., C.M., F.L.S., C.I.E., and by Rai Bahadur Kanny Loll Dey, F.C.S., C.I.E., In his paper on the subject, Dr. Watt enumerated the names and reputed properties of the drugs indigenous to India, and urged the desirability of greater attention being given to the study of such drugs, and Rai Bahadur Kanny Loll Dey made the following suggestions :—

"1. That definite pharmacological preparations of certain indigenous drugs should be made at the Medical Store Depôts for distribution to the various hospitals and dispensaries for trial and report;

"2. That medicinal plant farms should be laid out in the districts most suited to the plants which it is proposed to grow; and

"3. That a drug emporium for India should be established at Calcutta.

"In considering these papers the Indian Medical Congress recorded the following resolution :—

"'That it be recommended to the consideration of the Government of India that an extended use of indigenous drugs is most desirable.'

"2. The Government of India is advised that the more extended use of indigenous drugs in pharmacological preparations has hitherto been retarded by the circumstance that the sophistication and adulteration of these drugs are carried on so systematically that it is almost impossible to procure them locally in a pure state, and also because there are now available imported remedies of a much more efficient nature. Certain indigenous drugs, which can be obtained pure in the local market and in which adulterations can be detected, are used in the Medical Depôts. In his paper on the subject, Rai Bahadur Kanny Loll Dey concludes, from a perusal of the latest list of medical stores for hospitals in Bengal, that only one such drug—namely, chiretta—is so utilised, but from the accompanying list of drugs now used in the Medical Depôts, which has been furnished to the Government of India, it will be seen that his information upon this point was imperfect. The Government of India have no doubt that other indigenous drugs would be employed in the Medical Depôts if they could be obtained pure, of a stable character, and at a price not exceeding that at which they can be imported.

"List of drugs purchased locally by the Calcutta Depôt :—

Asafœtida.	Ginger.	Nux vomica.
Calumba root.	Galls.	Senna leaves.
Cardamom seeds.	Glycyrrhizæ root.	Anise oil.
Catechu.	Gum arabic.	Cinnamon oil.
Cinnamom bark.	Kino.	Santal oil.
Chiretta.	Myrrh.	Castor oil.
Cubebs.		

"3. With the information at present available the Government of India would only be justified in taking such steps as may appear practicable with a view to encouraging the increased use in the Medical Depôts of drugs of known therapeutic value, and perhaps also in sanctioning the manufacture of stable preparations of certain drugs at the Depôts. The Government of India is not at present convinced of the desirability of initiating as a Government measure experiments to test the reputed therapeutic value of indigenous drugs. From the correspondence with the Government of Bombay quoted in the preamble to this resolution, it appears that an attempt was made in this direction in that Presidency, but proved unsatisfactory.

"4. The Government of India is, however, anxious to give such effect to the recommendations of the Pharmacological Section of the Indian Medical Congress as may be found practicable, and, with that end in view, has decided to appoint a Committee to consider the whole question in a practical way. The Committee will consist of the following members :—

"Brigade-Surgeon Lieutenant-Colonel G. King, M.B., F.R.S., C.I.E., Superintendent of the Royal Botanical Garden, Howrah, who will serve also as President of the Committee.

"Surgeon-Lieutenant-Colonel J. F. P. McConnell, M.D., F.R.C.P., Professor of Materia Medica and Clinical Medicine, Medical College, and Second Physician, Medical College Hospital, Calcutta.

"Surgeon-Lieutenant-Colonel C. J. Warden, M.D., Medical Storekeeper, Bengal Command.

"Dr. G. Watt, C.I.E., Officer in Charge of the Economic and Art Section of the Indian Museum, and Reporter on Economic Products to the Government of India.

"Rai Bahadur Kanny Loll Dey, F.C.S., C.I.E.

"5. The points to which the Government of India desires more particularly to invite the attention of the Committee, with a view to their careful consideration, are the practicability as well as the utility of—

"(*a*) Encouraging the systematic cultivation of medicinal plants, indigenous to India;

"(*b*) Encouraging the increased use in Medical Depôts of drugs of known therapeutic value; and

"(*c*) Sanctioning the manufacture of stable preparations of certain drugs at the Depôts.

"Regarding the above, the Government of India desires that the members of the Committee should further consider, and report their opinion, as to the action which would be best calculated to give the suggested encouragement. The Committee should further consider, from a practical point of view, the question of initiating, as a Government measure, experiments to test the reputed therapeutic value of indigenous drugs. The Government of India, as at present advised, is inclined to the opinion that such investigations can more profitably be left to the enterprise of private individuals.

"6. The Committee should assemble at Calcutta during the ensuing cold weather, and should, on completing their deliberations, submit its report to the Government of India in the Home Department for consideration."

CORRESPONDENCE.

[*Letters to the Editor should be written as concisely as possible, on one side of the paper only, and preferably with name and address for publication.*]

ELECTION OF ANNUITANTS.

Sir,—I shall be obliged if you will kindly give prominence in the Journal to the enclosed appeal to Benevolent Fund subscribers and donors to duly record their votes at the coming election.

London. EDWARD N. BUTT.

[*Enclosure.*]

To the Donors and Subscribers to the Benevolent Fund.

Ladies and Gentlemen,—As for very many years I have taken a considerable amount of interest in the Benevolent Fund, I wish to draw your attention to the large number of voting papers which are issued every year and not returned, whereby the respective candidates lose much of the support which is due to them.

I wish, also, to refer to the fact that at each election the candidates lose many votes owing to the scrutineers having to disallow numerous voting papers on account of certain informalities in filling them up—in one case the votes disallowed were so large as to effect the election of a candidate for that year.

The chief causes which lead to the rejection of voting papers are as follows:—

Voting papers unsigned by the voter.

Voting papers signed by A. B., on behalf of C. D. the subscriber, who is the only person entitled to sign the paper.

Papers marked with a × or initials instead of figures.

Papers on which more votes are recorded than the voter is entitled to give, thus a person having, say, two votes only will record two votes to each of two, three, four, or more candidates.

Finally, voting papers arrive by post after 2 p.m., when the poll is closed, and continue to arrive for several days after the election is over.

(Many of the above causes also lead to the rejection of votes every year at the election of members of Council.)

I hope the result of my calling your attention to the subject will be that at the forthcoming election there will be a large increase in the number of papers sent in, and that no informal papers will come to hand, whereby some of the heavy work which devolves upon the scrutineers will be facilitated, as also that of

Yours faithfully,

November 23, 1895. EDWARD N. BUTT,

Chairman of Scrutineers for many years past.

PHARMACIST OR FACTORY GIRL.

Sir,—As secretary to one of the largest makers of pharmaceutical preparations in this country, I shall be glad if you will permit me to address a few words of reply to your correspondent "Pharmakos" on the above subject. In the first place, I should like to be allowed to explain that my company employs no female labour whatever, and my experience is that whenever such labour is employed by wholesale houses it is generally in packing and wrapping departments, and would be most unlikely to be utilised for such technical work as the making of medicated pessaries, suppositories or bougies; at any rate, in any reputable house situated south of the Tweed. Your correspondent must be strangely ignorant of how manufacturing chemists conduct their business, otherwise he would be aware that such houses always obtain, as managers, men with the highest qualifications possible, who exercise direct supervision upon the whole of the technical work of the laboratories, where staffs of trained and competent assistants have the advantage of the finest apparatus of every description that can be obtained Were it not so and things were manufactured by ignorant girls in the haphazard fashion which "Pharmakos" suggests, how would it be possible for the leading firms to retain the unbounded confidence of both the medical profession and the chemists alike? A visit to the annual museum of the B.M.A. would in all probability, fill "Pharmakos" with amazement; not, as he maintains, that such goods are considered sufficiently satisfactory by the medical profession, but that such triumphs of scientific accuracy and utility could be attained in such numerous instances. The retail chemist would find himself constantly in a hopeless dilemma were it not that he can obtain in a few hours from the wholesale houses reliable articles, scientifically made, which it would be impossible for him to produce, even providing he had the necessary apparatus, without considerable loss of time, materials, and labour. How would he deal with an order for a tube of ophthalmic discs (containing a dozen), each to be guaranteed, say atropine gr. 1/5000? How would he obtain extract of malt, prepared *in vacuo*, the extracts of the various animal glands, the diphtheria antitoxin, compressed tablets of every form and size, flexible capsules of various formulæ, and the thousand and one items for which he writes. in such small quantities and in such haste? It is very easy to indulge in a sneer at the pharmaceutical laboratories which have been brought to such perfection by the enterprise of individuals who could foresee their need, and are at the present day so admirably and satisfactorily conducted. But perhaps it may be, after all, that the medical man who was unable to tell a morsel of, presumably, cacao butter from a calculus, and who administered aconite suppositories (*sic*) in such a careless fashion, was hardly one to give an opinion on the subject, or (saints forbid!) can it be that he was only poking fun at "Pharmakos" after all?

November 26, 1895. AMUSED.

Sir,—I am not concerned in defending the use of what is frequently and contemptuously referred to as a "Factory-made" article, against a similar article which might be, and perhaps ought to be, made by the pharmacist himself, because that would lead to a very lengthy discussion of the methods of the pharmacy as they exist in nine-tenths of such places. I desire to point out to "Pharmakos" that, in the superiority of his wisdom he has omitted to rely on knowledge, and has evidently allowed his mental faculty to act upon as cursory a process as that he used to determine his specimen of fat. What does "melting below 170°" mean?

That the fat of such curious melting point had anything to do with the suppositories supplied by the practitioner to his patient is open to doubt. Suppositories are generally employed in the rectum, not in the bladder, nor even in the urethra; and as, presumably, there is no physical connection between the first-named organ and either of the others, it is somewhat difficult to see how the residue of a suppository, even though a factory-made article, could have caused stoppage of urine. "Pharmakos," and his practitioner, too, appear to need a course of physiology; they might, after that, possibly be less filled with amazement and give common-sense some room.

Salol is an extremely insoluble substance, even in the alkaline intestinal fluid. It was no fault of the compressed salol tablet (*per se*) that it did not dissolve. It was, however, very foolish to administer the substance in compressed form. As a matter of fact, salol, even when administered in the loosest form, will often agglomerate in the intestine. I have recently seen such agglomerated masses of salol which had been administered respectively in "tabloids," "tabellæ," "palatinoids," and even in cachets. There

is something peculiar in this substance which demands investigation at the hands of the physiologist and therapeutist rather than at the hands of the pharmacist, and I venture to suggest such investigation by some of your readers who are either one or the other of the first-named operatives. I do not, even cautiously, ask that "Pharmakos" should undertake it.

London, November 26, 1895. AGNOSKOS.

PHARMACEUTICAL ORGANISATION.

Sir,—In reply to Mr. J. Anderson Russell's letter in your last issue, whilst not attaching much importance to terms, I maintain that any organised movement having the Pharmaceutical Society for its basis must be a "pharmaceutical organisation." There is reason to believe that when a "Pharmacy Acts Amendment Act" permits, there will be such an accession of new members, possessing the Minor qualification, that the Society will be thoroughly representative of the "pharmaceutical democracy." With regard to the government of the Society's affairs not remaining in the hands of the members, surely it is not desired that the payment of a "registration fee" should carry with it voting power of a character similar to that now enjoyed by Members and Associates?

I also regard the creation of any new status in connection with the Society as being unwise and as seriously complicating the situation when all are admitting the necessity of uniformity in membership. The time has passed for distinctions of this kind. What we require is a common standard of membership, not the perpetuation of grades. If those outside become connected with the Society at all it should be voluntarily and on equal terms. If it can be proved that, with a largely-extended membership, the affairs of the Society can be carried on as effectively as at present on a smaller subscription, let us accept that idea. It must be evident, however, that a reduced subscription would be sufficient to carry on the work of the Society in all its branches.

If it is felt that certain branches of the Society's work have not produced good value, or have not been directed so as to be primarily useful to chemists, as in the case of the Research Laboratory, we should require that the work carried on there should be principally directed to our requirements, such as early reports on the chemistry of new drugs, new processes, and the publication in the Journal of the results in a form intelligible to all, and not involved in too elaborate scientific language. From Mr. Russell's letter it would appear that he proposes to move somewhat in the direction of establishing a "trade protection board" in connection with the Society, using the existing staff and machinery for that purpose. That, if accepted by any considerable section of its members, would constitute an important departure, and would require to be carefully considered as to its probable effect on the mutual relations of chemists among themselves and to the community.

From the difficulty which appears to exist in preventing the trade protection view of the Society's functions being urged upon those who administer the law, it would weaken our claims on the community to give any indication that a number of "registered" chemists were connected with the Society on this ground only.

In discussing this question it is necessary to recognise the fact that the Pharmaceutical Society's principal claims on the public are in respect of safeguarding the dealing in and dispensing of poisons and potent remedies, the necessary progressive education of those so engaged, and in the fact that through its Benevolent Fund it to a large extent provides for its own poor. The more chemists are identified with its work, the greater the measure of consideration they are likely to receive when pressing their claims upon the Legislature.

Plymouth, November 25, 1895. R. F. ROPER.

INFUSIONS AND DECOCTIONS.

Sir,—On reading the remarks of Dr. Attfield in the discussion on "Infusions and Decoctions," I thought the name (essence) suggested was not a very suitable one, nor in accordance with the traditions of pharmacy. It is a name that has been so long connected with perfumes, cordials, stomachics and concentrated preparations of all kinds, that it is likely to create some confusion. Dr. Attfield thinks these preparations should be made as strong as possible. Then why not call them liquors or fluid extracts? Either name would be much more suitable than essence, and compatible with existing nomenclature in pharmacy. I protest against this changing of names from one set of preparations and giving the same names to another set quite different in their properties and uses. As regards the making up of infusions and decoctions to a certain volume, I would suggest that they be left as they are, since I think we can get more uniform infusions by putting on the required quantity of water and straining off when ready than by making up afterwards to a certain volume. It is different, however, with decoctions. The evaporation varies, and we get a more uniform result by making up to a certain volume. Mr. Martindale's suggestion of boiling in uncovered pans in many cases is no doubt right. This might be left to the discretion of the operator. Perhaps it would be best to have no decoctions introduced that contain volatile matter, and that a decoction should only be ordered when an infusion is not suitable. As regards the length of time an infusion should stand so as to extract sufficient of the virtues of the substance to be of service medicinally, it is perhaps difficult to state. The determination of this will require very exhaustive experiments, and would, I think, be a subject very suitable for our Research Laboratory. We made a long jump on a former occasion when the time was reduced, and I think we ought only to reduce the time further when we have corroborative statements from medical practitioners, and experienced pharmacists like Mr. Martindale, who, I am sure, deserves the thanks of all working pharmacists for the work he has done in our interest.

Carlisle, November 20, 1895. JOHN HALLAWAY.

THE INTRODUCTION OF PHOSPHORUS AND ITS COMPOUNDS INTO PHARMACY.

Sir,—I notice that Stephen Blancard, M.D., in his 'Physical Dictionary,' 1715, mentions "*Calcinatio Philosophica* is when horns, or bones, or hoofs are hang'd over boiling water for some hours, till they, having lost all their mucilage, can be easily powder'd." "*Album Canis*" is also mentioned, and "*Phosphorus* is a stone that gives light in the night." On another page I read: "*Muscus*—Moss of a dead man's scull being put up the nostrils stops bleeding; this sort of moss is common in Ireland." PHOSPHOROSUS.

Pharmaceutische Institut, Marburg, November 23, 1895.

STRUCTURE OF CELLULOSE AND CHITIN.—As the result of a very careful study of the minute structure of cellulose and chitin, Herr O. Bütschli has come to the following conclusions:—The honeycomb-like structure observed in protoplasm may occur also in crystallisable substances. No definite decision was arrived at as to whether the structure of the cell-membrane is reticulate, or whether it results from a peculiar combination of small particles or "globulites." It is possible for both structures to occur in the same substance, as was determined experimentally. The honeycomb-like structure may disappear on drying from the coalescence of the walls of the meshes, but the meshes appear again at the same spots when water again reaches them. The suggestion is made of a possible new theory of swelling independent of the micellar hypothesis (*Verhandl. Naturhist. Verein Heidelberg*, 1894, from *Botan. Centralbl.*, vol. lxii., 1895, p. 387).

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THE PHARMACEUTICAL BENEVOLENT FUND.

In a letter received from a correspondent, it is pertinently pointed out that the pharmacists of Great Britain, as represented by the Pharmaceutical Society, possess a special claim to the consideration of the public because they look after their own poor. There is much truth in this suggestion, for no doubt can be entertained that the money expended for charitable purposes by the Benevolent Fund Committee of the Society saves a much larger sum proportionately that would require to be spent in other ways, the cost of collection and distribution of the money being virtually *nil*, which could not possibly be the case if the functions of the Committee were performed by any special body. This is a point of view which is too generally overlooked, though worthy of the very gravest consideration.

Another point that is frequently ignored, by critics of the Pharmaceutical Society and its work, is the fact that, though relief is afforded from the Fund to all necessitous persons registered under the Pharmacy Acts, whether they are connected with the Pharmaceutical Society or not—a majority of the persons succoured being, as a rule, non-members, and even non-subscribers to the Fund—the great bulk of the subscriptions is provided by those connected with the Society. The members and associates not only tax themselves to administer the Fund, but they also provide the Fund itself. In view then of the catholic administration of the Benevolent Fund, it seems only reasonable that the trade at large should subscribe generously to it. No doubt, in time past, outside help has been given, but not in any proportionate degree, and the wider circulation of the present number of the Journal amongst chemists and druggists affords a suitable opportunity of appealing to many who have not formerly subscribed, to help in maintaining the Fund at such a point that no eligible necessitous person applying for relief may be sent away empty handed. After the election of December 10, there will be forty-eight annuitants in the enjoyment of a fixed income sufficient to relieve them from being dependent, and casual relief has been granted during the present year in a large number of cases. The calls upon the Fund increase continually, and it naturally follows that its pecuniary resources must also be increased to enable it to cope with all demands for assistance. Every chemist and druggist on the Register should therefore regard it as incumbent upon him to add to those resources to the best of his ability.

A meeting for the election of four annuitants on the Benevolent Fund will he held at 17, Bloomsbury Square, London, on Tuesday, December 10, at 12 o'clock precisely, and it may be pointed out that persons subscribing to the Fund on or before the day of election will be entitled to vote on that occasion. In addition to subscribing, however, it is desirable that all subscribers and donors should record their votes in favour of the candidate or candidates they consider most worthy. On page 461 of this week's Journal will be found an appeal to voters to interest themselves in the election. It is signed by Mr. E. N. Butt who has for so many years acted as Chairman of Scrutineers, and he also indicates the chief causes that lead either to the rejection of many voting papers or cause unnecessary trouble to the scrutineers, who, it should be remembered, are all members of the craft, and give their time gratuitously in the sacred cause of charity. The conditions to be observed by voters should be carefully observed in every case, to prevent disappointment. In conclusion, we would impress upon every registered chemist and druggist that it is his duty in the first place to subscribe to the Fund as liberally as his means may permit, then to be sure to fill up his voting paper, and finally to take all due precautions to render his votes effective.

THE GENERAL MEDICAL COUNCIL.

The fifty-ninth session of the General Medical Council was opened on Tuesday, at the Royal College of Physicians, Pall Mall, London, the chair being taken by the President, Sir Richard Quain, who delivered an opening address. In the course of this he announced that considerable progress has been made in connection with the revision of the British Pharmacopœia, in preparation for a new edition of that work. He then proceeded to call attention to the work done by the different committees since the last meeting of the Council, and reviewed what had taken place during that interval. Incidentally, reference was made to the duties imposed upon the Council by the Legislature. The first of these, remarked Sir Richard, was the protection of the interests of the public, as instanced by the means taken to secure the efficient education and competence of the members of the medical profession. It was, he said, by improving the standard of education, and exercising the powers that the Council possessed of removing unworthy members of the profession, that the real interests of medical practitioners would be secured and their professional status elevated.

It may be observed that, if the reference to the power of removal from the Register be omitted, Sir Richard Quain's words would apply as aptly to the Pharmaceutical Society as to the Medical Council. There is not the least doubt that the best way in which the status of the pharmacist can be improved is by doing whatever is possible to raise the standard of education far above what it now is on the average. But incredulity as to the possibilities of advantage afforded by advanced education is rampant amongst a certain section of chemists and druggists, as it doubtless was years ago amongst medical men. As the Medical Council has been able to prove, however, so the Pharmaceutical Society will probably in the near future be able to prove, that education is the only key to the difficulties of the situation. If it be contended that the necessity for advanced education would

deter many from entering pharmacy or that its possession would unfit them for much of the detail work that is now common, the reply must be that neither alternative would be an unmixed evil. The first would tend to prevent overcrowding, whilst the second would more surely than anything else prove the ability of advanced education to raise professional status. For the things that a fully educated pharmacist will feel himself unable to do are just those things that, as a professional man, he ought not to stoop to do. The loss in this direction can be but slight, whilst the gain may be of the very greatest.

Another point touched upon by Sir RICHARD QUAIN was the suggestion that the Medical Council should take cognisance of matters of professional etiquette and improper conduct, either in the relations of the medical profession to the public or amongst its members themselves. He expressed himself as satisfied that such interference by the Council would lead to the loss of its authoritative influence with the Government, in addition to which it would give only doubtful satisfaction to the public. The duty of investigating such subjects should belong to the respective licensing authorities, but even the latter, it may be suggested, would do well to follow on the excellent lines laid down by the President of the Medical Council, and restrict their interference on points of etiquette to the narrowest possible limits. The undue enforcement of such points of professional etiquette, sometimes misnamed ethical considerations, would tend in the direction of upholding a moral "Reign of Terror," which no self-respecting individuals are likely to submit to at the present day. Professional etiquette, in fact, too often means the maintenance of rigid rules that have grown in the course of years and seem to have been devised chiefly for the purpose of supporting a monopoly, by preventing the younger and less well-known members of a profession from competing on even terms with their seniors.

RESEARCH ON THE BIOLOGY OF THE FLOWER.

A CONTRIBUTOR to *Science Progress*, dealing with the present position of floral biology, observes that it is rather humiliating to find how very little we have advanced in the direction of deeper understanding of floral phenomena. A stupendous mass of details has been accumulated, but the chief advance that has been made is the substitution of a teleology based upon evolution for the old-fashioned one of SPRENGEL, "adaptation" replacing his "design of nature." What progress has been made in the subject is mainly due to DARWIN and H. MÜLLER, but no branch of biology has suffered more from the pushing to extremes of the adaptation idea. In works upon floral biology, biological meanings are forced into every detail of floral structure, often without any evidence whatever, the fact that the subject is so admirably suited for popular treatment being probably responsible for this condition of affairs. Ignorance is covered by glib explanations, to the effect that particular structures or phenomena are adaptations of something, and the result is that an unconscious idea prevails that the subject is exhausted and affords no room for good research. As a matter of fact, no branch of floral physiology offers more problems for solution, nor any of greater interest. The laborious nature of the work is probably a factor that has deterred many from taking up such investigations, however, for experiments or observations lasting over several years are not conducive to a speedy termination of a research and rushing into print.

THE APPLICATION OF THE TERM "ESSENCE."

IN a communication received from Mr. JOHN HALLAWAY, of Carlisle (see p. 462), he refers to Dr. ATTFIELD'S remarks during the recent discussion on infusions and decoctions (see *ante*, p. 421), and suggests that the application of the term "essence" to the preparations from which it is proposed that infusions are to be made would not be "in accordance with the traditions of pharmacy," the name having been so long associated with "perfumes, cordials, stomachics, etc.," that it is likely to create confusion. Mr. HALLAWAY would call the contemplated preparations liquors or fluid extracts. His protest against the transference of names from one set of preparations to another will be received with much sympathy by many pharmacists. Certainly the proposed application of the term "essence" seems distinctly inappropriate.

THE USE OF INDIGENOUS DRUGS IN INDIA.

WE understand that, as one of the results of the late Medical Congress held in Calcutta, the Government of India has decided to institute an enquiry into the subject of the desirability of a more extended use of indigenous drugs. On page 460 of the present issue of the Journal will be found an excerpt from the resolution of the Government of India on this matter. It will be noticed that the Committee to which the Indian Government has decided to refer the whole question comprises three Corresponding Members of the Pharmaceutical Society of Great Britain (Dr. GEORGE WATT, C.I.E.; Surgeon Lieutenant-Colonel C. J. H. WARDEN; and Brigade-Surgeon Lieutenant-Colonel GEORGE KING, F.R.S., C.I.E.), and one Honorary Member (RAI BAHADUR KANNY LOLL DEY, C.I.E.).

PROGRESS IN PRICE-CUTTING.

UNDER this heading, the *Canadian Druggist* publishes a leading article conceived in a healthy spirit, and written by a vigorous pen. It appears that the evil of price-cutting has spread throughout the western portion of Ontario with startling rapidity, and both retail and wholesale druggists are anxious to devise means to cope with the difficulty. Our contemporary boldly asserts that the retailer who has subjected himself to the "tide of destruction" has already learned that his own action is his worst enemy, whilst the wholesale dealer fears possible conjunctions for buying purposes, which will jeopardise his trade. In taking steps to deal with the matter it is urged that every druggist should lend a hand. "Don't build yourself up with the false hope that your customers will stand by you; merely recollect that life is made up of business bargaining; that every dollar you receive is only given you for a bargain equivalent, and that your customer will readily relinquish it to your opponent if he is known to give more for it. Your neighbouring druggist is more anxious to see you get good living prices than is the best customer you have got, so to him it is your duty to turn, and with him your duty to join, when prices are at stake." In these few forcible words are expressed the whole tragedy of trade competition accompanied by lack of organisation. Competition must first always be subordinated to organisation to ensure the success of any scheme of trade defence, and the obvious moral for British pharmacists is — Combine; do not stop to weigh pros and cons, to invent theories and generalise from insufficient data, or consider what you will do when you have formed the combination; but first of all combine, and the rest will follow.

ANNOTATIONS.

School of Pharmacy Students' Association.—The first meeting of this Association for the ensuing session will be held on Thursday, December 5, at 7 p.m., when an introductory address will be delivered by the President, Professor Attfield, F.R.S. We understand that, at this meeting, Professor Attfield proposes to resign the office he has held so long, and it will therefore be necessary to elect a new President, in addition to the Vice-Presidents, Secretary, Treasurer, Assistant Secretary, and other members of Committee. The Executive Committee, in a circular, once more attracts attention to the objects of the Association, which are to encourage study and original work in chemistry, physics, botany, and materia medica. Such work is worthy of all encouragement in the case of pharmaceutical students who have passed the qualifying examination, and original investigation of subjects having direct pharmaceutical interest is aided by grants from the Research Fund of the Association. Past students of the School of Pharmacy desirous of becoming members of the Association should communicate with the Acting Honorary Secretary, Mr. Ernest J. Eastes, 17, Bloomsbury Square, W.C.

Ingenious Optical Instrument for Testing Diamonds.—An ingenious instrument for detecting imitation crystals and spurious diamonds has been patented, the invention being based on the great refractive power of the true diamond. The instrument consists of a totally reflecting prism set in a tube, which has a sighting lens fitted to a sliding tube. The surface of the prism is moistened with a liquid having a high refractive index, and one of the facets of the stone is placed directly against it and viewed through the lens. In the case of a diamond, the facet shows brightly with clear sharp outlines, but imitation stones are scarcely distinguishable, and appear without any distinct outline.

Arsenical Hydrogen in Tanning.—It has recently been stated that by passing a stream of hydrogen gas containing a trace of arsenic, such as is derived by acting on metallic zinc or iron with dilute commercial sulphuric acid, into tanning vats, the process of tanning is materially hastened and the resulting leather improved in quality. The gas employed for this purpose is stored in a gasometer under pressure, whence it is led to the bottom of the tanning vat by a delivery tube, the extremity of which is pierced by a series of holes, through which the gas escapes. After passing through the liquid the gas is again collected by another tube fitted to the lid of the vat.

A Deodorant of Iodoform.—According to the *Journal de Médecine*, spirit of turpentine will at once remove the objectionable odour from the hands after using iodoform, as well as from spatulas and vessels that have been in contact with the drug. A little turpentine should be added to water, and the articles it is desired to deodorise placed therein, being subsequently washed with soap and water.

Digestibility of Bread containing Alum, etc.—According to Bigelow and Hamilton (*Hygien. Rundsch.*), bread containing alum or aluminium hydrate is less completely digestible than pure bread, and the presence of phosphate of aluminium renders bread still less digestible. The 10 or 12 per cent. of albuminoids digested in the presence of the two former aluminium compounds seems to become quite insoluble when there is an equivalent quantity of the phosphate.

Aluminium Flashlight.—Aluminium in the form known as "silver-bronze," has been recommended by T. Bolas as a substitute for magnesium for obtaining a flashlight. It must be free from grease, and is then stated to yield a more powerful light than magnesium, weight for weight. It ignites readily and burns more completely than magnesium dust, the more especially as it can be kept in a finer state of division without deterioration by oxidation. The method suggested for removing grease from the bronze powder is to heat the latter in a test tube over a spirit lamp, to about the temperature at which zinc melts. Possibly, however, treatment with ether or benzol might prove as satisfactory and more convenient.

London University Science Degrees.—The pass-list in connection with the recent examination for the degree of Bachelor of Science of the University of London is a very large one, and amongst the names in the second division are those of two pharmaceutical chemists—Mr. E. F. Harrison, late assistant-lecturer in chemistry at the School of Pharmacy, and Mr. F. A. Hocking. In the first division occurs the name of Mr. Henry Wootton, of the Westminster College of Chemistry and Pharmacy.

Cocaine Poisoning.—Dr. Garland reports in the *Lancet* a case in which a young woman who had swallowed, for the relief of toothache, upwards of two drachms of a 10 per cent. solution of cocaine hydrochlorate, became affected almost immediately with vertigo, followed by epileptiform convulsions occurring in somewhat quick succession, and died within forty minutes. This case lends some support to Mannheim's estimate that the fatal dose of cocaine is about 15 grains. In the present state of our knowledge, observes Dr. Garland, it is, however, practically impossible to state the smallest lethal dose, seeing that a dose of two-thirds of a grain has caused death, and so minute a dose as a hundredth of a grain has given rise to symptoms threatening life.

Thought Photography.—The *Amateur Photographer* for November 22 publishes an interesting article by W. Ingles Rogers, in which he propounds the question, "Can thought be photographed?" and describes some experiments, the results of which seem to have some bearing on the point. The article is illustrated, and there is one striking reproduction of a photographic plate which was placed before the experimenter's eyes for twenty minutes in a dark-room, after he had been steadily gazing at a postage stamp for one minute in the light. The experiment was performed in the presence of credible witnesses, and the plate, when developed, revealed two faint images of the postage stamp, and the print clearly shows these, surrounded by whitish fog. Curiously enough, the distance between the central points of Mr. Rogers' eyes is $2\frac{1}{2}$ in., but that between the two images is $3\frac{1}{8}$ in. It would appear therefore that this is a case of projection, and not merely reflection. The phenomenon is doubtless optical, but an interesting field of inquiry is opened up, and some time may elapse before it becomes capable of explanation.

Anniversary of the Royal Society.—The anniversary meeting of the Royal Society takes place on Saturday, November 30, when Sir Joseph Lister, Bart., F.R.S., will be elected President; Sir John Evans, K.C.B., Treasurer; Professor Michael Foster and Lord Rayleigh, Secretaries; and Dr. Edward Frankland, Foreign Secretary. Sir Joseph Lister, it will be remembered, is also President-Elect of the British Association, so that two of the most prominent positions in the world of science will next year be occupied by the eminent surgeon.

PROCEEDINGS OF SOCIETIES.

BRITISH PHARMACEUTICAL CONFERENCE.—A meeting of the Executive Committee was held at 16, Bloomsbury Square on Wednesday, November 20. Present: Mr. W. Martindale (President), Messrs. Groves, Martin, and Umney (Vice-Presidents), Mr. John Moss (Treasurer), Messrs. Bird, Farr, and White; Messrs. Naylor and Ransom (Hon. Gen. Secretaries), and Mr. Nightingale (Asst. Secretary). Letters had been received from Messrs. Atkins, Conroy, Coull, Ewing, Hayes, Wardleworth, Wells, and Wright, regretting their inability to be present. The minutes of the last meeting were read and confirmed, and a letter was then read from Mr. Theo. H. Wardleworth on behalf of the Local Committee suggesting July 14 or 21, 1896, as a suitable date for the Liverpool meeting. Careful consideration of these dates called forth serious objections against the acceptance of either of them, and Mr. Naylor was instructed to write and ascertain if July 28 or August 11 would commend itself as opportune to the Local Committee. The final decision was left in the hands of the President and Honorary Secretaries. A lengthy discussion ensued relative to the cost of producing the 'Year-Book,' and Messrs. Moss, Umney, and Ransom were requested to meet the Committee of Publication to consider the possibility of effecting some reduction in the expense. Twenty-two gentlemen, having been duly nominated, were elected to membership.

CHEMICAL SOCIETY.—A meeting was held on Thursday, November 21, the President, A. Vernon Harcourt, F.R.S., in the chair. It was announced that thanks had been received from the French Academy of Sciences for the address sent by the Society on the occasion of the centenary of the former body, and after the names of candidates for election had been announced, the following papers were read:—

"*The Influence of Temperature on the Refractive Power and on the Refraction Equivalents of Acetyl-Acetone and of Ortho and Para Toluidine*," by *Dr. W. H. Perkin, F.R.S.*

The author has examined samples of acetyl-acetone purified by distillation, both under normal and reduced pressures, and finds his present results confirm those found by him in 1892, when he found that the effect of heat was to bring about internal change in the class of substances to which it belongs, the effect being particularly notable in the case of acetyl-acetone, which undergoes tautomeric change into a hydroxy compound on rise of temperature.* He has previously shown that there is a close connection between the molecular refraction and the magnetic rotation of the same substance, and the results of the magnetic rotation of acetyl-acetone confirm his figures. He is, therefore, of opinion that there is some defect in Brühl's apparatus for determining the refractive power at the higher temperatures, Brühl having in that case obtained results differing from those recorded by the author in 1892.

"*The Evolution of Carbon Monoxide by Alkaline Pyrogallol Solution during Absorption of Oxygen*," by *Prof. Clowes.*

On making a series of analyses of gases containing a large proportion of oxygen (80–90 per cent.), it was found that the proportion of carbonic oxide evolved rises as the percentage of contained oxygen increases, and that as much as ·03–·6 per cent. of the volume of gas absorbed is evolved. The proportion of carbonic oxide evolved to oxygen present, however, does not bear a constant ratio. Experiments made with hydroquinone and alkali as the absorbing agents, showed that no carbonic oxide was evolved, but that the absorption was slow, since the time occupied by an absorption of oxygen by this method was equal to the time occupied by absorption of the oxygen by pyrogallol and subsequent absorption of the carbonic oxide produced by cuprous chloride. It was found, however, that on increasing the proportion of caustic alkali, less carbonic oxide was evolved, and by using a mixture of 20 grammes pyrogallol to 240 grammes of potassium hydrate, perfect absorption of the oxygen occurred, without any carbonic oxide being given off, even with a mixture of gases containing over 90 per cent. of oxygen.

"*The Composition of the Limiting Explosive Mixtures of Various Combustible Gases with Air*," by *Prof. Clowes.*

These experiments were conducted in the following manner:—A glass cylinder was filled with the mixture of gases to be examined collected under the ordinary pressure and saturated with aqueous vapour. A light was then applied at the mouth of the jar, and the limit determined when the flame no longer passed down the vessel, the experiment being carried on in a darkened room. Differences were noted according as flame was applied to the mouth of the cylinder from above or below, the explosion occurring more readily when the flame was applied from below. The gases examined and the percentages of each mixed with air necessary to cause explosion under the condition of the experiment were as follows:—Methane (5 to 13), hydrogen (5 to 72), carbonic oxide (13 to 75), ethylene (4 to 22), water gas (9 to 55), coal gas (6 to 29).

"*Barium Butyrate and the Determination of Butyric Acid*," by *W. H. Willcox.*

In determining the volatile fatty acids by distillation into baryta water, formation of the barium salt and subsequent decomposition of the salt by sulphuric acid, and determination of the barium as sulphate, the author found that if the barium butyrate be dried at 100° it loses acid, and by working with the pure salt he finds that to ensure accurate results the salt must be dried at a temperature of 75°·80°, when it is obtained anhydrous.

The following papers were taken as read: "On some Derivatives of Anthraquinone," by Dr. E. Schunck, F.R.S., and Dr. L. Marchlewski. "On Efflorescence of Double Ferrous Aluminium Sulphate on Bricks exposed to Sulphur Dioxide," by D. Paterson.

LONDON INSTITUTION.—Professor Weiss delivered a lecture on "The Relation of Ants to Plants" at the London Institution on the 21st inst., and though he did not bring forward many new facts, his matter was displayed in an interesting manner.

Sprengel, in 1793, was perhaps the first to record the relation believed to exist between plants and insects in 'The Riddle of Nature Solved,' though it was consequent upon the researches of Darwin that observers were attracted to this field of observation, where Hermann Müller has been one of the most conspicuous workers. The insects which fertilise flowers are hairy as a rule; ants, on the contrary, have small smooth bodies, and even did they succeed in removing pollen their subsequent climb up the stem of the next plant would result in loss; they eat the nectar, too, which is disadvantageous to the plant, and finally they are very pugnacious. Thus many plants possess some means for self-protection against ants. *Lychnis viscaria* has a ring of sticky glands at the nodes; in London Pride the oily glands on the calyx deter the ant from entering the flower; in *Cuphea* the specialised hairs at the base of the calyx and the viscid hairs on the rudimentary petals function in a similar manner, whilst in *Cobaea* the hairs at the base of the stamens are arranged in such a way as to permit the passage of a proboscis, though they exclude ants and similar animals. It is to be noted that no such protection is to be found in plants remote from ant visits, as, for instance, in water plants. Certain plants seem almost to have applied this principle for their own purposes; at least, Kerner suggests that the cup like base of the leaves in Teazle, which usually contains water, is a defensive modification, though this view is not admitted without question by other observers.

Darwin laid down the generalisation that Nature abhors self-fertilisation, and demonstrated the provisions made by Nature to ensure cross-fertilisation; but certain plants whose flowers have lost the property of attracting insects would become extinct did they depend entirely upon cross-fertilisation for the production of seeds, and to compensate for this such plants commonly produce cleistogamic flowers which regularly fertilise themselves, in addition to the ordinary flowers. Examples of cleistogamy are to be found in the Violaceæ, Campanulaceæ, and Caryophyllaceæ.

Kerner believes the extra-floral secretion of nectar found in certain plants is a provision to prevent the ants touching the nectar of the flower, though Belt controverts this view. Schimper, again, has shown that the extra-floral nectaries are not essential to the nutrition of the "ant-loving" plant on which they are found, hence it seems not improbable that the ants are encouraged by the plant for the sake of the assistance they will render against more formidable foes, and an Austrian naturalist has noted that ants feeding on the fleshy bracts of certain composites ejected a stream of formic acid against winged beetles attempting to alight on the flower-heads.

Erica tetralix is an example of a class of flowers which suffer from insects taking a short cut to the nectaries instead of seeking the honey by the orthodox way; in such cases the presence of the ant on or near the calyx is advantageous to the plant, because the lazy bee is then compelled to seek its food through the flower instead of doing so by boring the floral envelopes. In *Schomburgkia* the leafy bracts keep the flower intact so long as it is in the bud

* *Journal of the Chemical Society*, lxi., 847.

condition; as the flower expands the bracts fall away, but at the base of the calyx gland-like structures secrete little masses of nitrogenous matter, which the ants carry away as food. One plant, indeed, houses, as well as feeds, the ants, effecting this by means of the little swellings at the base of the leaf stalk, of which a queen bee takes possession and therein deposits her eggs.

One of the sarsaparillas has a pair of lappet-like appendages at the base of the leaf wherein the ants reside whilst the tip of the leaf secretes nectar, the ants thus patrol the leaf and keep off invaders whilst the apical gland invariably accompanies the modified stipules, and the arrangement is thus natural and consistent.

Certain acacias also encourage ants, the latter residing in the greatly swollen pulvinus, and drawing their food supplies from the extremity of the leaflets.

"Honeydew" is evidence of the presence of aphides—the lecturer regarding the aphides as standing in the same relation to ants as do cows to men; the visits of the green-fly to many plants is followed by an exhudation of the saccharine material constituting "honeydew," and ants subsequently visit the same plants for the sake of the honeydew, the plant itself tolerating the aphides because of the protection it receives from the ants.

However, all ants do not co-operate in this harmonious manner with plants, and the lecturer concluded by referring to the injury caused by the "leaf-cutting" ant, which has often been alluded to in recent years, and which is probably familiar to most persons by this time.

CHEMISTS' ASSISTANTS' ASSOCIATION.—At the meeting held on the 21st inst., a good attendance assembled for a discussion on the "Work and Policy of the Federation of Local Associations." After Messrs. Wright, Davis, and Longstaff had been elected members of the Association, the President (Mr. E. W. Hill) called upon Dr. Symes, of Liverpool, to open the discussion with a paper dealing with the above subject. Dr. Symes commenced his remarks by briefly defining the policy of the associations comprising the Federation to be the consolidation of the craft, but the means by which he proposed this should be accomplished seem to be somewhat elaborate and Utopian. When a member of the Council of the Pharmaceutical Society he had special opportunities for noticing the career of local associations, but he was bound to confess that he was not very favourably impressed. In several instances associations, although started with considerable enthusiasm and every prospect of success, either died out altogether after a few years, or protracted a more or less effortless existence by grants from the parent Society. The difficulty seemed to be to get chemists to show allegiance to the Pharmaceutical Society, and not only that, but to get them to be potential for good permanently. His own view on the subject was that everyone who had passed the Minor examination should be elected a member of the Pharmaceutical Society without payment of an annual subscription. When a member of Council, he had proposed that the Society should endeavour to foster closer relations with local associations by subsidising them in such a way that they would be responsible for the proper use of the sum granted, and would have to report progress periodically, but his views were not accepted. He was still a firm believer in their efficacy, and of opinion that the bond of union should emanate from the Pharmaceutical Society, and that this bond might be accomplished by means of local federation, which, in his opinion, would satisfy a pressing want. Of course, the relation at present existing between the Society and the trade was all that could be desired, and if pharmacists were represented as they should be on the Pharmacopœia Revision Committee there was no reason for the existence of a federation, but it was obvious that this state of things did not exist. He was aware that the meeting which was called some time ago under the auspices of the Federation did not create a favourable impression, owing to the fact that the Press was not admitted, and because the idea became general that the Federation was not as loyal to the Pharmaceutical Society in its policy as it might be. In addition it was thought that the circumstances under which the Federation was formed did not promise a very lengthy existence for it, but he was of opinion that no more favourable opportunity than the present had ever occurred for the exercise of individual effort, which, if properly organised, would be one combined effort, and might prove an important factor in the destinies of the pharmacist. There were many directions in which such a Federation could employ its energies. For instance, at the present time only a small proportion of registered chemists are connected with the Pharmaceutical Society, and this is in itself a source of weakness, for it cannot be urged that the Society represents the feelings of the trade, and hence any Parliamentary Bill it brings forward does not receive the attention it deserves. Dr. Symes thought this would be remedied if the Federation of Local Associations worked in unison with the Society, each association representing the chemists within its area, and that would in addition ensure the proper proportion of pharmacists being represented on the Pharmacopœia Committee. Besides, the Federation could arrange for the publication of "blue lists" dealing with pharmacopœial preparations, and hold meetings for the discussion of trade topics such as the cutting problem, length of business hours, etc., such meetings to be held at stated intervals—say quarterly—with an annual meeting at the same time and place as the Pharmaceutical Conference. Additional facilities for local pharmaceutical education could also be provided, and he thought that some sound suggestions for the proper conduct of the examinations might well be expected from a federation of practical business men, for although he did not wish to criticise the present system of examination, there were doubtless many instances in which incompetent men passed and good men failed.

With regard to additions to the poisons schedule, it was but fair to assume that an expression of opinion from such a federation as he described would be of weight in backing up any recommendation forwarded by the Council of the Pharmaceutical Society to the Privy Council. Dr. Symes concluded by laying stress on the fact that it was useless to expect much good to result from such a scheme as he had sketched unless the Federation had the total support of each local association, which in turn ought to have the support of every member of the trade in the district it represented.

The President, in inviting discussion, remarked that there were many points in the paper which were open to criticism, and for his part he thought that Dr. Symes was rather optimistic.

Mr. E. J. Millard confessed his inability to appreciate the value of the Federation. The movement on behalf of territorial representation had always seemed to him to have a good deal in its favour as likely to stimulate local interest in the composition of the Council of the Pharmaceutical Society, but if Dr. Symes suggested that the present Council should be replaced, he thought the idea would find little support from that Association, where the opinion was firmly held that the members of the Council were admirably selected as representing the best interests of the trade, and that they devoted themselves to the advancement of pharmacy. As far as he could understand, the position proposed for the Federation was that it should act as a goad or stimulant to the Pharmaceutical Society when necessary; whilst, on the other hand, it was gravely suggested that it would form an admirable recruiting ground. They were all in favour of anything tending toward the unity of the craft, but the advancement of another association that sooner or later would in all probability become antagonistic toward the parent Society, was surely a strange way of promoting cohesion amongst pharmacists. It appeared to him that the Federation would inevitably descend into a self-glorification Society, or a promoter of another annual picnic. He was always at a loss to understand if the burning desire to discuss trade matters really existed amongst those of their provincial brethren who were unable to attend the annual meeting of the Pharmaceutical Society, how it was that advantage was not taken of the Conference meetings. If the subjects that Dr. Symes had suggested the Federation might profitably interest itself in were actually part of its policy, he had no hesitation in saying that they had the work of a century before them in order to accomplish it. In conclusion he asked Dr. Symes to give them some indication of the support that the Federation had received, and especially what it had accomplished during the three years that he understood it had been in existence.

Mr. W. Roberts concurred with the views expressed, and asked Dr. Symes' opinion as to whether the present method of carrying out the examinations could be improved on. For his part he thought that it was as near perfect as possible.

Mr. W. S. Crouch, although in favour of supporting a federation if its aims were practicable, was rather dubious as to some of the arguments advanced by Dr. Symes in its favour. He thought that if local associations were subsidised by the Pharmaceutical Society it would tend to lessen the correct spirit of independence and self-help which should be fostered, and he was of opinion that when a powerful organisation like the Pharmaceutical Society exists there was a great danger in lending support to a weakling, as the only result would be divided forces, and it was not to be expected that an unofficial association would be able to bring any pressure to bear on the Privy Council. The question of shop hours could not be

profitably discussed by the Federation, as it was one which could only be settled by the requirements and customs of each neighbourhood.

Mr. R. H. Jones stated that the Association was rather diffident as to lending its support to the Federation when it was inaugurated, owing to the cool reception it received from many prominent pharmacists, Messrs. Carteighe and Martin amongst others, but after due consideration they decided to join it. He thought that good work could be done, if only by getting chemists to join the Pharmaceutical Society and rousing local interest in pharmaceutical matters, which was much needed, as instanced by the fact that at the present time there was not an association in the counties Norfolk, Suffolk, and Essex. He was of opinion that the Federation would soon cease to exist if more energy and self-sacrifice were not displayed by it members.

Mr. Pickering was possessed with the idea that the reason why chemists did not join the Society was because they did not get sufficient value for their money, and he thought much good could be done if an association were formed in each county.

Mr. Summers followed in the same strain.

Mr. R. Melhuish complained of the want of backbone that was displayed by the Federation in its past work. There appeared to be no definite line of action resolved upon. He was glad to see that Dr. Symes had given prominence to consolidation, as he was convinced that was the point from which future progress was mainly to be expected.

Mr. C. Morley was also a warm advocate of consolidation. He thought it would be an important step in advance if the trade jealousy that at present exists could be suppressed, and if only unanimity resulted from the work of the Federation, it would be an important step in advance.

Mr. Guyer remarked that the previous speakers were evidently under the impression that what Dr. Symes had said was the policy of the Federation, whereas it had no policy. At the last meeting held at Bournemouth it was decided that the policy should arise from the associations and not from the Federation. He regarded the Federation as having to deal solely with Associations and not with individuals; to help mutual sympathies between already existing associations, and if necessary to form others, for as its name implied it was a federation of associations and not one of pharmacy.

The President closed the discussion by remarking that the aims of the Federation as put forward by Dr. Symes seemed to be much more ambitious than could be carried out by a conglomeration of bodies, each without any power. He failed to see how it could help the Pharmaceutical Society in any way. It was quite impracticable to expect that it could initiate the formation of an organisation in any given town which could only be started spontaneously by the local chemists.

Dr. Symes, in his reply, expressed his pleasure at finding how loyal the Association was to the Pharmaceutical Society. He thought that subsidisation would be found a good means to consolidation, and remarked that trade matters could only be referred to at the Conference in the presidential address. He reminded them that the reason why carbolic acid was not scheduled was on account of the opposition met with from the manufacturers of it.

A hearty vote of thanks was awarded Dr. Symes for the trouble he had taken in coming from Liverpool to read his paper, and the meeting then terminated.

Cambridge Pharmaceutical Association.—The members of the above Association assembled on Friday, November 15, at the Caius College Laboratory, when Mr. Pattison Muir, M.A., Caius College, delivered a lecture on "Qualitative Chemical Analysis viewed in the light of Recent Research." The President, Mr. Alderman Deck, F.C.S., occupied the chair, and there was a good attendance of members and friends present. The lecturer indicated by experiments the character of the problems of qualitative analysis. He considered especially the questions—Why does a metal exhibit certain reactions in all its salts, which reactions are independent of the nature of the acid radical wherewith the metal is combined? And, Why are the reactions used for the detection of an acid radical the same whatever be the metal with which that radical may be combined? He then sketched the theory of ionic dissociation, which asserts that a fairly dilute watery solution of a salt, an acid, or a base contains the ions into which the compound is resolved by the electric current. The lecturer showed how this theory gives a simple and consistent explanation of the reactions of qualitative analysis; and he indicated some of the other fields of inquiry wherein this theory has advanced our knowledge of chemical and chemico-physical occurrences.

At the conclusion of the lecture, the President moved a hearty vote of thanks to Mr. Pattison Muir. This was seconded by Mr. Ernest S. Peck, M.P.S., and carried with acclamation.

Sheffield Microscopical Society.—The inaugural meeting of the above Society was held on Friday night at the Rutland Institute, Chapel Walk, when Mr. A. H. Allen, F.I.C., F.C.S., delivered the presidential address. He took for his subject, "Some of the Phenomena of Polarised Light," and his remarks were illustrated with a number of elaborate experiments, which were shown by a polarising lantern. There were also shown a number of beautiful and rare objects, most of which had been lent for the occasion by Dr. Thomas Edmunds, of London. Mr. Allen explained and demonstrated the different methods of obtaining polarised light, and the colouring effects when it traversed crystals and other media possessing the power of double refraction. There was a large and appreciative audience. Unfortunately, Mr. Newsholme, the honorary secretary, was unable to be present, owing to prolonged indisposition, and general regret was expressed at his non-attendance. The following have been elected as officers of the Society for the ensuing session: President, Mr. A. H. Allen, F.I.C., F.C.S.; Vice-Presidents, Dr. Arthur Hall, B.A., M.R.C.P., and Mr. J. Newton Coombe; Treasurer, Mr. G. Wilkinson; Secretary, Mr. G. T. W. Newsholme, F.C.S.; Librarian and Curator, Mr. John Austen. The foregoing officers and Rev. T. S. King, F.G.S., F.R.M.S., and Mr. W. B. Tolputt, L.D.S., form the Council.

PROCEEDINGS UNDER THE PHARMACY ACT.

The Sale of Ant-Destroyer and Weed-Killer.

In the Sheriff Court House, Dumbarton, on Friday, 22nd inst., a case under the Pharmacy Acts against James Bryson, seedsman, Princes Street, Helensburgh, came before Sheriff-Substitute Gebbie.

The respondent was charged by the Pharmaceutical Society with keeping open shop for the sale of poisons on May 30, 1895, on which date he sold to an agent of the Registrar a quantity of arsenic as an ingredient in a bottle of "Ballikinrain Ant-Destroyer," and also a quantity of arsenic as an ingredient in a tin of "Smith's Perfect Powder Weed-Killer."

The respondent pleaded not guilty.

Mr. Robert Macfarlan, solicitor, Dumbarton, who appeared for the prosecutor, asked the Sheriff to fix a diet for proof.

Mr. Hugh H. Ormond, solicitor, Helensburgh, who appeared for the respondent, said he had not got any notice that this would only be a pleading diet. He had his witnesses for the defence present, and was ready to proceed now.

Mr. Macfarlan said the officer who served the summons distinctly warned the respondent that there would only be a pleading diet to-day.

The Sheriff said it was obvious that the case could not proceed that day, and fixed Tuesday, December 10, at one o'clock for the trial.

MISCELLANEOUS NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

Science Appointment at Plymouth.—The Technical Instruction Committee of the Plymouth County Council have appointed Mr. John Brown, of the Glasgow Technical College, as headmaster on the science side at the Plymouth Technical Schools, in succession to Dr. Dunn. Mr. Brown has been for some time senior science master in the Allan Glens Schools, Glasgow, and evening lecturer on mathematics in Glasgow Technical College.

Accident in a Chemist's Shop.—The young man Fisher who met with an accident in the shop of Mr. Munday, chemist, of Tiverton (as reported in *Ph. J.* of last week) has recovered the use of the sight of the right eye, but to all appearance the nitric acid has totally destroyed the sight of his left eye, and he will remain at the Tiverton Infirmary for some time.

IRISH NEWS.

The Poisoning of a Road by Strychnine at Thurles, Co. Tipperary, has caused the deaths of a number of domestic animals and poultry. The matter having been brought before the magistrates by Mr. Carrigan, solicitor, they stated that they considered that there was a dangerous laxity in the sale of strychnine to irresponsible persons; and they passed a resolution calling the attention of the Government to the matter, and urging that special restrictions should be placed on the sale of strychnine.

Promotion from the Ranks of Pharmacy to the practice of medicine is of frequent occurrence among the younger Irish pharmacists, who, however, in most cases combine the exercise of both professions; but occasionally the active pursuit of pharmacy is relinquished, as in the case of Surgeon-Lieutenant R. J. Blackham, L.P.S.I., who has just been gazetted to the Army Medical Staff Corps. Surgeon Blackham became a Pharmaceutical Chemist in 1890, and was for some time apothecary to the Rotunda Hospital. Subsequent to his obtaining his medical degrees in 1892, he was appointed physician to the Sidcup Hospital, and medical officer to the Chislehurst Dispensary. Having decided on entering Her Majesty's Service, he was successful at last Spring Examination for the Army Medical Staff College at Netley, and, having undergone the necessary course of training there, in due course presented himself at the Autumn (final) Examination, taking a high place. He has now been posted to 3rd Station Hospital, and No. 3 Company of the Army Medical Staff at Aldershot Camp, and there is no doubt but that he will be a credit to the Service.

FOREIGN NEWS.

Pharmaceutical Congress at Marseilles.—The whole of the second day's meeting of the National Pharmaceutical Congress at Marseilles was devoted to the discussion of the present state of the law referring to the manufacture of specialties, the best means to be adopted for preventing the underselling of the same, and the advisability of endeavouring to procure their suppression. The proceedings commenced by the reading of the Chevret project for obviating cutting prices, which was explained by the Secretary of the Congress in the absence of its originator. This scheme is the one that has been most favourably received by the general body of pharmacists, and consists in affixing to every specialty a voucher, which, when the article is sold to the public, is detached by the vendor, and is subsequently forwarded to the maker of the medicine, who only then concedes the trade discount (retail price having been previously paid by the chemist for it), on the understanding that it was sold with no diminution of the price marked on.

An animated discussion ensued as to the expediency of totally suppressing specialties, and attention was called to the fact that at the last congress the vote returned in its favour was due to the absence of a majority of members who are known to be opposed to its existence. A member then read several clauses from the pharmacy law, which clearly interdict the advertising of secret remedies, and he caused considerable excitement by declaring that the time had arrived when it was necessary to draw a sharp line between those pharmacists who wished to earn their living by the exercise of their profession, and the individuals whose only aim was to exploit the public by making and selling quack medicines.

M. Petit then addressed the meeting. He questioned whether it was expedient to openly declare war against the specialty, and he asked whether by means of mutual concessions a favourable understanding could not be arrived at, in the interests of both pharmacists and makers of specialties, and concluded by saying that it was difficult to differentiate between good and bad specialties, for both existed, and all of them should not be condemned, and he urged the meeting to treat this important subject with equanimity.

The question was then put whether the projected pharmacy laws should recognise the specialty, and on a show of hands being taken, the general opinion of the meeting seemed to be opposed to it.

M. Petit again spoke in favour of a compromise and endeavoured to obtain the support of the assembly to the Chevret scheme, on which, however, there was a wide divergence of opinion. Some members demanding that every specialty should have its formula printed on it.

M. Marq, the President of the General Syndicate, then urged the meeting to first of all give its opinion on the future legislation regulating specialties, and to examine afterwards the advisability of the adoption of the Chevret scheme for existing circumstances, as it was important that these two questions should not be confused, each of them requiring a separate solution.

The following propositions were then made and carried :—"The Congress expresses its desire that the new pharmacy laws should comprise the suppression of specialities."

"In event of non-suppression, that all specialties should bear an inscription of their respective formulæ sufficiently definite to enable them to be prepared in any pharmacy."

"The Congress, taking as a basis the decision of the annual assembly of the General Association, which adopted the Chevret scheme, formally desires that the necessary steps be taken to induce the Syndical Chamber of Manufacturing Pharmacies to arrive at a prompt decision for the suppression of the underselling of specialties." The proceedings then terminated.

Accident in a Pharmacy.—An accident of a grave nature occurred last week at the pharmacy of M. Bugniot, 34, Rue Ville-l'Eveque, Paris, inflicting considerable injury on an assistant. It appears that the latter was preparing a veterinary medicine containing a quantity of chlorate of potash and sulphide of antimony, and, disregarding his employer's instructions, proceeded to mix them together in a mortar. A violent explosion ensued, and the young man was severely burnt on the face, so much so that it was found necessary to have him transported to a hospital, fears being entertained that he would lose his eyesight. Later reports of his condition, however, are more satisfactory. The shop front was fractured and the pharmacy otherwise damaged by the force of the explosion, which naturally caused considerable excitement in the neighbourhood.

The Last Straw.—The long-suffering Spanish pharmacists, or "bobicario," so worried of late by domiciliary visitations anything but few and far between on the part of the Revenue officials in their efforts to enforce the tax upon patents, have the prospect of other troubles of a like nature not very far ahead. The latest vexatious order issued by the Treasury is that frequent visits are to be made to pharmacies by the tax-collectors, who have orders to demand the production for their inspection of the prescription-books or registers so that it may be seen if the medical men have complied with the regulation imposing upon them the use of stamped forms value 10 centimos each, upon which the prescriptions are to be written. Spanish pharmacists contend, and rightly, too, that they have entire control of their books and registers, and can only be compelled to produce them by a judge's order in case of any poisoning or during a criminal investigation in open court, as is already provided for and stated in the Criminal Code. It is most derogatory to professional dignity, certainly, to be obliged to assist in bringing into the hands of the law fiscal delinquents, and it is to be hoped that the Spanish Treasury authorities will not press such an unheard-of interference with pharmacists' rights.

The Spanish Revenue Duty on Patent Medicines.—The agitation of the various pharmaceutical bodies for the removal of the 10 centimos tax on patent medicines, mineral waters and specifics generally has resulted in nothing except to further draw the attention of the Revenue authorities to the lax manner in which the import was formerly enforced. The various representatives of provincial pharmaceutical associations, not acting collectively, but proceeding in an apathetic and half-hearted way, believing blindly in every promise, ministerial or official, and trusting too confidingly in the influence of certain Deputies who did not press the abolition of the duty with sufficient vigour in the debates in the Cortes, now find their well-meant, but weakly efforts rewarded by increased severity in the enforcement of the obnoxious duty. A Federation of Provincial Pharmaceutical Associations is evidently badly wanted in Spain.

Enforcing the Spanish Medicine Stamp Act.—The Revenue officers are very busy in Madrid just at present trying to enforce the 10 centimos stamp duty on proprietaries and mineral waters, imposed by Article 179 of the Stamp Act. Their methods are such as English pharmacists would scarcely credit, generally taking the form of a domiciliary visit and a thorough overhauling of the stock, with excursions into odd corners and neglected lockers of the pharmacy in the hope of encountering "alguna cosa de contrabanda."

The results do not seem to equal the amount of misdirected energy employed, the only certain ones so far are the exasperation and disgust of the entire pharmaceutical body with the law and its over-zealous enforcers.

A New Spanish Journal has just made its appearance under the title of *El Monitor de la Farmacia y de la Terapéutica*, edited by Don Francisco Palau y Ballestero.

Examinations in Prussia.—At the examinations held during the year 1894-95 at ten centres by the Royal Prussian Commissioners 325 pharmaceutical candidates presented themselves. Out of that number 282 passed and 43 were rejected. The proportion of successful candidates—upwards of 86 per cent.—compares favourably with that obtaining in the British examinations, and shows the importance of systematic education such as German pharmaceutical students have the advantage of.

Workmen's Sick Insurance Association.—During the three months ending June 30, the members of the Workmen's Sick Insurance Association in Berlin numbered 86,741, of that number there were 24,878 cases of sickness. The number of prescriptions was 55,384 and the cost of medicines, &c., supplied was £1702, so that the average cost in each case was about sevenpence. The cost of bandages and dressings was £138.

Pilocarpine in Grippal Pneumonia.—At the French Therapeutic Society, M. Bardet read a memoir by M. Poulet on the treatment of grippal pneumonia by hydrochlorate of pilocarpine. During an epidemic of influenza that prevailed at Plancher-les-Mines, daily doses of five centigrammes were given to adult patients attacked by pneumonia. The results were very satisfactory, the salivation and profuse perspiration produced by the drug causing congestion to decline rapidly, even in persons of seventy years of age. As a rule a two days' treatment sufficed, and out of 108 pneumonia patients there were only four deaths. During the discussion that ensued it was elicited that cardiac tonics were prescribed at the same time as the pilocarpine in order to counteract its depressing action on the heart.

Mercury Oxycyanide as an Antiseptic.—Dr. Charles Monod, the eminent surgeon and Professor of the Faculty, speaking at the French Chirurgical Congress, recommended solution of oxycyanide of mercury in surgical operations and for general use as an antiseptic, which he says replaces with advantage corrosive sublimate and carbolic acid, He bases his statement on experience with this chemical both in hospital and private practice extending over four years. He finds that a 1 in 200 solution is equal, if not superior, in germicide power to the 1 in 1000 perchloride solution, while it possesses the advantage of neither attacking the hands nor the instruments of the operator. In experiments made on bacterial cultures, a solution of the strength mentioned arrested development, killed developed cultures and sterilised tainted matter. Staphyloccus, streptococcus coli, and pyocyannic baccilli were destroyed, also a microbe resembling the anthrax bacillus, which had resisted a temperature of 212°F. No toxic accidents ensued from the use of the oxycyanide, and Dr. Monod, without underrating the value of perchloride of mercury and carbolic acid, considers that the oxycyanide can be advantageously substituted in surgical operations on account of its ready solubility and negative action on steel instruments, thus simplifying the number of antiseptics required. Attention has been previously drawn to the substance in question by M. Chibret, and although esteemed a powerful antiseptic, up to the present it has not come into practical use.

Blaud's Pills.—Doctor Ravá, a pharmacist, of Parma, writing in the *Bollettino Farmaceutico di Milano*, attributes the rapid oxidation of the ferrous carbonate in Blaud's pills, made according to the formula of the Italian Pharmacopœia and most other formulæ, to there being an insufficiency of water ordered in the preparation of the mass, and he proposes as an improvement a process reminding one of those of the French Codex and of the Belgian Pharmacopœia. He would substitute bicarbonate of soda for the carbonate of potash, in the proportion deduced from the following equation: $FeSO_4,7H_2O + 2NaHCO_3 = FeCO_3 + Na_2SO_4 + CO_2 + 8H_2O$, that is to say, 278 parts of ferrous sulphate to 168 parts of bicarbonate of soda. The ferrous sulphate is placed in a capsule with 90 parts of water and heated on a water bath, the bicarbonate of soda is added by degrees to this solution, and at the end of the reaction 50 parts of honey, 35 of gum acacia, and 20 of glycerin are weighed in, and the whole mixture is then evaporated to a pilular consistence and cut into pills of 25 centigrammes. The author says he has always obtained by this method of manipulation a white (!) and plastic mass, which keeps well and is therapeutically superior to the usual Blaud's pill mass.

Artificial Colouring Matters in Wine.—From the readiness with which binoxide of sodium bleaches the natural colour of wine, M. Rinzaud uses it to detect artificial colouring matters present (*El Memorandum*). It also discharges the tint of aniline colours, such as fuchsine, by reason of the caustic alkali produced when it gives off its oxygen, but the colour of such dyes reappears on neutralising the liquid with an acid, whilst the natural vegetable colours are entirely destroyed. Five grammes of wine are treated with ·10 to ·15 of sodium peroxide, and after twenty minutes, when the colour will be entirely discharged, acetic acid is dropped in until the wine is slightly acid. If aniline colours are present, they will then show themselves, whilst if the wine is genuine, it remains colourless.

Test for Chlorates.—In the *Journal de Pharmacie et Chimie*, G. Denigès publishes a formula (resorcin, 1 gramme; water, 100 C.c.; sulphuric acid, 10 drops), for the detection of chlorates when present in a solution varying in strength from 1 in 1000 to 1 in 50. The manipulation is as follows: 1 or 2 drops of the liquid containing a chlorate and 2 C.c. of pure sulphuric acid are poured in a test tube, the mixture is cooled by plunging the tube in cold water and then shaken; to this add, without agitation, 5 drops of the above resorcin reagent, then cool again with cold water, and gently shake. If chlorates are present, a green coloration is obtained. The same operation will produce with nitrates a faint yellowish tinge, changing to violet-red on heating. Nitrites, however, give an intense violet-blue tint (see *ante*, p. 365), and in the presence of this acidulous radical it would be necessary when searching for chlorates to modify the process thus:—To 2 or 3 C.c. of the saline solution, add half its volume of ammonia solution, filter if necessary, supersaturate with acetic acid, evaporate till only 4 or 5 drops remain, then add to this residue 10 or 15 drops of water, and, on testing for chlorates with the resorcin solution, the green coloration will be produced. A tenth per cent. of chlorate can be thus detected in a liquid containing one per cent. each of nitrite of sodium and nitrate of potash. If chromates or permanganates are present, the solution should be first treated with ammonium sulphydrate, filtered, supersaturated with acetic acid, boiled, and refiltered. Iodides should be previously eliminated by lead acetate. The author states that the above test has a decided advantage over the sulphate of aniline reaction, as it does not affect bromates; it is, besides, a very delicate one, so much so that it is preferable to dilute the solution for analysis in order to obtain the characteristic green coloration.

PUBLICATIONS RECEIVED.

Acidimetric Estimation of Vegetable Alkaloids. By Lyman F. Kebler. Pp. 11. Reprinted from the *American Journal of Pharmacy*. From the Author.

Dental Mechanics. Part II.: The Dental Laboratory. By Harry Rose, L.D.S. Pp. 117, with 66 illustrations. (London: J. P. Segg and Co., 289 and 291, Regent Street, W., 1895.) From the Publishers.

Earth Knowledge: A Text-Book of Physiography. Part I. By W. Jerome Harrison, F.G.S., and H. Rowland Wakefield. Ninth Edition. Pp. 266, with 123 illustrations. Price 2*s.* (London: Blackie and Son, Ltd., 50, Old Bailey, E.C., 1895.) From the Publishers.

Food and its Functions: A Text Book for Students of Cookery. By James Knight, M.A., B.Sc., F.C.S., F.G.S. Pp. 282, with 34 illustrations. Price 2*s.* 6*d.* (London: Blackie and Son, Ltd., 50, Old Bailey, E.C., 1895.) From the Publishers.

Elementary Inorganic Chemistry: Theoretical and Practical. By A. Humboldt Sexton, F.I.C, F.C.S., M.I.M., and M. Fourth Edition. Pp. 366, with 63 illustrations. Price 2*s.* 6*d.* (London: Blackie and Son, Ltd, 50, Old Bailey, E.C., 1895.) From the Publishers.

POISONING CASES AND INQUESTS.

Chlorodyne.—Robert Bowie, aged about 50 years, of 17, Bow Windows Yard, Haley Hill, died on October 29, from the effects of an overdose of chlorodyne. Verdict: "Death was caused by an overdose of chlorodyne."

Belladonna.—Emma Clara Gardner, aged 42, of Hereford, died on November 4, from the effects of drinking belladonna contained in a liniment, in mistake for her medicine. Verdict: "Death through misadventure."

Corrosive Sublimate.—Charles William New, aged 32, of Old Netley, died on October 28, from the effects of drinking corrosive sublimate, in mistake for his cough mixture. Verdict: "Death was due to the deceased accidentally taking a dose of poison."

Caustic Soda.—Charles East, aged 9, of 171, Stebondale Street, Poplar, died on November 5, from the effects of caustic soda, evidently taken in mistake for ginger-beer, it having been drunk from a ginger-beer bottle. Verdict: "Accidental Death."

Laudanum.—James Stewart Paterson, aged 22, of 185, Hithergreen Lane, Lewisham, died on November 12, from the effects of laudanum, taken as a sleeping draught. Verdict: "Death by misadventure."

Arsenic.—Mary Elizabeth Burrow, aged 8, of West Tayland, Hartland, died on November 10, from the effects of arsenic, administered to the deceased in milk in mistake for sulphur. Verdict: "Accidental Death."

Ammonia.—Elizabeth Hampson, aged 30, of Dale Street, Leicester, died on November 14 from the effects of drinking ammonia whilst light-headed. Verdict: "Death by misadventure."

Laudanum.—James Edward Gibson, aged 1 month, son of Frederick Gibson, of 9, Myrtle Street, Salford, died in the Salford Royal Hospital from the effects of laudanum, given to it by its mother with a view to sending the child to sleep. At the inquest held on November 15 a verdict of "Death from misadventure" was returned.

Laudanum.—John Craven, aged 52, of Middle One Farm, Hart, near Hartlepool, died on November 16, from the effects of an overdose of laudanum, taken to relieve pains at the heart and to procure sleep. Verdict: "Death was due to syncope, which laudanum might help to cause although taken in reasonable doses."

Morphine.—Emma Whitlock, aged 31, of Duke Street, Manchester, died on November 16, from the effects of an overdose of morphine, taken to relieve pain. Verdict: "Deceased died from an accidental overdose of morphine."

Sulphate of Zinc.—John Wykes, aged 40, of 15, Uverdale Road, Chelsea, died on November 17, from the effects of taking sulphate of zinc in mistake for Epsom salts. Verdict: "Death from misadventure."

Turpentine.—Julia Anne Robinson, aged 20 months, the daughter of Thos. Robinson, of 53, Livingstone Street, Birkenhead, died on November 18, from the effects of drinking turpentine, which she had discovered in a cupboard. Verdict: "Death was due to the poisonous effects of turpentine."

Laudanum.—Elsie Hipple, aged 7 months, died on November 11, at Atto's Yard, Spalding, from the effects of being given laudanum in mistake for cough mixture. Verdict: "The child died from having laudanum accidentally administered to it."

Laudanum.—Mrs. F. M'Diarmid, of Alva, died on November 20, from the effects of laudanum, which she had been in the habit of using, and it is supposed she accidentally took an overdose.

Carbolic Acid.—Lilly Wartenby, aged 3, whose parents reside at Higher Broughton, died on November 7, from the effects of drinking carbolic acid. Verdict: "Accidental poisoning."

NEW REMEDIES.

[*The notes given under this heading embody recent suggestions in therapeutics. They cover both new drugs and preparations, and old ones under new aspects. The word "parts" is used to represent parts by weight, both for solids and liquids.*]

THYROID FEEDING IN SYPHILIS.—Güladzë describes the following remarkable case, in which excellent results were obtained by thyroid treatment. After giving mercurial preparations, both internally and externally, and iodine of potassium, the patient's condition progressed from bad to worse. Güladzë ultimately decided to try the internal administration of a raw bovine thyroid. The glands, always taken from recently killed oxen, were freed from fat and fascia, then finely minced and given with bread, butter, and salt. On the first day the patient received 2 grammes of the gland, while each subsequent dose was increased 2 grammes, till 14 grammes a day were reached. On the third day of the treatment a steady improvement commenced. The ulcers became cleaner and rapidly healed completely. Fever soon subsided, appetite returned, and within a short time the bodily weight increased eleven and a half pounds. By the end of five months the patient was free from any syphilitic manifestations. In the beginning of the thyroid course the patient complained of nausea, cardiac palpitations, and tremor of the upper limbs, while the frequency of pulse rose to 120 per minute. Subsequently, however, all the phenomena vanished spontaneously (*Prov. Med. Journ.*, xiv., 552; after *Vratch.*).

INJECTION OF GUAIACOL FOR LOCAL ANÆSTHESIA.—Dr. André recommends a solution prepared thus: Synthetic guaiacol, 1 gramme; neutral sterilised oil to 20 C.c. (see *ante.*, pp. 134 and 168). The author finds that this solution of guaiacol gives excellent results in minor surgical and dental operations. It is necessary, however, to wait from three to five minutes, or even longer after the injection, according to the area of the region to be operated on, in order to obtain the full anæsthetic effect. Compared with that obtained with cocaine, the anæsthesia is more lasting and the action is more general with guaiacol than with cocaine, and is produced equally well in inflamed and swollen tissues, and in collections of pus as in healthy tissues. Guaiacol, moreover, in the author's words, appears to analyse the two sensibilities—sensibility of touch and sensibility of pain. It does not interfere with the former, but annihilates the latter. It is not, therefore, a true anæsthetic, but an analgesic (*Journ. de Pharm.*, 6me., ii., 294).

ICHTHYOL IN URTICARIA.—Lauz prescribes ichthyol 4 grammes divided into 20 capsules; four to six to be taken daily (*Rev. de Thérap. Medic.-Chirurg.*, lxii., 614).

GUAIACOL IN ORCHITIS.—Pucci reports a case of ague and orchitis followed by inflammation and afterwards by an acute attack of malarial fever. Sulphate of quinine had no effect upon the fever, or belladonna upon the inflammation. An ointment composed of 2 Gm. of guaiacol and 20 Gm. of vaselin was then prescribed, about 2 Gm. of it being painted over the scrotum thrice daily, the quinine being discontinued. The fever was almost at once subdued, and the orchitis entirely cured in a week (*B. M. J. Epit.*, 2, 95, 56; after *Gazz. d. Ospedali*).

PARACHLOROPHENOL IN LARYNGEAL TUBERCULOSIS.—Spengler, using a 10 per cent. solution of parachlorophenol in glycerin applied locally in twenty-six cases, concludes that it is a most active antiseptic, and is fatal to the specific bacillus. He observed no irritation or any reaction; the applications, moreover, exercised an anæsthetic action, and this persisted for several days, while that induced by cocaine had only a brief duration; the application could also be applied in all stages of laryngeal tuberculosis, even to the very last (*Rev. de Thérap. Med. Chirurg.*, after *Vratsch*, lxii., 601).

STYPTICINE; COTARNINE HYDROCHLORATE.—Under this trivial name Gottschalk has introduced chlorhydrate of cotarnine to the notice of gynæcologists. In hæmorrhages he injects 25 centigrammes, using a 10 per cent. solution. In menstrual hæmorrhage he uses 25 milligrammes five times daily for five days before the term, and during the period 5 centigrammes given internally in gelatin perles. Stypticine must not be exhibited when abortion is threatened (*Journ. de Pharm.*, 6me., ii., 152; after *Pharm. Central.*).

NOTES AND QUERIES.

[The information given in this column includes both notes of practical interest to pharmacists, and replies to queries which seem to possess sufficient interest to readers generally. Readers requiring working formulæ for special preparations should intimate their wants to the Editor, who will be pleased to assist them to the best of his ability. The word "parts" invariably indicates parts by weight.]

Analysis of Ginger.

R. G. Davis has determined the percentage amount of oleoresin, ash, and moisture, in commercial samples of ginger with the following results (*American Journ. Pharm.*, lxvii., 520):—

Variety.	Form.	Condition.	Oleoresin.	Moisture.	Ash.
Jamaica	root	bleached	4·62	12·10	5·25
,,	,,	,,	4·53	10·40	5·25
,,	,,	unbleached	2·82	12·50	3·50
,,	,,	,,	4·41	9·85	3·65
,,	powder	,,	4·30	9·05	5·20
,,	,,	bleached	4·84	9·70	6·55
Race	,,	—	4·09	11·10	5·35
,,	,,	—	5·40	9·15	5·05
,,	root	—	4·02	12·20	5·60
African	,,	—	5·75	13·65	4·65
,,	powder	—	6·27	12·60	4·65
Jamaica	,,	—	3·73	12·15	3·65

Iodoform Gauze.

Prior gives the following method of making iodoform gauze:—Fine-mesh gauze is steam sterilised. It is then dried, after which the gauze is soaked in a twenty per cent. solution of iodoform in ether for ten minutes. It is then taken out, and the excess of ether wrung out with the hands. The gauze is then placed in a basin, and covered with a towel. It is left for twelve hours in a warm room after which the ether will have entirely evaporated. The gauze by that time is of a greenish-blue colour, presenting the characteristic starch-iodine reaction. It is unfit for use in this state, the iodine being too free. The gauze is next soaked in a watery solution of bichloride of mercury (1 to 4000). This acts as a fixing agent, and the golden colour of iodoform again appears. The gauze is then wrung as dry as possible with the hands, and preserved in glass jars. When prepared in this way the iodoform is not held in the gauze in mere mechanical association, but is in every bast cell of the fibre of which the gauze is composed. There is a distinct advantage in this as such a dressing cannot be poisonous as the iodoform is not absorbed. The addition of discharges and blood to the gauze again turns it greenish blue, showing that the iodine is again in a free state. So, when the dressings are saturated they are yet sterile. In cavity walls, there being no glycerin in the gauze, no serous exudation is induced. This material has been used by Prior for the last five years, and he considers it has largely influenced the results as well as the after treatment of his operations (*New York Med. Journ.*)

Detection of Halogens.

For the detection of a halogen in an organic compound Raikow recommends the use of a carefully prepared solution of silver nitrate in concentrated sulphuric acid. Organic compounds added to the reagent are rapidly attacked; the halogens combine with the silver and can be detected in the usual way. Iodine also escapes partly in the free state (*Pharm. Zeitung.*, xl., 372).

Determination of Fat and Albuminoids in Milk.

Van Hamel-Roos determines fat and albuminoids in milk by the following modification of Ritthausen's method. Five grammes of condensed milk heated to 35° are mixed with about 20 volumes of water and 5 per cent. solution of sulphate of zinc added until all the fat and albuminoids are precipitated, leaving a clear supernatant liquid. The precipitate is filtered off and washed till the filtrate amounts to 250 C.c.; it is then nearly dried and extracted in a Soxhlet extractor. In the filtrate, the milk-sugar can be determined after the addition of solution of potash, and the cane-sugar determined by polarisation (*Ph. Centralh*, xxxvi., 341).

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

All Articles, Letters, Notices, and Reports intended for publication in the Journal, Books for Review, and communications respecting Editorial matters generally, must be Addressed "Editor, 17, Bloomsbury Square, London," and not in any case to individuals supposed to be connected with the Editorial Staff. Communications for the Current Week's Journal should reach the Office not later than Wednesday, but news can be Received by Telegraph until 4 p.m. on Thursday.

Any Instructions from Members, Associates, and Students of the Pharmaceutical Society, with reference to the transmission of the Journal, should be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London.

Business communications—including advertisements, orders for copies of the Journal, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London. Cheques and money orders should be made payable to "Street Brothers."

Correspondents who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for illustrations should be executed twice the desired size; clean, sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Queries addressed to the "Editor" will be replied to in the Journal as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries." The Editor cannot undertake to reply to queries through the post.

Reprints of articles cannot be supplied unless authors communicate with the Editor before publication.

ANSWERS.

F. Goldby.—It is to be feared that the parties interested in the matters you refer to are not anxious to know the truth, but prefer to trust to a policy of bluster.

A. H. Price.—See page 458 for the formula you ask for. We believe the powder used is usually coloured with carmine.

"Xylem"; "Southsea."—Kindly take the trouble to read the notices at the head of this column.

"Belmont."—Every British pharmacist should possess Proctor's 'Lectures on Practical Pharmacy,' but you would do well to supplement it with Coblentz's 'Handbook of Pharmacy' (Blakiston, Philadelphia, U.S.A., $4·00) or Caspari's 'Treatise on Pharmacy' (Lea Bros., Philadelphia, U.S.A., $4·50). See reviews on page 1047 of last volume and page 418 of the present one.

QUERY.

A correspondent asks for information regarding "Zincol Lint." Can any reader oblige him?

CORRECTIONS.

Ointments of the B.P.—The formula for ung. iodoformi given on page 435 should read:—

℞. Iodoformi præcip. ..... ℥i.
Anhydrous glycerin..... ℥i.
Ung. cerei (wax and oil, 1 p.: 3 parts)..... ℥vii.
Simul tere secundem artem.

Compound Decoction of Aloes.—On page 441, column 2, line 35 from bottom, the word "quality" occurs instead of "quantity," having been overlooked in the author's proof.

Communications, Letters, etc., have been received from Messrs. Allen, Austen, Bainbridge, Bevan, Boa, Brown, Buckler, Butcher, Cammeck, Chalmers, Christy, Cooper, Cousins, Davis, Dennis, Dixon, Dott, Eardley, Evans, Fernie, Foster, Fyfe, Hill, Hughes, Hyslop, Jardine, Jarvis, Kemp, Kennedy, Laing, Lucas, Mackaness, Maish, Martindale, Morgan, Newsholme, Peck, Poole, Preston, Price, Proctor, Salter, Saunders, Smith, Squire, Stroud, Tyler, Walkden, Wallas, Westley, Wicken.

EDUCATION AND EXAMINATION IN EXPERIMENTAL SCIENCE.*

BY JOHN GIBSON, PH.D., F.R.S.E.

Professor of Chemistry in the Heriot-Watt College, Edinburgh; Examiner in Chemistry to the University of Edinburgh, and to the Pharmaceutical Society of Great Britain.

It is, I believe, generally admitted that examination is at best an imperfect test of capacity. The only certain criterion which we have of the fitness of a man is the work which he does. It is notorious that many who pass through the preliminary ordeal of examination with flying colours, fail to stand the far more severe and searching test to which they are subjected by actual life and practice. And on the other hand, many who barely succeed in overcoming the preliminary and artificial test, subsequently become able and efficient members of the professions or callings which they have chosen. Such considerations have led some to call in question the desirability or necessity for any other test than that of life itself. I do not propose, however, to discuss to-night this more abstract side of the subject, but rather to accept as correct the judgment of the majority of men of practical experience, that examination of some sort is imperative. I have chosen this subject because I am impressed with the importance of arriving, if possible, at a clear understanding and agreement, not of course on matters of mere practical detail, but on the broad lines of purpose and method. It may be said that it is for examiners to decide such questions for themselves, that they are appointed and paid for that purpose. But even if it were desirable, which I think it is not, thus to throw the whole burden of responsibility on the individual examiners or boards of examiners, it would none the less remain true, that their power to effect reform is in reality closely limited by the material presented to them, and further, that the authority which they can and do exercise, derives its weight and owes its continuance to the general confidence reposed in them by the main body of those for whom they act. I go further, and say that their efficiency depends very greatly on the moral support they derive from the sympathy and goodwill that comes to them. In particular one can hardly exaggerate the importance of mutual confidence and sympathy between examiner and examinee. In all criticism, whether of men or of their works, the main thing is sympathetic insight. This it is which constitutes the natural superiority of oral examination. A blank sheet of paper, and the inexorable face of a clock marking the hours, do not tend to the best and freest kind of mental activity, and only those who have experienced it can tell the depressing and judgment-destroying effect of a pile of examination papers. Amongst students opinions are divided as to the relative merits of the two systems, but I have no hesitation in stating the opinion that, notwithstanding certain advantages peculiar to written examinations, there is at once greater efficiency and less danger of mistake in oral than in written examinations. In some cases the nervous strain may seem greater to the candidate in an oral examination, but most certainly the examiner is better able to make proper allowance for the effects of mere nervousness, when he is face to face with the candidate.

If I may be allowed to say so, your Society has undoubtedly taken the right course in making the theoretical side of the Minor examination oral and not written, and perhaps I may also be allowed to suggest that oral examination might be introduced with advantage in the Major examination also.

The purpose of examination is to test the mental condition of the examinee. Mental condition as to what? In each case with regard to a certain body of recognised facts, to the principles whereby they are mentally correlated, and especially to his power of applying his knowledge.

Knowledge is necessarily and in every case imperfect, and is built up of a certain store of facts in the memory, and of a certain amount of judgment concerning these facts and their relations to each other. But it is a matter of prime importance to decide clearly to which of these two elements of knowledge we attach the most importance. Is it to the number of facts or to the judgment exercised upon them and upon their correlation? It is obvious that the conclusion ultimately come to as to the right method of examination must depend upon the answer which we give to this question. Now, without a combination of memory and judgment, no real knowledge can exist. To a certain extent, the first element, that of memory, must be allowed prior consideration, for if we remember nothing we can judge of and apply nothing; but, on the other hand, no store of facts merely committed to memory will enable the possessor to dispense with judgment or render him a person fit to be entrusted with the smallest degree of responsibility.

All this may seem trite and obvious, but I fear, as a general rule, the subject receives very insufficient consideration from the majority of students, and even of teachers and examiners.

It has been truly said that the only knowledge which we really possess is that which we can apply. The application may, however, be two-fold. We may apply our knowledge of certain facts to the recognition of the relations subsisting between them, or of truths underlying them, and with the help of our own imagination and that of others, we may construct working hypotheses, leading us by way of experiment to the discovery of new facts, wider relationships, and a deeper insight into nature. Or, we may apply our knowledge practically in earning our bread and butter, maintaining our independence and adding to the material comfort and happiness of ourselves and of others. In either case our power of applying knowledge depends rather upon its thorough mental assimilation than upon its extent.

But natural science has long outgrown the comprehension of the individual, and its boundaries are being pushed forward at an ever-increasing rate. The journals purporting to give an account of the yearly progress of investigation become more and more unwieldy, and this in spite of every effort to make each individual report as brief and concise as possible. If then the expert teacher can no longer hope to keep pace with the progress of his science, how ought it to be presented to the untrained mind of the student? The very progress of experimental science, the enormous proportions which it has assumed relatively to individual capacity, the ever-increasing rate at which it progresses, all these tend to make thorough knowledge more and more difficult of acquirement, and superficial knowledge more and more plausible. Add to this the fact, that as a nation, we are awakening to the sense of the danger of allowing ourselves to be outstripped in the matter of scientific education, and you have a state of things

* Inaugural Address to the Pharmaceutical Society of Great Britain (North British Branch).

calling for an increased prudence and foresight in proportion to our onward energy.

A careful perusal of the numerous scientific text-books published in recent years, and of the questions given at examinations, will furnish abundant evidence of this tendency towards superficiality, and of the necessity for reform. Frequent attempts have been made, and are still being made in current text-books, to meet the difficulty arising from the vastness of the subject by a process of boiling down, of eliminating everything but that which is thought to be essential, and thus making it possible to give an appearance of covering the ground within a volume of reasonable compass. This method is altogether false. Such books, if skilfully constructed, might prove of some use to the teacher; they are quite out of place in the hands of the beginner. They are a direct incentive to cram, for they altogether fail to awaken any love for science or to stimulate independent thought. On the contrary, they crush both, and create a perfectly natural disgust. Surely a book intended for beginners, which is dull and uninteresting, stands self-condemned. If book or teacher fail to arouse the attention and fascinate the imagination, they miss their chief sphere of usefulness. True interest in science depends upon a recognition of its incompleteness and faith in its growth. To awaken and strengthen this interest is the first duty of the teacher. A dull and uninterested observer is always a bad observer. But what healthy mind can take an interest in a book which is a mere collection of bare facts, or, what is worse, of lifeless sketches of systems and theories drawn in such a way as to convey a false impression of architectural completeness, while in reality these systems and theories are full of the suggestive incompleteness inseparable from life and growth. The harm done by such compilations (for they hardly deserve to be called books) is incalculable, and often almost irreparable. It is no doubt difficult to give an interesting, and at the same time a strictly accurate, account of any subject, but even if such books were (what they hardly ever are) tolerably correct so far as they go, they cannot fail to be hurtful, when placed in the hands of a beginner. Science at its highest is but a very partial recognition of an infinite mystery, and no greater harm can be done to the learner than to give him the utterly false idea that our knowledge of any one subject, or any one thing, can be cut and dry, complete, and final. Yet this is an idea to which many students of science nowadays are very prone. Witness the faith which they so often place in mere formulæ and equations. Give them an equation and they are satisfied. They hug the fond delusion that they know all that is essential. The results are often ludicrous enough. For example, let us take answers actually given to examination questions. "How would you prepare quicksilver?"

"$2NO_2AgO + CaO = N_2O_4CaO + Ag_2$."
Nitrate of silver + quicklime = Nitrate of Lime + quicksilver.

"How is phosgene prepared?" "By the action of hydrochloric acid on metallic cobalt, as is shown by the following equation:—$Co + 2HCl = H_2 + COCl_2$."

But the real extent of the injury inflicted is not fully illustrated by such extreme examples. The habit of mistaking the significance of even correct equations, of taking them to represent the whole truth, instead of using them merely to represent conveniently a part of the truth realised, is painfully common. Equations should be used only to express real thought, real knowledge. They are too frequently used to cloak the absence of either. How many students, if asked for methods of preparing sulphurous acid gas, would readily write down equations representing the action of sulphuric acid on sulphur or charcoal, and yet if asked to state what common acids were oxidising agents would never think of mentioning sulphuric acid, or be able to state under what conditions it may act as an oxidising agent?

But it may be argued that there is little use in pointing out defects in the character of current methods of teaching and the evil which results from them. The difficulty remains. *Ars longa, vita brevis.* The time and opportunities of student and teacher are both confined within narrow limits. The question is a practical one, there is little to be gained by mere theorising. Quite so; but in the first place you will never get rid of an evil which is not recognised to be one. Teachers and examiners are really the servants of the public. So long as the value of a course of instruction is measured by the extent of its syllabus, or the efficiency of an examination by the apparent difficulty of the questions set, so long will real reform be hindered and retarded, if not rendered impossible. Have we not all heard superiority claimed for this or that degree because of the greater difficulty of the problems set for examinations. It is customary to publish the questions, but what about the answers? If these could be published also, I suspect there would not unfrequently be a considerable revulsion of feeling. In all such matters, public opinion cannot fail to have an influence for good or evil, according as it is enlightened or the reverse.

But to return to the question of teaching and examination in experimental science. How may these be rendered more efficient? Admitting that it is necessary for a student or candidate to have some knowledge of widely extended range, does it not become all the more important that he should have some thorough, full, and living knowledge of at least some one portion of his subject, which will enable him to distinguish between his real knowledge and his ignorance? This portion might be very limited in extent, but he should be expected to show a real and living interest in it. He should be able to give practical evidence that he knows what he is talking about, that he has seen and handled and carefully observed the properties of the materials or apparatus he refers to. He should know, if possible, who were the original discoverers of the facts which he relates, he should be acquainted with the history of his subject. In fact, he should give evidence of having prosecuted real and personal, although not necessarily original, research. With regard to the choice of subject, I would have as much latitude given as practicable. At the same time it is obvious that if a syllabus be laid down the subject chosen must be within it. The knowledge expected of the candidate in the subject which he specially professes need not, of course, be recondite or specially difficult of attainment, but he should be able to prove that he has acquired it himself by direct experiment, personal observation, and special study.

I believe, gentlemen, that if something like this were made an essential part of every examination in experimental science much permanent good would result. The thoroughness acquired in the one subject, however narrow this might be, could not fail to react favourably on the mental attitude of the student towards the science as a whole. It might

easily prove to be the seed from which work of much value should spring up in after-life. Finally, it would, I think, tend to an increased sympathy between teacher and pupil, between examiner and candidate.

I trust you will not think the suggestion thus thrown out too bold or too sanguine. In either case I can only plead that I am deeply impressed with the evil to which I have referred, and have felt impelled to make some effort in what I believe to be the right direction.

Every age has to grapple with its own peculiar difficulties and dangers. Now the unprecedentedly rapid advances of science, and the equally unprecedentedly large proportion of the population who receive some sort of scientific training, constitute factors which both tend towards superficiality. It has been well said of learning that—

> **"Light draughts intoxicate the brain,**
> **But drinking deeply sobers us again,"**

and I may remind you that intoxication is not altogether synonymous with exhilaration. The nausea and disgust, and the consequent mental indigestion caused by cram, may lead to a kind of total abstinence not leaning to the side of virtue.

Many practical difficulties suggest themselves which time will not permit me to discuss, nor is this a fitting occasion for the discussion of practical details, however important. It is enough if we recognise that the disproportion between the body of scientific knowledge and the capacity of individuals is ever on the increase, and must necessarily lead before long to a change of front. The profession of pharmacy, which has had in the past so important a share in the development of experimental science, will not, I am convinced, be backward in any movement arising from the necessity of thoroughness and the danger of superficiality. If I mistake not, the new British Pharmacopœia, when it appears, is likely to make demands upon those whose duty it will be to master its contents, that will bring home to them with renewed force the necessity for a solid foundation of scientific knowledge. In what I have said hitherto, little direct mention has been made of practical examination, for the simple reason that most of the defects of our present systems of practical examination arise from the evil influence of a system (based upon the necessities of a bygone age) which endeavours to attempt the impossible task of teaching experimental science chiefly by means of books or lectures.

Many have been the voices raised in decrying the too analytical spirit of the age. Now whatever there may be of truth in what is thus urged, it must not be overlooked that it would be about as reasonable to send a soldier to battle without a weapon as to expect a student of chemistry to make any real advance without the aid of a sound analytical training.

Yet it must be admitted that so long as analysis was solely represented by the absurd "one acid, one base," system of testing, the adverse argument had at least some plausibility. To teach a man to recognise a simple salt, when he meets with it, is one thing; it is quite another thing to lead him to believe that by learning an artificial system of running over a series of tests, devised with reference to a limited number of such salts, he is learning analysis in any true sense of the word. The most essential part of the analysis, that requiring judgment and reason, is in such a case done beforehand, and what remains for the student to do is rather of the nature of a Chinese puzzle than an effort of reason. Natural substances unfortunately for such an analyst do not bear labels indicating the degree of complexity of their composition. They may be, and often are, of simple composition, but to prove their simplicity, that is the real problem. However, on all hands the hollowness of this system is being recognised, and most salutary changes are being introduced.

I hope nothing I have said will be understood as under-rating the value of qualitative analysis, properly so-called, as a means of education. Its importance can hardly be over-estimated. But it must not be taught in such a manner as to lead a man to think he has got a good grip of it, when as a matter of fact, he is liable to flounder helplessly over the simplest problems he meets with in Nature.

There is one other time-honoured device by which students are frequently misled into a mistaken view of the true nature of chemical analysis, and a false estimate of their own mastery of the subject. I refer to analytical tables. Now it would perhaps be going too far to deny their utility altogether. So long as they are used merely as a short and systematic summary of knowledge really possessed by the user, they have a certain restricted utility, chiefly as an aid to the memory. To teach a student to construct a table or scheme of analysis himself is no doubt to make him go through a useful exercise, particularly if he is kept fully aware of its necessarily limited applicability. If a man desired to make chemical analysis the work of his life he might profitably devote some of his time and energies to the construction of such tables, testing against new combinations, proving their insufficiency, reconstructing them, and again bringing them to more severe tests, and so on. He would not be very long in finding that his improved tables were becoming alarmingly complex, without, however, any real approach to finality, and he might do this without going far afield in the search of strange and unlikely practical problems. But this is not the use to which such tables are usually put. Too often a student comes desiring to learn analysis, and instead of being taught analysis, he is instructed in the use, or rather abuse, of a table. Virtually, though doubtless unconsciously, the impression conveyed is something like this :—Analysis is a big subject, your time is short and so is mine, use this table and we will save both. This is the royal road! Well, the unfortunate student, unfortunate that is if he have any honest desire to learn, learns his tables, analyses a given set of mixtures, and perhaps goes on his way rejoicing, fondly imagining that he is an analyst. All the while he has not learnt analysis at all. He has only learnt the dangerous lesson that it is much easier to take advantage of the work of another man's brain than to use his own. He has been taught the use of crutches, but he cannot walk. Well for him if before it is too late he makes the acquaintance of a friendly examiner who undeceives him as gently as may be. He may get a fall and be hurt a little, but if from that time onwards he throws away his crutches and learns to stand and walk on his own legs, he will always have reason to be grateful to his friend the examiner. I would say to such a one, acquire before all things the habit of close and accurate observation, and the practice of neat and orderly manipulation, and as one of the best means of doing both, work with small quantities. From this point of view remember that a pin's head may represent a large quantity. This is a precept which has been enforced by many of the greatest analysts, particularly by Wollaston, Berzelius, and Bunsen. The saving of time and expense,

the gain in power and skill are extremely great. Further, when you begin quantitative work, aim rather at making a few determinations with a high degree of accuracy than many indifferently. Learn how to test your balance and your weights. Take nothing on trust, in particular distrust your own memory and write down your notes at once. Finally, mix brains with your reagents.

Gentlemen, I might go on for weeks illustrating good methods and bad methods of teaching experimental science and of testing the results by examination, but time flies. I wish in conclusion to address a few words specially to those here to-night who have still the ordeal of the Minor examination before them. I appeal to them to look upon the examination as an institution devised for their own special benefit, and to regard their examiners as friends anxious to let them pass through consistently with a due and enlightened regard for their real interests and that of their fellows. Perhaps I may make my meaning clearer by a simile of a simple kind. I was walking one day along one of those dusty roads shut in by high stone walls which constitute one of the characteristic features, but not one of the beauties, of the neighbourhood of Edinburgh. I saw a flock of tired sheep being driven along the road, when suddenly there was a great commotion. At first I did not realise what had happened, then I saw that the whole of the sheep were struggling to pass through a doorway let into the wall. Beside the door stood the shepherd, laying about him vigorously, and to all appearance trying to drive the sheep back. I thought at first that the door had been left open by accident, and that the object of the shepherd was to prevent the sheep passing. As I came up, however, I saw that the door opened into a long narrow lane leading in the distance to green fields. Then I observed that the shepherd's blows were never directed to those sheep who were in the straight line for the lane, but only against those who struggled to get in sideways. I then realised that his object was to prevent dangerous crushing, not merely at the door, but also in the narrow lane, and I watched the whole flock gradually pass through. The door closed, but as it did so I caught a glimpse of the last of the flock spreading out at the end of the narrow lane, over green pastures.

In thinking over what I saw, and comparing the shepherd to an examiner, these lines, written by one of the ablest of our modern writers, occurred to me :—

> "Of reckless mercy, thus the sage declared,
> More culpable the sparer than the spared,
> For he that breaks one law breaks one alone,
> But who thwarts justice, flouts law's sovereign throne."

Perhaps you think that I have held up too high a standard? that I forget your special difficulties? No. I have spoken as I have done precisely because my work as a teacher of evening classes has brought these difficulties very prominently to my notice. But I have been far more struck by something else, and that is the amount of ardent love of knowledge and desire for self-improvement shown in such classes. A man who has to work hard all day, and then spends his evenings in trying to acquire a knowledge of science, is one deserving of every sympathy and encouragement and respect. And precisely because his time is short and precious it is important that he should not waste it in working on wrong lines. But in the nature of things the temptation to do so is the greater in such cases, and grave injury would be done by letting such men believe that there are two kinds of science; the one severely accurate and only to be attained by men of means and leisure, the other less accurate but still good enough for so-called practical purposes, good enough for those who cannot afford to pay for the other. I am not aware that Scheele, the pharmacist, was a rich man. And what he did others may attempt. Possibly, no one may become a second Scheele, but all will be the better in every way for the endeavour.

But what motive is strong enough to enable a man to struggle on successfully against such odds? One only, a single-hearted and enthusiastic love of truth.

There are some who affect to despise enthusiasm and doubt its sincerity. Let us listen, therefore, to the note struck by really great men of thought and science.

To quote again from Meredith—

> "Know that the men of great renown
> Were men of simple needs;
> Bare to the Lord they laid them down
> And slept on mighty deeds."

Or what says Dante—

> "For not on downy plumes nor under shade
> Of canopy reposing, fame is won,
> Without which, whoso'er consumes his life
> Leaveth such vestige of himself on earth,
> As smoke in air, or on the waters foam.
> Therefore arise! vanquish thy weariness,
> With soul that overcomes in every strife,
> Unless the heavy body bear it down."

But these are only poets and dreamers!

Well, then, listen to the great astronomer Kepler, rejoicing when he had won the goal, when after seventeen long years of struggle he discovered the curve described by the planets, and traced the law of the planets' motions, when in the wild excitement of his glorious triumph he exclaims, "Nothing holds me. I will indulge my sacred fury! If you forgive me I rejoice; if you are angry, I can bear it. The die is cast. The book is written, to be read either now or by posterity, I care not which. It may well wait a century for a reader, since God has waited six thousand years for an observer."

Newton has compared the investigators of natural science to children picking up shells on the shore of the great ocean. Do we not lose much of the force and beauty of this comparison if we forget the delight of the children in their search?

No. Be sure that lack of genuine enthusiasm is always a sign of weakness. Still waters run deep; but the merest puddle is still if the wind does not blow.

Dependence of the Leaf on Assimilation.—From a series of experiments made, chiefly on *Phaseolus*, *Acacia*, and *Mimosa*, Dr. L. Jost comes to the conclusion that the substances formed in the parts of plants exposed to light may be used up in the parts not exposed to light, for the formation of new organs or the development of those already formed. A leaf formed in the dark and continuing in it, can, therefore, attain its normal size and functions without itself assimilating; while a leaf formed in the light will not unfold and become green in the dark or in an atmosphere free from carbon dioxide. It follows, therefore, that the production of the chlorophyll pigment is dependent directly on the power of assimilation of the leaf, while the development of the leaf is only indirectly dependent on that power (*Jahrbuch für wiss. Bot.*, 1895, p. 403).

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

MEETING OF THE COUNCIL.

WEDNESDAY, DECEMBER 4, 1895.

Present:

Mr. Michael Carteighe, President.
Mr. John Harrison, Vice-President.

Messrs. Allen, Atkins, Bottle, Corder, Cross, Grose, Hampson, Hills, Johnston, Martin, Martindale, Newsholme, Savory, Schacht, Southall, Storrar, Warren, and Young.

The minutes of the previous meeting were read and confirmed.

The President said he had received a letter from Mr. Gostling saying he was suffering from a cold, and unable to attend the Council.

Letters of Acknowledgment.

The President said a letter had been received from Mrs. Linford acknowledging the kind references made to Mr. Linford at the last Council meeting.

A communication had been received from Madame Pasteur and her children thanking "la Société Pharmaceutique de la Grande Bretagne du témoignage de sympathie qu'elle leur a fait transmettre par M. Bremridge, le sup.ême hommage rendu à la mémoire vénérée de M. Pasteur les a vivement touchés."

A letter had also been received from Dr. Luxmoore, thanking the Council for his election as a Research Fellow.

A long letter had been received from Professor Vogl, expressing his appreciation of the honour done him by awarding him the Hanbury Medal, and also of the remarks made with regard to him at the inaugural meeting in October. The chief point of interest in the letter was his reference to the great pleasure it had given him to find that a man who had done the sort of work he had, should have received this award, and that the subject of pharmacognosy was now receiving so much attention in England.

Election of an Associate.

George William Udale, Cheadle, having passed the Minor Examination, and tendered his subscription for the current year, was elected an "Associates" of the Society.

Addition to the Register.

The Registrar reported that—

Arthur Mitchell Carr, 201, Osmaston Road, Derby,

having made a declaration that he was in business before the passing of the Pharmacy Act, 1868, and this declaration having been duly supported, his name has been placed on the Register.

Restorations to the Register.

The names of the following persons, who have severally made the required declarations, and paid a fine of one guinea, were restored to the Register of Chemists and Druggists:—

William Veitch, 139, Oakfield Road, Liverpool.
Edwin Vickerman, 4, King Charles Street, Nottingham.
John Watts, 199, Fratton Street, Landport.

Appointment of Boards of Examiners.

On the recommendation of a sub-committee of the General Purposes Committee, who reported that they had considered the names of persons suitable for nomination to these Boards, the following were now appointed:—For England and Wales: Messrs. Frederick Bascombe, London; George Claridge Druce, Oxford; Percy F. Frankland (for chemistry), Birmingham; Joseph Reynolds Green (for botany), Cambridge; Walter Murton Holmes, London; Edward William Lucas, London; Herbert McLeod (for chemistry), Staines; Francis Ransom, Hitchin; John Edward Saul, London; Albert Charles Seward (for botany), Cambridge; George Spratt Taylor, London; Edmund White, London. For Scotland: Messrs. Boa, Edinburgh; James Laidlaw Ewing, Edinburgh; Jonathan Innes Fraser, Edinburgh; Patrick Geddes (botany), Dundee; John Gibson (chemistry), Edinburgh; James Jack, Arbroath; John Nesbit, Portobello; John William Sutherland, Dumfries.

Superintendents and Deputy-Superintendents of Written Examinations.

The following gentlemen were appointed superintendents and deputy-superintendents of written examinations:—

Centre.	Superintendent	Deputy.
Aberdeen	Strachan, Alexander	Clark, James.
Birmingham	Thompson, Charles	Prosser, Frank H.
Brighton	Gwatkin, James Ross	Savage, William W.
Bristol	Stroud, John	Keen, Benjamin.
Cambridge	Deck, Arthur	King, George.
Canterbury	Bing, Edwin	Amos, Daniel.
Cardiff	Munday, John	Coleman, Alfred.
Carlisle	Hallaway, John	Pattinson, Michael H.
Carmarthen	Lloyd, Walter	James, Joshua.
Carnarvon	Jones, John	Jones, David.
Cheltenham	Barron, William	Palmer, Frank Thomas.
Darlington	Robinson, James	Hutchinson, Rev. E.
Douglas, I. of Man.	Radcliffe, John Collister	Young, John.
Dundee	Hardie, James	Hardie, James Miller.
Edinburgh	Stephenson, John B.	Henry, Claude F.
Exeter	Lake, John Hinton	Harris, Henry William.
Glasgow	Currie, William Little	Moir, James.
Guernsey	Nickolls, John Bate	De la Rue, Frank H.
Hull	Bell, Charles Bains	Stoakes, Benjamin M.
Inverness	MacRitchie, David	Allan, Alexander.
Jersey	Cole, George	Baker, John Thomas.
Kirkwall (Orkney).	Stewart, Duncan	Webster, Rev. David.
Lancaster	Vince, James	Arkle, William.
Leeds	Reynolds, Richard.	Branson, Fredk. W.
Lincoln	Birkbeck, John Thomas.	Elmitt, G.
Liverpool	Smith, John	Buck, Anthony S.
London	Taylor, George Spratt	Allen, Charles Bowen. Moon, Harry.
Manchester	Kemp, Harry	Swinn, Charles.
Newcastle-on-Tyne	Clague, Thos. M.	Owen, Alfred Ernest.
Northampton	Bingley, John	Mayger, William David.
Norwich	Sutton, Francis	Corder, Octavius.
Nottingham	Bolton, Charles A.	Wilford, John.
Oxford	Prior, George Thomas	Thurland, Henry.
Penzance	Symons, Netherton H.	Buckett, Alfred Henry
Peterborough	Heanley, Marshall	Saunders, James Edwin
Plymouth	Hunt, Freeman, W.	Woods, Wm. Herbert.
Sheffield	Ward, William	Morrison, Charles Orr.
Shrewsbury	Cross, William Gowen	Blunt, Thomas Porter.
Southampton	Dawson, Oliver Robert	Spearing, James.
York	Sowray, Joseph	Kendall, Edward B.

The Burroughs' Memorial.

The President said the Council having agreed to assist in arranging the details of the Burroughs' Memorial Scholarship, he desired to intimate to the members of the Library, Museum, and School Committee that it was proposed to take the subject into consideration at the next meeting, with power, if necessary, to confer with the Burroughs' Memorial Committee.

Finance Committee.

The Secretary having read the report of this Committee, which was of the usual character,

The President (as Chairman of the Committee) moved the adoption of the report and recommendations. There was nothing special to call attention to beyond the fact that as usual in December two months' salaries were paid. There was a small payment on account of the Benevolent Fund, for the expenses of the election of annuitants, all other expenses in connection with the Fund being defrayed out of the general funds of the Society.

The resolution was carried.

Benevolent Fund Committee.

The report of this Committee included a recommendation of the following grants:—

£5 to the widow (66) of a registered Chemist and Druggist, who has had ten previous grants of the like amount. She is dependent on her daughter, who is unable to bear the entire expense of her support. (Forest Gate)

Two other cases were deferred for further information.

The Vice-President, in moving the adoption of this report, said he was glad to notice the small number of cases which had come this month before the Committee, on whom, however, there had been somewhat heavy claims during the previous few meetings, so that they were now something like an average. They had made one grant only, and that to an old lady who had received previous grants. A second case had been deferred, awaiting further information which had been asked for but was not yet forthcoming, and the Committee's decision consequently had been put off. The like remark applied to a third case.

The report was then adopted.

Library, Museum, School, and House Committee.

The Secretary read the report of this Committee. It stated that the application from Exeter referred to last month had been abandoned, and in place of it there was an application from the Exeter Chemists' Association for a materia medica cabinet. The Committee recommended that a grant of £20 be made for that purpose, the collection to be placed in the Museum attached to the Technical College, with a label stating that it was the property of the Exeter Chemists' Association, presented by the Pharmaceutical Society.

Library.

The report of the Librarian had been received, including the following particulars:—

	Attendance.	Total.	Highest.	Lowest.	Average.
October	Day	383	32	2	14
	Evening.....	145	12	3	6

Circulation of Books.	Total.	Town.	Country.	Carriage paid.
October	220	104	116	£1 6*s.* 2*d.*

Donations to the Library had been announced (*Pharm. Journ.*, Nov. 16, p. 422), and the Committee had directed that the usual letters of thanks be sent to the respective donors.

The Committee had also recommended that the under-mentioned works be purchased:—

For the Library in London:—

Buchheister, Handbuch der Drogisten-Praxis, 4, Auflage, 1895.
Dammer, Handbuch der chemischen Technologie, 1895.

For the Library in Edinburgh:—

Lassar-Cohn, Laboratory Manual of Organic Chemistry.
Supplement to the French Codex.

Museum.

The report of the Curator had been received, and included the following particulars:—

	Attendance.	Total.	Highest.	Lowest.	Average.
October	Morning..... ..	602	33	7	22
	Evening.....	54	6	1	2

Donations to the Museum had been announced (*Pharm. Journ.*, Nov. 16, p. 422), and the Committee had directed that the usual letters of thanks be sent to the respective donors.

The President moved the adoption of the report and recommendations. At the last meeting he referred to his visit, in company of the Secretary and Curator, to the Exeter Technical and University Extension College, where they found that arrangements admirably adapted for teaching both art and science to the rising generation of the locality had been provided, partly ont of the charity funds, and partly with the aid of the Town Conncil. Through the efforts of Mr. Gadd and the Exeter Chemists' Association, special facilities were provided at a moderate fee, for young chemists who wished to prepare for their examination. Under these circumstances he thought the Council would not hesitate to adopt the recommendation of the Committee.

Mr. Corder said he never saw a Museum better arranged than the one at Exeter.

Mr. Schacht asked if it was part of the scheme that there should be systematic teaching in the shape of lectures.

The President said yes, there was a regular curriculum already in botany and chemistry, irrespective of the pharmacentical students, and the latter would have to join those courses, and then add to it special instruction in materia medica.

Mr. Schacht said this experiment was very interesting to all pharmacists who lived in the country, because it might become more or less an example to be followed in other localities. His own experience unfortunately led him to the conclusion that though many such experiments started well, very often the number did not keep up, interest dwindled, and ultimately the whole thing dropped. Exeter was not a very large community, and he should watch the result with great interest. He would ask whether a report would be made to the Council from time to time; he did not suggest that it should be made a condition of the grant, but thought it would be helpful to other localities.

The President said he would direct a letter to be sent, saying that the Council would be happy to hear annually how the scheme was working.

Mr. Allen said it did seem necessary, in view of the development of centres of education now taking place in various parts of the kingdom, to accentuate what had fallen from Mr. Schacht, and to beg all employers, wherever there were means of scientific education afforded in chemistry and botany, to insist on their young men attending such lectures. For their own sake, as well as the sake of their pupils, he thought the Council might call on all employers to insist on their pupils taking up those subjects one after the other. There was only one way of getting thorough pharmaceutical training, and that was for a young man to take up one subject at a time. In a large number of centres now, to his own knowledge, there were opportunities for apprentices to take up the different subjects, and when one saw the deplorable results of men coming to London, and endeavouring to pass the examination, who had utterly neglected to study during the whole period of their apprenticeship, it seemed necessary even now to implore both masters and pupils to take advantage of such opportunities as occurred.

Mr. Hampson said the most gratifying feature of this experiment—as was also the case in Birmingham, Bristol, Sheffield, and some other places—was that pharmaceutical education was said to be given in connection with a properly appointed general teaching institution. It had been their hope for many years to see a thorough curriculum enforced by statutory authority, and these various experiments were of great value in showing that if such a condition were imposed, there would not be the difficulty in carrying it out which was formerly anticipated.

Mr. Atkins said he was very much interested in learning that the trustees of the local charities had been able, with the consent—as it must have been—of the Charity Commissioners, to devote some portion of the funds at their disposal to educational purposes. In his own city there were a number of charities dating from mediæval ages of the most quaint and obsolete character, but they had not been able to divert the funds to educational purposes. He understood that in Exeter those funds were supplemented by the Town Council. He should like to endorse every word uttered by Mr. Allen with regard to the duty of employers to support this movement.

The President said it was a very great advantage for pharmaceutical students to be associated with others in their scientific studies. Having regard to the nature of a young pharmacist's occupation, he had not much opportunity for forming congenial friendships, and it was a great advantage to him to be associated with, and stimulated by others, in his educational work. He entirely agreed with Mr. Allen that in a place like Exeter, chemists might send their apprentices one year to study botany, another year to study chemistry, and so on, and there would now be facilities there equal to what there were in London for becoming well qualified in four years. Such a form of qualification would enable the students not only to pass the examination, but to put money in their pockets when they afterwards went into business for themselves. The association of young students with one another had much the same effect as a college life; it enabled friendships to be formed, and in all businesses and professions some of the most solid friendships were those formed early in life. It was one of the characters of the British nation that men who formed friendships in early life, were invariably loyal to each other, and the assistance which could be given by a successful man to his friend of early days was often of immense value. When he remembered the men who were associated with him when he first became a member of that Council, some thirty years ago, men like Henry Deane, Morson, Waugh, Sandford, and the rest of them, and thought of the experiences they used to narrate—it was one long story of continuous work and study, for the most part alone—and he

could not but think that if men of that calibre had had the opportunity of attending lectures and classes in association with other men they would have been even greater men than they were.

Mr. Johnston said it might be interesting to the Council to know that in October last the Aberdeen Chemists' Society had appointed Mr. Frazer, one of the prize-men at the School of Pharmacy, to teach classes in their premises, with a view of preparing young men for the examinations. He had succeeded remarkably well, having already twelve or fourteen pupils, and a prospect of more, and he was well satisfied with the progress they were making. Their Society was endeavouring to make arrangements to have a pharmacist appointed to teach pharmaceutical chemistry at one of the local institutions, with a view of meeting the wants of pharmaceutical students.

Mr. Martindale, pointing to the greater facilities for teaching botany in the country districts than in large towns, suggested that, in the latter cases, more attention should be paid than he feared was now the case to systematic botany, as a thing, if not absolutely necessary, certainly calculated to be of service in the student's after life.

Mr. Schacht remarked that he did not expect the few words he said on this subject would lead to a discussion, but after what had passed he would like to suggest that when help was asked for and given from this centre it should go somewhat further than now in the direction of materia medica, which, he thought, did not receive the attention paid to chemistry and botany.

Mr. Corder agreed with that view. Chemistry and botany were now taught in the higher grade schools, but the chemist's shop was the place for the study of materia medica, and usually an apprentice to any good chemist aud druggist had plenty of opportunities for study in that direction.

Mr. Young thought they must all in their experience have noticed the large proportion of chemists and druggists who proved quite unable to teach the practical subjects of their apprentices' future career. It was the products of those gentlemen who gave so much trouble in after life, and if they could admonish chemists and druggists on that point he thought it would be so much better for the trade.

The President said he feared apprentices frequently became registered chemists and druggists without a sense of the responsibility that it was the master's duty to impress on them, even if they sent them out otherwise thoroughly equipped for their career. Many men systematically, in these days, taught outside pharmacy the subjects affecting the chemist's profession. Unfortunately even in that house they were sometimes obliged to teach their students to read prescriptions and other elementary processes, the time necessarily devoted to which would be better employed in the higher qualifications for the positions to which they aspired. Whether it was that the system of apprenticeship was dying out, or from whatever other reason, he feared it was the fact that if many chemists and druggists were capable of imparting knowledge, they at least did not recognise their duty to do so in the more thorough manner prevalent not long ago. The result was to be seen in the risk, which was peculiarly felt in the trade at the present time, of valuable time, which should otherwise be given to practical subjects, being absorbed in simply elementary ones. That apprentices should be well trained and more approximate to the excellence which prevailed, say, fifty years ago, it was obvious would be better for the master, better for the apprentice when he got into business, and better for the public at large.

The resolution was then put and carried.

Thanks to the Boards of Examiners.

The President said he thought the Council would agree with him that the best thanks of the Council were due, and should be tendered, to the Boards of Examiners for their services during the past year, and he proposed that they should be tendered accordingly.

This suggestion was adopted.

Donations to the Benevolent Fund.

The President read a letter from Mr. Horace Davenport, Chairman of the Camwal Company, that a vote of money having been made to the directors at their last annual general meeting, they were anxious to present to the Benevolent Fund of the Pharmaceutical Society fifty fully paid-up £1 "Camwal" shares. As "Camwal" chairman, he would like to supplement this gift by another of similar amount as a recognition of the kind feeling shown at the 1894 meeting of the company, when increased fees were pressed upon him. He took occasion at the company's last meeting to point out how greatly chemists are indebted to the Pharmaceutical Society for gratuitously administering the Benevolent Fund, which had been such a boon to many members of the trade.

The President added that he took it the Council would gladly accept this offer, and instruct the Secretary to forward to Mr. Davenport the information necessary to complete the transfer of the stock. Had they the money to invest, they could not place it in the Company, but he apprehended they could receive shares presented to them, fully paid, as these were, and involving no liability. They were nominally worth £100, and on the present return would bring to the Fund £10 a year.

The gifts were accepted with thanks, and the Secretary was requested to communicate with Mr. Davenport on the subject of making the necessary transfer.

Legal Proceedings in Scotland.

The President said there were two matters which were referred to in the report of the General Purposes Committee which he might mention before that report was read, as it always was, in Committee. A case had come before the Sheriff at Glasgow in regard to the proceedings instituted by the Council under Section 17 of the Pharmacy Act against Messrs. Cross and Sons. The Sheriff held that the Secretary-Registrar had no authority in Scotland in law to prosecute, and that it must be undertaken by the Procurator Fiscal. Leave to appeal was formally obtained, but the Committee recommended that the appeal be not proceeded with, and that proceedings be taken in a regular way when the opportunity occurs again. It was, he understood, purely a technical point in Scottish law.

The second matter was that a letter from Mr. Percy Wells had been received, asking that he should be regarded as one of the founders of the Society, as having been a subscriber prior to the grant of its Charter. The matter was carefully discussed, and the Committee recommended that he be informed the Council could only recognise as founders the names published in the first volume of the *Pharmaceutical Journal*. Though the Society existed in 1841 and 1842, and its Charter was not obtained till 1843, the present Council's predecessors had acted on this rule, and the Committee did not feel justified in recommending any departure from it.

General Purposes Committee.

The Council then went into Committee to consider the legal portion of this Committee's report, the other portions having been already dealt with. A number of cases of alleged infringements of the Pharmacy Acts were reported, and proceedings were recommended.

On resuming, the report and recommendations were unanimously adopted, and special resolutions passed, authorising the Registrar to institute proceedings against the persons named.

MEETING OF THE EXECUTIVE OF THE NORTH BRITISH BRANCH.

A meeting of the Executive of the North British Branch was held in the Society's House, 36, York Place, Edinburgh, on Saturday, November 30, at 11 a.m., Mr. J. Laidlaw Ewing in the chair. Present, Messrs. Bowman, Coull, Currie, Fisher, Gibson, Henry, Johnston, Kermath, Kerr, Lunan, Moir, Nesbit, Paterson, Storrar, and Strachan.

Apologies for absence were received from Messrs. Davidson, Hardie, and McAdam.

The minutes of last meeting were read and approved.

The Chairman said he had attended the Conference at Bournemouth, and had been most hospitably entertained, the whole arrangements being carried out in such a way as to reflect great credit on the local committee.

Mr. Nesbit said he regretted that circumstances prevented his attendance.

The Assistant-Secretary read the report of the General Purposes Committee, from which it appeared that the plan and estimate for the re-arrangement of the Society's House, consequent on the removal of the examination work to the new hall and laboratories, had been re-considered in consultation with the President and one of the members of the Council. The plan, it was recommended

should again be forwarded to the Committee of the Council for full consideration, there being no urgent necessity for proceeding with the work immediately. The Committee also reported the arrangements which had been made for evening scientific meetings during the ensuing winter months, and suggested that the carrying out of the details should be left in the hands of the Chairman and Assistant-Secretary. It was also suggested that they should inquire as to the plan to be adopted in regard to reprints of papers, with a view to reducing expenditure. The Committee had also considered the remit as to the hour of meeting for the Annual Meeting for election of the Executive. They suggested eleven o'clock forenoon as a better hour than twelve o'clock noon, and recommended that this and other suggestions by members of Executive should be remitted back to the Committee for further consideration, and report to the April meeting of Executive.

The report and recommendations were unanimously adopted.

The Executive, Messrs. Ewing and Nesbit having retired, then went into committee to consider the Report of the Special Committee appointed to select names for nomination as members of the Board of Examiners for Scotland for the year 1896.

On resuming, the Vice-Chairman, Mr. W. L. CURRIE, reported that the Executive had unanimously approved of the report, and he then moved:—

> "That Professor John Gibson, Edinburgh; Professor Patrick Geddes, Dundee; Peter Boa, Edinburgh; James Laidlaw Ewing, Edinburgh; Jonathan Innes Fraser, Edinburgh; James Jack, Arbroath; John Nesbit, Portobello; and John William Sutherland, Dumfries, be nominated for election by the Council as members of the Board of Examiners for Scotland, for the year 1896."

Mr. GEORGE LUNAN seconded the motion, and it was unanimously agreed to.

Mr. EWING said he had to thank them for the honour which they had so unanimously proposed to confer upon him. Such a possibility had never occurred to him, but he was very willing to serve them if he could, and he would endeavour, if appointed, to discharge all the duties to the best of his ability.

Mr. NESBIT said this honour was unexpected, and he appreciated it all the more that it was entirely unsought for. He had not had any wish to return to the Board, but he would willingly serve again if the Council so desired. He would like to express his entire approval of the nomination of Mr. Ewing, who was well qualified to render efficient service in the management of the business of the Board.

Mr. COULL then moved the following resolution:—

> "That it is the opinion of this meeting of the Executive of the North British Branch of the Pharmaceutical Society of Great Britain that the time has now arrived for making the First or Preliminary examination a more efficient test of a candidate's general knowledge."

He said he did not at the present time propose to enter at length upon the reasons which induced him to propose this motion. The matter had been the subject of motions on the same lines which had been passed by the Assistants' Associations in London and Edinburgh, and it had also received the approval of a meeting in Manchester the other day. For the present he contented himself with the mere moving of the resolution.

Mr. CURRIE, Vice-Chairman, seconded the proposition. He said if they were to aim at the standard indicated by Dr. Gibson on the previous evening, they must extend the First examination to include, say, such subjects as mathematics and algebra.

Mr. FISHER, moved as an amendment:—

> "That the Executive delay further consideration of this matter in the meantime."

Mr. MOIR seconded the amendment, remarking that in the present state of the drug trade the present examination was stiff enough. He observed that the Law and Parliamentary Committee of the Council was at present considering a new Pharmacy Bill in which no doubt the subject of education and a curriculum would receive attention.

Mr. KERMATH supported the amendment. He thought the proposal was premature, and that they were legislating in advance of the time. They should wait to see if a curriculum was to be introduced.

Mr. LUNAN moved that the discussion be adjourned till next meeting. This was seconded by Mr. Henry, and unanimously agreed to.

The CHAIRMAN then drew attention to a handsome portrait in oil of Mr. John Duncan, founder of the firm of Duncan, Flockhart and Co., and the first Chairman of the North British Branch, which had just been hung in the Board Room. The picture was the gift of Mr. Duncan's grandson, the eminent surgeon, Dr. John Duncan, and he moved that the Executive accept the gift, and tender their cordial thanks to Dr. Duncan, who was unavoidably absent on this occasion.

MR. CHARLES KERR said it was a great pleasure to him to see adorning their walls a picture of one under whom he had worked for many years, and from whom he had received many tokens of kindness. He could remember well how, when he thought of going to Dundee and beginning business, Mr. Duncan spoke very kindly to him and gave him some very good advice. He had acted on that advice ever since, and had never regretted having done so. He had much pleasure in seconding the proposal to accept the gift and thank Dr. Duncan.

MR. HENRY said he would like to be allowed to say that as a boy he remembered Mr. Duncan, and it was his subsequent contact with him that was the means of his entering the calling of pharmacy. The sight of his face brought back many happy memories.

The meeting then closed.

EVENING MEETING IN EDINBURGH.

The first evening meeting in Edinburgh of the present session was held in the Society's Hall, 36, York Place, on Friday, November 29th, at 8.30, Mr. J. Laidlaw Ewing in the Chair. There was a very large attendance.

The minutes of last meeting having been road and approved, apologies for absence were intimated from Professor Cash, Aberdeen, and Messrs. Alexander Strachan, Aberdeen, and David Maclaren, Edinburgh.

The CHAIRMAN then said he had much pleasure in calling upon Professor Gibson, who had kindly consented to address them at the beginning of a new session. Dr. Gibson's eminent ability and experience both as a teacher of chemistry and also as an examiner were such that he was sure they would listen with interest and profit to what he had to say.

Professor GIBSON said, when he learned some time ago that he was to have the honour of addressing them that night, an honour which he valued very highly, the subject of education and examination in experimental science, and more especially in chemistry, occurred to him as one on which he might have something to say to them, and then it seemed that it might prove somewhat dry and perhaps less interesting than, say, a review of the history of science in the past, or a discussion of some of the fascinating discoveries of more recent date. While thus debating he happened to come across a quotation from Voltaire, made by Mons. Jules Simon in a speech delivered during the recent celebration of the centenary of the French Institute. It ran something like this, "The necessity of speaking, the embarrassment of having nothing to say, and the desire to be brilliant are three things capable of rendering even the greatest man ridiculous." He forthwith determined to revert to his original idea, and to speak to them that night upon a subject about which he felt that he had something to say. This subject appeared to be an appropriate one, because he supposed that one of the chief reasons for the step which the Pharmaceutical Society had recently taken in adding to its Boards of Examiners a number of teachers of science who have no direct connection with the Society, was to draw closer the bonds which naturally subsist between education on the one hand and that process of examination whereby society generally endeavours to protect itself from the evil consequences arising from the imperfect education, or the incapacity, of those entrusted with important and responsible duties.

The address, a full report of which appears at page 473, was then proceeded with. At the conclusion,

The CHAIRMAN said he had pleasure in moving that they accord a very hearty vote of thanks to Dr. Gibson for the very able, cultured, and wise address to which they had been privileged to listen. They must all feel that the methods of education he had advocated would be a good thing for teachers, examiners, and candidates. They would also thoroughly appreciate the earlier portion of the address where he touched upon the evils of

cramming. This had been a great bugbear to all educational and examining bodies, and not least to the Pharmaceutical Society. He thought this important address would be productive of great benefit. They were also deeply indebted to Dr. Gibson for the kind advice he had given to the many juniors who were present. What they had heard to-night would give students increased confidence when they came to meet Dr. Gibson in the examination-room, when they might rest assured he would treat them in the same kindly way in which he had now addressed them.

Mr. W. L. Currie, in seconding the vote of thanks, said he had listened with great pleasure to Dr. Gibson's very admirable address. This was the first time he had been present at an evening meeting in Edinburgh, and he had to congratulate them on having so large a meeting. He had been struck by the very accurate remark of Dr. Gibson that examination is no true test of qualification, for he had seen this exemplified on many occasions. He was sure they all felt the necessity of having cram abolished. They must endeavour to have better facilities for genuine pharmaceutical education, and they were desirous of seeing a recognised curriculum enforced in their special branch of knowledge. He had been surprised, on a recent occasion, to find how systematically an ordinary schoolboy of 16 or 17 years of age could make use of certain reagents which he purchased, and if they were to hold their own they must seek to attain a high educational standard. He agreed with what Dr. Gibson had said as to the slavish following of a mere table of tests arranged with a special view to enabling the student to get up just sufficient to put him through the examination. A marked example of this in the case of two students had recently come under his notice, and he thought it was just here that so many failed.

Dr. Stockman, being called upon, said he endorsed what the Chairman had said as to the great ability of the address. Dr. Gibson was a very intimate friend, and few men had had a greater influence on his own thoughts as to the study of science. He had worked under Dr. Gibson and found him no easy taskmaster. He had long had an impression that there was one kind of science for pure scientists such as Dr. Gibson and another that was good enough for an ordinary medical practitioner, but when he came to do research work under him he soon discovered the falsity of such a view. He was firmly convinced that Dr. Gibson's methods were the very best, and he could only congratulate the Pharmaceutical Society on having secured him as an examiner. Very few had had so good opportunities as he (Dr. Stockman) had of knowing, and a more cultured man, or one who had a higher ideal of what true teaching is, he did not believe existed in Edinburgh, and that was saying a very great deal.

Mr. Nesbit, in supporting the vote of thanks, said he heartily concurred in what had been said by the Chairman. He quite agreed as to the necessity of a curriculum, which had been already adopted in other countries. He had often thought that a portion of the Society's premises in Edinburgh might be utilised for teaching, at least in the subjects of materia medica and pharmacy.

The Chairman then put the vote to the meeting, and it was carried with acclamation.

Dr. Gibson, in reply, said he had to thank them for their kind reception. He felt compelled to demur to some things that had been said, which were perhaps prompted more by kindness of heart than by a sense of strict accuracy and sound judgment.

The Assistant-Secretary directed attention to the books recently added to the library, which included a gift from Mr. Kinninmont, to whom he was instructed to send a special letter of thanks from the meeting.

The meeting then closed.

Hybridisation without Crossing.—M. A. Millardet records a number of cases in which the impregnation of one variety of strawberry by the pollen of another variety did not produce, as is usually the case, intermediate forms, but forms reproducing perfectly the characters of either the male or female parent, most usually the latter. Hybrids which thus exhibit no characters of crossing he proposes to call pseudo-hybrids. The phenomenon is not confined to the genus *Fragaria*, but occurs also in *Vitis* and *Rubus* (*Mém. de la Soc. Phys. et Nat. de Bordeaux*, iv, 1894, p. 347).

CORRESPONDENCE.

[*Letters to the Editor should be written as concisely as possible, on one side of the paper only, and preferably with name and address for publication.*]

BENEVOLENT FUND ELECTION.

Sir,—I do not think it should be inferred that because many voting papers fail to reach the poll there is any want of interest on the part of the subscribers. I have often felt the difficulty of deciding upon which candidate the votes could be best bestowed, and wished that the decision could be left in the hands of the Committee, who are unquestionably the best able to decide such a point. While I quite agree that it might injure the Fund to take away from any subscriber his right to give his vote to anyone whom he might desire, I think those who, like myself, feel that the members of the Committee are best able to judge might sign their papers and leave any friendly member of the Committee to fill in the votes. I have sent my papers to Mr. John Harrison, who has kindly undertaken to give me and the candidates the benefit of his judgment. I would say to my brethren in brief: if you know which candidate you wish to be selected, fill up your paper and send it in; if you are in doubt, sign the paper and send it to Mr. Harrison or other member of the Committee. Barnard S. Proctor.

Newcastle on-Tyne, December 2, 1895.

PHARMACEUTICAL ORGANISATION.

Sir,—That the Pharmaceutical Society should be widely expanded and reorganised is desired by many besides Mr. J. Anderson Russell, although few have written on the subject. Many who are not connected with the Society at present are quite as eager to forward measures for the advancement of pharmacy as those within the fold. But there are several stumbling blocks which must be removed before any concerted effort can be made; and it is the duty of the Council to take the initiative, which, at present, it shows neither inclination nor capacity for doing. One stumbling block is this exceeding bitter cry for more Preliminary examination. If it be designed to charm the ear of Parliament and the Press I can understand it; if not, it is a very lame duck. This education outcry reveals that pharmacy is recruited from a less educated class than those who are mighty in counsel deem desirable. To me it reveals the more important truth, that pharmacy does not offer sufficient inducement—is not inviting enough for the higher educated youth to enter. My opinion is, that the practical pharmacist of to-day derives no benefit from the Preliminary examination, and would be equally efficient were there none.

Another stumbling block has been the Journal, and though it is now of real value to members and associates in business through its market reports, etc, the lapsed masses of chemists and druggists will not readily throw off the connections they have made with other trade organs. But, members and associates in business subscribe one guinea a year to the Society, the Journal is offered to all and sundry at half-a-guinea, which practically makes the titles M.P.S. and A.P.S. worth half-a-guinea. Let the Society open its gates to those who consider the Journal their *bête noir*, and give them the other privileges at the half subscription rate. I believe many would join under such an arrangement, and it might lead up to the annual registration of all registered druggists under a compulsory fee, which is desirable and right and proper. The apathy of the Council seems so great, and its aversion to receive instruction so likewise great, that I am compelled to appear at variance, while I have truly great hopes of it, and veneration for all its members. In regard to its Bill-making, it is too reticent, however. Instead of concentrating all its energies on one tremendous assault on the legislature, it would come more speed in playing the importunate widow. Pharmacy, as a whole, says to it meanwhile, show us the Bill, worthy Signiors, that we may breathe into it the breath of life, and then we will take our stand under one banner, but till then——.

Glasgow, November 25, 1895. Alexander Laing.

PHARMACIST OR FACTORY GIRL?

Sir,—If "Agnoskos" had read my letter with care, he would have seen that I stated the "doctor" used the word "suppository," and by my mentioning "bougie" as I did in the following sentence he might have inferred I knew what I was writing about. The fact is, as he would find out if he stood behind a chemist's counter, many medical men use the terms pessary, bougie, and suppository

in a very loose manner, and I have not infrequently had one ordered when another was really required. "Agnoskos," therefore, might have spared us his physiological information; I knew what the medical practitioner meant, and quoted his exact words. I might perhaps have ascertained the melting point, but was it necessary to do so? The fact remains that it was considerably higher than the temperature of the body, and therefore not cacao butter. I am thankful "Agnoskos" admits that "Such articles might and perhaps ought to be made by the pharmacist," because that is just the point I wished to emphasise when I wrote to you. We may confidently hope, then, that "Agnoskos" will use his influence to hasten the reform which he states is "so much needed in nine-tenths of our pharmacies." But, while admitting much reform is needed, I think an agnostic, of all men, should avoid figures.

Your other correspondent—whose facetiousness may be forgiven because he holds a brief for a company, and whose methods seem to indicate he has mastered the American trick of never throwing away a chance of cheaply advertising his goods—scarcely needs a reply. If the company he represents are models of all the pharmaceutical virtues (and we all know there are good houses and shoddy houses), why trouble the *Pharmaceutical Journal* with a letter? Be amused, then, Mr. Secretary, and go on your way; this neither concerns you nor your firm. But now you have spoken, I have a bone to pick with you. It is not the quality of your goods we pharmacists complain of, but we object to you because you want all the plums. If you had kept to your "extracts prepared *in vacuo*," your tablets, the compressing of which required at one time expensive machinery (though, fortunately, this is no longer the case), and your other preparations, which necessitate managers with the highest qualifications, an army of trained and competent (? qualified) assistants, the finest apparatus, and a secretary, we should have no ground for complaint. But it is because you have aimed at a monopoly, have endeavoured to oust the Pharmacopœia, to induce the medical profession to accept all you so pertinaciously offer it, and have striven at the same time, whether directly or indirectly it matters not, to supersede the pharmacist with your bougies (with or without wax) and a hundred such-like articles. It is because of this I say that the pharmacist, if he is a far-sighted man, will give you as little help as possible. He will endeavour instead to bring about a more healthy state of affairs, where his knowledge and training may have fair play, so that when he is called on to supply an article he may be able conscientiously to guarantee that it is both accurately prepared and of recent make, not a factory-made article, which for aught he knows may have been made by anyone, and several months old.

London, December 2, 1895. PHARMAKOS.

BORAX CARMINE AS A STAINING FLUID.

Sir,—An abstract given recently in your Journal (*ante* p. 347), calls attention to a paper, by M. M. Radais, on a new method of preparing and employing borax carmine (*Journ. de Pharm. et de Chim.*). The author states that except in the case of skeleton preparations, the use of aqueous borax carmine, followed by washings with alcohol, is generally accompanied by the precipitation of the colouring matter in the cavity of the cell, and whilst recommending an alcoholic solution of borax carmine, he states that with the formula in use for animal histology, the desired result is only obtained with extreme slowness. His solution, which is stated to give good results in favourable cases in a minimum of ten minutes, is made as follows:—Powdered carmine, 2 grammes; borate of sodium, 8 grammes; alcohol (70°), 200 grammes. The ingredients are heated together in a flask for twenty minutes, using an upright condenser to prevent loss of alcohol. The use of alcoholic borax carmine for staining vegetable tissues is not new; the application of Grenacher's solution for this purpose is published in 'Methods and Formulæ' (Squire), 1892, and sections stained as there described were exhibited by me at the Pharmaceutical Society's evening meeting in February, 1893. I have recently made comparative trials by staining different kinds of vegetable tissues with the solution recommended by M. Radais alongside of Grenacher's solution, and another to be described later. The Radais solution was certainly not quicker in action, and the staining was not so good as with the other two. His formula given above yields a turbid liquid, which on standing for a short time deposits a considerable quantity of sediment, and after filtration the solution is comparatively pale in colour. The borax is less soluble in that strength of alcohol, and therefore cannot form with carmine such a deeply-coloured solution as with a weaker spirit.

To test the quantity of dissolved matter, 10 C.c. of each solution in turn was placed in a platinum basin and evaporated on a water bath until the residue ceased to lose weight. The percentage of alcohol is given by volume for comparison with Radais' formula. Grenacher's solution, containing 40 per cent. (by volume) alcohol, yielded ·171 gramme. Another solution (see below), containing 50 per cent. (by volume) alcohol, yielded ·147 gramme. Radais' solution, containing 70 per cent. (by volume) alcohol, yielded ·052 gramme. Borax and carmine dissolve readily in the water, but when a large proportion of strong alcohol is added precipitation occurs, and this takes place to a considerable extent after the alcohol exceeds about 50 per cent. (by volume) of the whole.

This has also a bearing on the alcohol washing after the carmine bath. If sections be placed in aqueous borax carmine, or even Grenacher's solution, and after staining be transferred direct to 70 per cent. or stronger alcohol, there is danger of carmine deposits in or upon the tissues, but if excess of stain be removed by just rinsing the sections in distilled water previous to their removal into alcohol, the danger is removed. It is always much safer to take this precaution, but the tissues must not remain more than a few seconds in the water, else the stain may be removed.

The more strongly alcoholic solution than that known as Grenacher's, and which I have alluded to above, is made as follows:—Carmine, 3 grammes; borax, 4 grammes; distilled water, 85 C.c.; rectified spirit, 115 C.c. Dissolve the borax in the water, add the carmine, and heat in a flask until the mixture just boils. Cool the solution, and add gradually the rectified spirit; after twenty-four hours, filter. This method obviates any necessity for an upright condenser. At first sight the borax would appear to be in excess, but the proportion given is necessary to dissolve the carmine. The solution stains well, and is sufficiently alcoholic for most purposes.

I have gone into this matter somewhat fully, for although there are many far better nuclear stains, notably hæmatoxylin and some aniline dyes, there is none as good as borax carmine for staining cellulose.

London, November 26, 1895. P. W. SQUIRE.

CURIOUS POISONING CASE.

Sir,—At the Hereford General Infirmary, "C. S.," a young girl, *æt.* 17, was admitted at 12 o'clock on November 22, having swallowed 1 oz. of acetic acid, to which was added an unknown quantity of red oxide of mercury. Evidence showed she bought the acid for 1d. at a local chemist's, and it was put in a perfectly clean bottle she brought with her. After taking it the bottle was found to contain a red deposit on the bottom, which on analysis proved to be red oxide of mercury. She was sick, had copious and very frequent bloody evacuations per rectum, and died seventeen hours after taking it. Magnesia, lime water, and olive oil were used as antidotes. Post-mortem examination revealed extensive ulceration and destruction of stomach wall, also inflammation of larynx and trachea.

H. GILBERT NICHOLSON, M.R.C.S., House Surgeon.

Hereford, November 29, 1895.

"THOUGHT PHOTOGRAPHY."

Sir,—Perhaps the following will help in explaining the phenomenon described under the title of "Thought Photography," in the *Pharmaceutical Journal* for November 30:—The rods of the retina have a temporary reddish-purple pigmentation, known as "visual purple." This pigment disappears on exposure to light, and re-appears when light is removed. Moreover, it undergoes distinct changes of colour when other than white light is used. The impression or image of an object received upon the retina, assisted by the influence of light, brings about chemical alteration in the protoplasm, stimulating the optic nerve endings to communicate the impression to the brain.

Although the impression is only temporarily fixed upon the retina, there is no doubt that it is appreciably fixed by gazing intently at an object for a short period. The fact that an object can be seen after closing the eyes is probably due to this fixation, and not only an effort of memory. Kirke says, that if the operation be performed quick enough, "the image of an object may be fixed in the pigment on the retina by soaking the retina of an animal, which has been killed in the dark, in alum solution."

Wimbledon, November 30, 1895. J. G. HARRIS.

DISTINCTIVE REACTION FOR SPARTEINE SULPHATE.—A small quantity of the alkaloidal salt is mixed in a porcelain capsule with about one-third its weight of chromic acid and gently warmed; the mass at once turns green from the reduction of the acid, and gives off a distinct odour of coniine (*Journ. de Pharm. d'Anvers*, li., 223).

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LONDON: SATURDAY, DECEMBER 7, 1895.

THE COUNCIL MEETING.

BEFORE the commencement of the business last Wednesday, the PRESIDENT announced that Mr. GOSTLING was prevented by illness from being present at the meeting. Letters of acknowledgment had been received from Mrs LINFORD, Madame PASTEUR, Dr. LUXMOORE, and Professor VOGL in response to the several acts of the Council in reference to them and their relatives.

On the recommendation of the Sub-Committee of the General Purposes Committee, the members of the Board of Examiners for England and Wales were appointed; the new members appointed being Mr. F. BASCOMBE, Mr. E. W. LUCAS, and Mr. G. S. TAYLOR in place of Messrs. GERRARD, SYMONS, and TANNER. The new members of the Board of Examiners appointed for Scotland were Mr. J. LAIDLAW EWING, and Mr. J. NESBIT, in place of Messrs. DOTT and MABEN.

The Superintendents and Deputy-Superintendents of written examinations were appointed in accordance with a list which will be found at page 477.

As arising out of the minutes of the previous meeting of Council, the PRESIDENT stated that it was proposed to take the subject of the Scholarship in connection with the Burroughs' Memorial into consideration at the next meeting of the Library, etc., Committee, and, if necessary, to confer with the Burroughs' Memorial Committee thereupon.

The report of the Finance Committee, which was confined to the ordinary routine statement of balances and payments on account of the General Fund and the Benevolent Fund, was adopted.

On the recommendation of the Benevolent Fund Committee, one grant of five pounds was ordered to be paid, and, in moving the adoption of the report, the Vice-President remarked that in contrast to the last few months there have been only a small number of applications for relief.

The report of the Library, etc. Committee mentioned, in addition to the usual details, that the application from Exeter mentioned last month had been replaced by one from the local chemists' association for a materia medica cabinet, and on the recommendation of the Committee it was decided that a grant of twenty pounds should be made for that purpose. The collection will be placed in the Museum attached to the Technical Institute, with a label stating that it is the property of the Exeter Chemists' Association presented by the Pharmaceutical Society.

In connection with this grant a discussion took place on the subject of provincial education, Mr. SCHACHT suggesting that the Council should be kept informed as to the use made of the materia medica collection presented to the Exeter Association. Mr. ALLEN urged that some attempt should be made to prevent the frequently deplorable inability of candidates to pass the qualifying examination, by calling upon employers to insist upon their apprentices taking advantage of such opportunities of instruction as might be within their reach. Mr. HAMPSON and Mr. ATKINS also expressed satisfaction at the progress made in providing for the teaching of pharmaceutical students throughout the provinces. The success of the attempts made in that direction at Aberdeen was spoken of by Mr. JOHNSTON. The chemist's shop, Mr. CORDER thought, was the proper place for the study of materia medica by apprentices, while Mr. YOUNG, referring to the incapability of many chemists and druggists to teach their apprentices, suggested that some admonition as to their responsibilities in that respect would be desirable.

The PRESIDENT read a letter from Mr. HORACE DAVENPORT, Chairman of the Chemists' Aërated and Mineral Waters Association, Limited, in which he stated that the directors of that Association were anxious to present to the Benevolent Fund of the Pharmaceutical Society fifty fully paid-up "Camwal" shares. Mr. DAVENPORT also expressed a desire to supplement the gift by another of similar amount, to be presented by himself. The Council decided to accept the gifts with thanks.

THE PREPARATION OF LIQUID AIR.

A NEW apparatus for the production of liquid air was exhibited at the Royal Institution on Monday last, by Professor DEWAR. In this, one of the cylindrical vacuum-jacketed vessels devised by Professor DEWAR is closely surrounded by a coiled metallic tube, and the whole arrangement is enclosed in a second vacuum-jacketed vessel just wide enough to receive it. The metal coil is thus protected from external heat by vacua on both sides. The outer extremity of the tube is connected with a vessel containing air condensed at a pressure of about two hundred atmospheres and, on opening the stopcock, the condensed air passes through the coil, and escapes through a pinhole at the inner extremity of the tube into the bottom of the outer vacuum vessel. It is greatly cooled in its passage through the coil, and the expansion that occurs as it escapes from the pinhole lowers the temperature still further. After the process has been carried on a few minutes liquid air begins to collect in the outer vacuum vessel, and in a brief space of time seventy or eighty cubic centimetres of the liquid can be obtained with ease. If the condensed air employed in the process be first cooled by passing through solid carbon dioxide, on its way to the coil, it can be obtained in the liquid state in three or four minutes, collecting very rapidly. The process is so simple and cheap that liquid air can now be readily obtained by everyone requiring it as an aid to investigation.

ANNOTATIONS.

Evening Meeting in London.—A meeting of the Pharmaceutical Society will be held at 17, Bloomsbury Square, W.C., on Wednesday next, December 11, when the chair will be taken b the President, Mr. Michael Carteighe, at 8 o'clock precisely. A paper on "Chinese Opium," will be read by Mr. Frank Browne, Acting Government Analyst, Hong Kong, and a "Note on a Fluorescent Constituent of Calumba," by Mr. Alex. Gunn, F.C.S.

Pharmaceutical Society's Museum Report.—A descriptive list of the donations to the Pharmaceutical Society's Museum, for the year 1893-4, has been compiled by the Curator, Mr. E. M. Holmes, and is now ready for distribution. Copies may be obtained by members and associates of the Society, on application to the Secretary, Mr. Richard Bremridge, 17, Bloomsbury Square, London, W.C. The Report, which occupies 105 pages, is intended to supply, in a convenient form for reference, in ormation of practical value concerning the large number of donations received, and it is proposed to publish further reports from time to time. The donations are classified under the names of the donors, as well as under those of the more important specimens. In the latter case notes and refercnce to papers are given. There is also a separate list of donations to the herbarium.

The Jaborandi Leaves of Commerce.—A lengthy and comprehensive paper on the jaborandi leaves of commerce, by Mr. E. M. Holmes, Curator of the Pharmaceutical Society's Museum, was read at the meeting of the Chemists' Assistants' Association on Thursday, November 28. In this the author summarised all the information that has yet been published on the subject, and dealt with the methods of distinguishing the different varieties. Unusual pressure on space prevents the publication of the paper in this week's Journal, but it will appear later fully illustrated, special drawings having been prepared for the purpose.

"A Practical Simplification of the Metric System."—The *Pharmaceutical Era* thus styles the proposals of E. L. Milhau, who proposes to adopt the kilogramme (K.) as the commercial unit, and to completely replace the whole of the tables of weights and measures now in use in Great Britain and the United States by the use of fifteen terms. These are K. (kilogramme), L. (litre), M. (metre), T. (tonnean=1000 K.), S. (solid or cubic M.), Kilom. (1000 M., or 2/3 mile); the hundredths would be represented as ck., cl., cm.; the mills or thousandths as G., mi., mim, and the remaining terms proposed are A. (area, 10 M. sq.), H.A. (100 A.), micron (1/1000 mim.). One advantage claimed for these abbreviations is that they can be easily pronounced as written, unlike the signs £ and $. In practice it would be customary to write K 1·60, and speak of "one kay sixty," instead of "one kilogramme and six hundred grammes."

Medicine in Workhouses.—At a meeting of the Kingsbridge Board of Guardians, on Saturday, November 23, a report was received from Dr. Elliot, medical officer, complaining that drugs had on several occasions been supplied to an old female inmate of the workhouse without his sanction. During the course of a discussion it was stated that the woman was in the habit of covering herself with plasters, which it was believed were not harmful. The Board thereupon resolved to leave the matter to the discretion of the Master, as to any future supplies.

Nottingham and Notts. Chemists' Association.—At a meeting of this Association held on Wednesday, November 27, to discuss the proposed amendment of the Pharmacy Act, Mr. Gascoyne led off the discussion, and a very interesting debate ensued. The restriction of compounding and dispensing to registered persons was approved on general lines, but the proposed erasure of names from the Register for unprofessional conduct was unanimously rejected as too vague. Instead of imposing an annual registration fee for all registered persons, say, 5*s*. per annum, and rendering all registered persons eligible for admission as member of the Society, a resolution was carried "that every person on passing the qualifying examination of the Society become a member of the same, and that a small registration fee be charged." It was not considered desirable that power should be given to enforce periods of study between the "First" and "Minor" examinations until further information was forthcoming regarding the interval proposed and the prospective curriculum. Finally, it was resolved that power should be sought to limit the period during which an unqualified trustee or administrator of a registered person's estate may legally conduct the business of the deceased person.

"Galerie d'éminents Thérapeutistes et Pharmacognostes."—The work published under this title consists of a series of biographical sketches and portraits of individuals who are noted for their work in pharmacognosy and allied subjects. Each part contains five full-page portraits and fifteen to twenty pages of letterpress, and is published at the price of two and a half francs. The publisher, who is also the author of many of the biographies, is M. B. Reber, ex-pharmacien, Avenue du Mail, 21, Genève, Switzerland. Most of the biographies are in German, but some, including that of Mr. E. M. Holmes, which was recently referred to in the Journal, are in French. The series now includes fifty-five biographies, amongst the subjects being Daniel Hanbury, F. A. Flückiger, August E. Vogl, G. Dragendorff, Robert Bentley, Alex. Tschirch, John Attfield, A. W. Gerrard, J. M. Maisch, F. B. Power, Oscar Liebreich, T. R. Fraser, David Hooper, C. J. H. Warden, and J. U. Lloyd. The work will be found of considerable interest and value by all who are interested in the personalities and careers of these and other masters of their craft.

Midland Pharmaceutical Association.—A special meeting of the chemists of Birmingham was held under the auspices of this Association on Wednesday evening to discuss the scheme explained by Mr. E. J. Smith with regard to "Undue Cutting in the Retail Trade" (see *Ph. J.*, November 23, p. 448), and to consider the desirability of adopting some modification of the scheme. It was decided, however, that the proceedings should be private, and it may be anticipated therefore that no report will be published. The decision was undoubtedly a wise one, for pharmacists have incurred much unmerited obloquy in time past by the indiscreet publication of their discussions on trade matters.

The Chemists' and Druggists' Diary for 1896.—This work seems even bulkier than its predecessors, and the literary contents show no falling off in quality. Out of a total of 523 pages, exclusive of the diary proper, 64 are devoted to useful information. It is true that this information is almost swamped in the mass of advertisements, but the different coloured paper on which the matter is printed goes far to obviate this slight inconvenience.

Biennial Henbane Seed.—Mr. W. Spencer Turner, pharmaceutical chemist, Willingham, Cambs., writes to say that he will be glad to give a little of this year's seed of Biennial Henbane, to anybody who cares to send him a stamped directed envelope for it.

PROCEEDINGS OF SOCIETIES.

Society of Chemical Industry.—At the meeting of the Society of Chemical Industry, held on Monday, a paper was read describing a new system of electrolytic alkali manufacture, devised by Messrs. Hargreaves and Bird. One of the chief features of this invention is the diaphragm employed in the construction of the electrolytic cells, but the details of its nature were not disclosed. In the course of the paper the use of mercury as a diaphragm in the electrolytic process of the Castner-Kellner method was adversely criticised as being prejudicial to the health of the work-people. In replying to this part of the paper, Sir Henry Roscoe defended the use of mercury in the Castner-Kellner process as being free from any such objections as were urged by Mr. Hargreaves. By reference to actual experience in working this process, Sir Henry showed that the actual loss of mercury has been very slight indeed, that it was not in any degree due to volatilisation, and also that there has not been among the work-people employed any instance of illness caused by the influence of mercury. Another feature of Mr. Hargreaves' paper was the severe criticism of a paper published by Dr. Hürter on the subject of electrolysis, in which it was supposed that the application of the method for alkali manufacture was prematurely and unduly held out to be impracticable. This view of the paper was repudiated by Dr. Hürter, who showed that the special object with which the paper was written did not bear the interpretation put upon it by Mr. Hargreaves.

At the close of the meeting a vote of thanks to Mr. Hargreaves was proposed by Mr. Tyrer, the President of the Society, and carried unanimously.

Linnean Society of London.—At the meeting held on November 21st, Mr. J. G. Baker, F.R.S., Vice-President, took the chair. His Grace the Duke of Bedford, Messrs. Bernard Arnold, and E. B. Fernan were elected Fellows of the Society, and Mr. B. B. Woodward was admitted.

The Rev. G. Henslow exhibited a MS. Common-place Book of the latter end of the fourteenth century. The entries, in Latin and English, were found to consist chiefly of medical recipes, in which about 200 plants are named for their uses, and some methods of distilling "Aqua Vitæ" described. There were also notes on Geometry and Astronomy, and some calculations of altitudes and superficies. Mr. Baker thought the number of plants named at the date referred to was a matter of some interest to botanists, and suggested publication of the list of names, with their indentification where possible.

Mr. Henslow also exhibited a series of shells of *Buccinum undatum* and *Fusus antiquus*, showing the variation in form which occurs in the reparation of injury sustained at an early stage of life, the subsequently renewed whorls assuming shapes resembling those of other species in the same genus, and even in other and very different genera. Usually the uninjured whorls could be detected by the apex being of the normal character, but in some cases the abnormality appeared to be congenital, being carried completely into the apex. This appeared to the exhibitor to raise the question whether these were acquired characters, and hereditary, having been impressed upon the offspring born after the parent shell had been injured and renewed by growth. Mr. E. R. Sykes and Mr. B. B. Woodward offered some criticism, deprecating the suggestion of anything like "mimicry," and regarding the resemblance in question as purely accidental.

Mr. T. H. Buffham exhibited lantern slides of a red marine alga, *Bonnemaisonia hamifera*, Hariot, found floating in the sea at Falmouth. This species, recorded previously only from Japan, bears thickened branches terminating in a hook (hence the specific name), in this respect resembling *B. californica* (Dickie), Buffham, which was also shown. Microscopic characters of each were described and compared with those of *B. asparagoides*, Ag. It was suggested that if *B. hamifera* had been introduced from Japan it could only have been from spores, or possibly the hamose branches might develop into plants, since the Falmouth specimens were quite fresh and must have been living near the place of discovery. Remarks on the mode of distribution of algæ were made by Mr. George Murray and Mr. E. A. Batters.

Dr. D. Morris, C.M.G., read a paper on the "Development of a Single Seed in the Fruit of the Coco-nut Palm (*Cocos nucifera*)." Alluding to the occurrence of palms with twin and trifid stems arising from one base, it was shown that these were due (1) to several seeds in one fruit; (2) to more than one embryo in a seed; or (3) to a branching of the primary shoot. In cases cited by Rumphius, Forbes, and others, several seeds were found in one fruit. The course of development of the single cell was illustrated by means of lanter slides. The obliteration of the two cells began about the second or third week after the spathe was open; by the end of the seventh week, they were reduced to narrow slits which were still traceable in the mature fruit.

On behalf of Mr. A. J. Ewart, Prof. Harvey Gibson gave an abstract of a paper "On Assimilatory Inhibition, the causes by which it may be induced and their influence on vitality." It was shown that most inhibitory agencies operate by inhibiting the initial stages in assimilation, but any cause affecting the rapidity of removal of carbohydrates from assimilatory cells will also affect their power of assimilation, the commencement of which is determined mainly by the development of the chlorophyll pigment, but is also influenced by other indeterminate factors probably protoplasmic in origin. The paper dealt mainly with the discussion of experiments with a large number of plants, and criticism of the results arrived at by other investigators. An interesting discussion followed in which Dr. D. H. Scott, Professor Reynolds Green, and Professor Weiss took part.

Mr. A. C. Seward gave the substance of a paper on a new species of *Pinites* (*P. ruffordi*) from the Wealden beds of Sussex. After describing the histological structure, he referred especially to the characteristic arrangement of the bordered pits on the radial walls of the tracheids, the presence of numerous vertical and horizontal resin-ducts, and other features suggestive of a type similar to the recent *Pinus*. Professor Reynolds Green, F.R.S., made some supplementary remarks.

London Institution.—The Thursday evening lecture last week was "A Forest Primeval," by Prof. W. Boyd Dawkins. In a few introductory remarks the eminent geologist remarked that the subject was not simply of general scientific interest, but of vast industrial importance.

A section of coal cut at right angles to the lines of clearage exhibited under the microscope irregular bands and masses of resinous material embedded in the blackened carbonaceous material. The variation in the burning properties of coal from different seams was mainly due to a difference in the amount of resinous matter or spores, as closer examination proved them to be, present in the respective coals; and the inflammability of the spores was demonstrated by the well-known method of burning a little lycopodium. Accurate investigation had shown that these spores were derived from various coniferous plants and tree ferns, but of all the gigantic flora of the carboniferous era the sole survivor is the *Salisburia*, or so-called maidenhair tree, of which a fine specimen may be seen in the grounds at Kew.

From fossil remains it has been found possible to produce pictorial representations of many of these plants, and several views of these "restored" plants were shown. The primeval forest may be regarded as a vast expanse of swamp, with trees actually growing out of the water and the dense undergrowth springing up on all sides, the counterpart of which may be seen at the present time on the western shores of Lake Drummond, where the trackless swamp is locally known as "The Great Dismal." The remains of animal life indicate that the climate was warm, and fairly uniform throughout the vast expanse of forest which stretched from the Arctic regions to Australia, the zone-like changes of temperature being the product of an older world after it had lost its first fire of growth.

The highest form of animal life was the Labyrinthodon, a huge newt-like amphibian, growing to a length of twelve feet or more, and exhibiting all gradations down to less than an inch. The gradual process by which the forests were submerged and then covered by an ever-thickening deposit of mud and sand, and the subsequent conversion of this buried vegetable matter into coal, a change brought about mainly by pressure, was sketched out by the lecturer.

A few words on the distribution of the coalfields of Britain were followed by an interesting reference to the borings at Dover. Professor Dawkins said there is a bed of coal beneath the Straits of Dover which he maintains is the eastern extension of the South Wales and Somersetshire coalfield. The nearest point in the London district where the geological strata invites the possibility of tapping this coalfield is between Redhill and Croydon, and from his manner the Professor is evidently anxious to have an opportunity to put down his boring rods in that neighbourhood. The lecturer concluded by drawing attention to the rapid manner in which our coal supplies are being used up. The Coal Commission in 1871 estimated that we had sufficient to last 276 years; Professor Jevons, at a later date, said 110 years would suffice to impoverish us; and

Professor Boyd Dawkins, calculating from the recent statistics and measurements, makes it only 159 years.

Thus in the twenty-first century we may expect at the present rate of winding to use our last ton of coals, and what will happen then? Well, the forecast was flattering to us as a nation. "I suppose, if we were driven to the extremity, our Anglo-Saxon race would do again what it did long ago. Our ancestors left their German homes and gave their name to the new land which seemed to offer them greater advantages than the one they had left; if coal is still required and our stores in England are all used up, the same spirit will drive our descendants to find fresh coal supplies, and if necessary to found thereon another and a newer England.'

Edinburgh District Chemists' Trade Association.—The opening meeting of the session of the Edinburgh District Chemists' Trade Association was held in the Pharmaceutical Society's House, 36, York Place, Edinburgh, on Thursday 28th ult. Mr. Peter Boa, the Chairman, presided, and there was a good attendance of members.

Election of Members.

The following gentlemen were elected members of the Association:—Mr. Henry W. F. Allan, Kirkcaldy, Mr. John Blyth, 34, Charlotte Street, Leith, Mr. F. Lyon Dewar, 39, Forrest Road, Mr. David Mason, 65, Raeburn Place, and Mr. James M. Price, 123, Gilmore Place.

Federation of Local Pharmaceutical Associations.

Some discussion took place with reference to communications from the Executive Committee of the Federation of Local Pharmaceutical Associations.

Mr. David McLaren said he was present at the first meeting in connection with the formation of the Society, and he was rather enamoured with it at the time, but in thinking over the matter again, he scarcely saw what benefit there was in combining themselves with associations so very far distant from one another. Unless he got more light on the matter, he would not recommend connecting themselves with such a federation.

Mr. Noble moved that the letter lie on the table till they knew more about it.

Mr. J. Rutherford Hill said he also was present at the meeting at Nottingham, and what impressed him more than anything else was that he did not think two men in the room had the same idea as to what they would be at. At the same time some of the most active men in the movement were men actuated by a very strong and proper desire to do whatever could be done to unite the chemists in the country for a common purpose, and for the promotion of common interests, and while there might be a great amount of vagueness as to the lines to be adopted, there could be no hesitation in heartily approving of their main purpose. He had a long conversation with Mr. Thomson, one of the most active members in the movement, in which he explained to him many of the things they had in view, and if the main feature of his proposal—the linking together of the various pharmaceutical associations throughout the country—could be attained, he had not the slightest doubt the result would be beneficial. Some people had a very foolish notion of a federation like this—that it was contrary to the interests of the Pharmaceutical Society. There could be no more profound mistake than that, anything that would make the chemists of the country gain in solidarity and unanimity would tend to the interests of the Pharmaceutical Society and the chemists themselves.

It was agreed that the letter should lie on the table.

The Ethical Aspects of the Pharmacy of To-day.

The meeting next considered a letter by Mr. J. R. Young, of Messrs. J. F. McMacfarlan and Co., North Bridge, Edinburgh, in which he suggested that an article which appeared in the *British Medical Journal* by Professor Stephenson, Aberdeen, on "The Ethical Aspects of the Pharmacy of To-day," should be reprinted and circulated among medical men in Scotland.

The Chairman explained that they considered the proposal in committee three weeks ago, and it occurred to them that if they were to send out this paper to medical men it might possibly look as if they were assuming the position of indicating to them what was their proper duty, and they therefore brought it before the Association.

Mr. Wylie thought they had a grievance, and he did not see why they should be backward in acknowledging it.

Mr. Noble said if the medical men found out who circulated the paper they would not think much of it. They could get it in the *British Medical Journal.*

Mr. J. R. Hill said he expressed the same view as Mr. Noble had done to Mr. Young himself, but he stood to his own opinion.

Mr. Nesbit was in favour of having the paper circulated. They had no interest to serve, but the public interest to look after, and they did not think a medical man did his duty when he ordered proprietary medicines which they knew nothing at all about. How would medical men like if chemists recommended some of their patients to some quack doctor, and that would be exactly the same thing.

Mr. Claud F. Henry took the view expressed by the Chairman.

Mr. Smith said they did not know the magnitude or degree of the evil, owing to the way in which medical men were dictated to by representatives of proprietary medicines. In conversation with a traveller for one of these, he made the remark that proprietary medicines were a perfect humbug and nuisance, and the representative replied, "Yes, Mr. Smith, it is a humbug; we gull the doctors, and the doctors gull the public."

After some further discussion the question was put to the meeting, when it was agreed by the casting vote of the Chairman to take no action with reference to the letter.

Mr. C. F. Henry, moved "That this meeting records its thanks to the Council of the Pharmaceutical Society for its action in favour of bringing about an amendment of the Companies Acts, and promising to give any assistance in its power to put an end to the recognised evils associated with one-man companies."

Mr. Glass seconded, and the resolution was unanimously adopted.

Prescribers and Dispensers.

The Chairman then opened a discussion on "Some relations between prescriber and dispenser." He said that since their last meeting there had been a case in the local law courts, in which one of their members was interested, which involved certain relationships between prescriber and dispenser, and gave rise to the suggestion that at that meeting they might have a discussion on the subject. His own feeling in the matter was that some one other than the Chairman should have opened the discussion, because the Chairman more suitably kept the meeting in order than took a side. But he would endeavour in his remarks, under the different headings to avoid saying anything of a strong controversial character. The manner in which the prescriber and dispenser were educated to a certain extent gave rise to a necessity for the discussion of these heads. The medical man, in the course of his professional studies, received a certain amount of education relating to the practice of pharmacy, and the dispenser, in the ordinary course of his business, acquired a certain knowledge of the kind of complaints for which certain drugs were used. In the one case the prescriber, even if he did not take up dispensing as part of his practice, was occasionally under the necessity of putting a few medicines together in order to give a patient a dose, and in the case of the chemist, from time to time he might be asked by some of his clients to prepare for them a dose for some ailment they knew or fancied they had. If dealing with drugs from a pharmaceutical point of view were confined to such small matters as those he had mentioned there would not arise probably the friction which occasionally happened. They in Edinburgh were scarcely in a position to appreciate to its fullest extent the nature of dispensing by medical men as it was carried out in some parts of the country, because in their district they had very little of it. In some parts of the country almost every medical man not only prescribed but dispensed—he provided both advice and medicine for his patients. When that condition of things existed in large towns it could scarcely be expected but that there would be a few chemists in business who, if they did not get a sufficient amount of what might be called legitimate dispensing, would not be above the temptation of exercising a certain amount of dispensing their own prescriptions. It was quite natural to suppose that the medical dispenser would entertain a certain amount of jealousy with regard to his pharmaceutical brother in these circumstances.

Looking at medical dispensing from a pharmaceutical point of view, one was led to the conclusion that it was apt to be performed in a somewhat rough fashion, so that it led the prescriber very often to use ready-made preparations. That was to say, he got a certain number of formulæ—pills, capsules, mixtures, and certain prescriptions—prepared and had them always at his hands, so that when a patient required medicine he gave one of these, which might be nearest what was likely to suit. He did not say that was always the case, but he merely said that dispensing by a medical practitioner was more or less liable to give

rise to these conditions. In the case of chemists it sometimes was a very difficult matter to avoid prescribing in a small way. He had no doubt they had all experienced that, and in proportion to the amount of medical dispensing carried on in a town he should say that chemical prescribing would be carried on in the same proportion. The greater the number of medical men in a town who did their own dispensing, there would probably be a proportionate number of chemists prescribing. The Pharmacy Act began with a preamble to the effect that whereas it was expedient for the safety of the public. He thought the safety of the public demanded some modification of the present system of medical dispensing in certain districts. That was the point of view from which any modification of this condition could arise, because he had seen the view expressed once or twice that when a medical man gave medicine as well as advice, there was no check whatever on the accuracy of the preparation of the medicine. And as medical men had to give the certificate of death, the suggestion by a member of the public was that in case of any accident arising from their own dispensing, they probably would not refer to the matter in the death certificate.

To leave that part of the subject and come to one which was less controversial, when they came to deal with prescriptions they had some difference of opinion in some quarters about ownership. The view he took was that if a patient went to a physician and got a certain amount of advice and paid the medical man a fee, in that way he acquired the advice and the prescription by purchase. When a patient presented a prescription to a chemist to be dispensed, the chemist took a copy of the prescription and gave the original back to the patient. In some cases the chemist was asked for a copy of the prescription. In regard to copies of prescriptions, certain delicate points arose. There could scarcely be any objection to giving the original owner of the prescription a copy of it, provided it was for his own use in the event of the original being lost, but if the original owner wanted a copy of it to give to another, perhaps it would be a matter for consideration whether he should get it or not. It was rather a difficult matter for a chemist to refuse a regular customer in such circumstances. On the other hand, the chemist must take copies of certain prescriptions if they contained scheduled poisons, and he kept those in order to conform with the law on the subject. If he gave a copy of such prescriptions, even to the original owners, he issued what might be called an order for poison to persons for whom the poison might be totally unsuited, and if anything were to happen through the possession of that prescription, it might be a serious question how far the chemist was to blame in the matter. In regard to prescriptions containing scheduled poisons, it was his opinion that the chemist would be perfectly justified in refusing to give a copy unless he was satisfied that it was for the use only of the original owner of the prescription. Chemists often got copies of prescriptions presented to them, and they took them to be *bonâ fide* prescriptions, but there was just the probability of such a prescription being used for illicit purposes, and it was in such circumstances that he feared some blame would be laid on the man who gave the copy. That was perhaps taking too strong a view of the matter, but that was how it presented itself to him.

In regard to the discretion which might be allowed to a chemist in dealing with the ingredients of a prescription there was some difference of opinion. It was stated the other day by a medical man that a certain prescription which he had given (in which he wrote the ingredients and gave the name of a certain firm as the maker) might have been made up by any chemst. He did not think that many of them would agree with that statement. He did not think the dispenser's discretion was necessary in such a case at all. The prescription indicated what was to be given, and the dispenser's duty was to give it, even though he knew it to be inferior to what he could have made himself. When a medical man wrote a prescription and gave it to his patient, he committed it, as it were, to the good faith of the dispenser. There were, however, circumstances in which the dispenser might judiciously use his discretion. If the prescriber wrote "*q.s.*" after an ingredient—such as a flavouring in a prescription—he clearly left it to the dispenser to put in the quantity he thought suitable. In the case of expensive medicines prescribed for poor people, he thought the dispenser might at his discretion send less than the quantity ordered if he thought it more than the patient would be likely to use. Medical men could not be expected to know the cost of drugs. The next question was as to private understandings. That was a matter which really did not appeal to them very much in their part of the country, because they had few private understandings. In certain parts of the country there might be an understanding between prescriber and dispenser, whether to their united advantage or not he did not know. But that was not an important heading for them.

Dr. Mason said he had asked doctors what their views were with reference to chemists prescribing for simple ailments, and they said they had nothing to say against it.

Mr. David McLaren said a medical man in his neighbourhood came into his shop one day, and looking to the counter, he said to the assistant, "You have got no right to sell cough mixture. Leave that to the doctor to prescribe."

Mr. Noble said he kept all his cough mixture at the back of the shop.

Mr. Bowman said it would be a very good idea if, when the quantity of the flavouring stuff was left to the dispenser, he marked the quantity in the original prescription with his initials, so that if it came to be dispensed by another he might give the same quantity. He mentioned the case of a doctor in Leith, who, in prescribing pills, frequently put in "excipient *q s.*" In such cases he thought it should always be added, whatever was used and the quantity. As to giving a copy of a prescription, he said it was generally the owner of it that asked for the copy, and in that case they could not refuse it. It belonged to the person who paid the fee.

The Chairman said his point was that in copying the prescription, supposing it contained poison, they were fulfilling the law, and on that ground they might have a reasonable basis for refusing a copy.

Mr. Smith asked, supposing the Chairman was requested to dispense Mr. So-and-So's prescription, would he do so?

The Chairman said it would depend on circumstances.

Mr. Nesbit said he agreed with the Chairman in his remarks regarding medical men dispensing their own prescriptions, but he believed it was very much a matter of custom in the particular district in which they lived. In their own district it at one time prevailed, but other medical men took up a different standing, and now the dispensing was left to chemists. In England the public preferred that medical men should dispense their own medicines. He mentioned a case he knew of in Manchester, where the patient paid 3*s.* 6*d.* for advice and medicine. The medicine suited the patient, so she went back eight or ten times and got the same medicine, for which on each occasion she paid 3*s.* 6*d.* That was a costly transaction. He objected altogether to copying prescriptions, though he sometimes did it when a customer lost his prescription. He held the prescription to be the doctor's copyright. As to private understandings, he said he never had such an arrangement. It was far better for the chemist to keep free from such arrangements. He would get on far better.

Mr. Forret endorsed the opinions expressed by Mr. Nesbit. As to the case put by the Chairman, he did not see that any blame would be attachable to the chemist who copied the prescription containing a scheduled poison, if it was administered to a person for whom it was not suitable. If anyone was responsible it would be the dispenser of it. But he did not think they were bound to give copies of prescriptions. He never made any modification of a prescription without indicating to the prescriber what he had done.

Mr. Rutherford Hill said his experience in an official way had led him to feel that in connection with this matter of medical men dispensing their own prescriptions, there was a condition of things in this country at the present time which was nothing less than a public scandal. It was quite within the purpose of the preamble of their Act that something should be done to put a stop to the existing state of matters. He was quite certain that if there was a remedy the medical profession would entirely agree. He had spoken to one of the most eminent medical practitioners in Edinburgh, who was surprised to find that medical men were entitled to dispense as part of their medical qualification. He said they were not fit for it. With regard to prescribing chemists, he was bound to admit that he had had numerous complaints from medical men against chemists overstepping the bounds of discretion. He had not found that medical men objected in any serious way to the cautious and very limited kind of prescribing which was almost inevitably bound up with such a business as that of a chemist. With regard to the ownership of prescriptions, he said that he was not sure that it was a settled question who was the owner. The prescription was essentially a private and confidential communication to the chemist from the prescriber, and the patient was only the messenger carrying a private and confidential communication from the one to the other. Whoever the owner might be, the messenger surely was not, and the

question was one which could only be settled at law. He said it was a popular fallacy to suppose that a prescription containing poison was only excluded from the restrictions of the Act if it was the prescription of a medical man. A mere family recipe or any medicine dispensed by a registered chemist was excluded from the restrictions of the Act which applied to the sale of poisons. He mentioned a case where a chemist in a country town presumed to make up a medicine by guess from a prescription of a neighbouring chemist. He tasted the medicine and filled up the bottle with a medicine as nearly as he could, but he did not remove the other chemist's label. It was a wrong medicine, and the consequences were very serious. The other man was charged with making the mistake, and there was some difficulty in proving who did it, as the messenger was an old man who could not give a very clear explanation as to which shop he went to. Such a practice deserved to be very seriously reprimanded. He mentioned another case where the medicine was wrongly dispensed, and it was sent out by the dispenser with his neighbour's label upon it. He thought the subject required pretty full discussion, and he suggested that they should adjourn it till another evening.

This was agreed to.

The Ball Committee's Funds.

On the motion of Mr. David McLaren, seconded by Mr. Henry, it was agreed to accept the funds at present in the hands of the Ball Committee, and to appoint a committee of their number with power to add from outside sources in getting up the annual ball. Mr. McLaren said the funds would amount to something over £25.

The meeting then terminated.

Royal Society.—The anniversary meeting of the Royal Society was held on Saturday last, when Lord Kelvin took the chair for the last time as President. His address touched upon several topics of great interest. Nineteen fellows and foreign members have passed away during the year, and special references were made to Huxley and Pasteur. Of Professor Huxley, Lord Kelvin said: "In the nine volumes of collected essays which he has left us we find everywhere traces of acute and philosophical thought. When he introduced the word 'agnostic' to describe his own feeling with reference to the origin and continuance of life he confessed himself to be in the presence of mysteries on which science had not been strong enough to enlighten us; and he chose the word wisely and well It is a word which, even though negative in character, may be helpful to all philosophers and theologians. If religion means strenuousness in doing right and trying to do right, who has earned the title of a religious man better than Huxley?" With regard to the work of Louis Pasteur in founding the germ theory of disease, it was remarked that Pasteur gave complete demonstration of the conclusion of Helmholtz, that the actual presence of a living creature—vibrio, as he called it; bacterium as we more commonly call it now—is necessary for either fermentation or putrefaction. Pasteur also extended the theory to vast and previously undreamt of spheres. The first great practical application of his views was made by Sir Joseph Lister about 1863-65, the President-elect of the Royal Society. "Without wasting words to prove theoretically that while stones falling together may," said Lord Kelvin, "as we all believe they have actually done, make a solar system, with a habitable planet or planets, they cannot make a man or a microbe, or an organic cell with its property of heredity. Pasteur set about to trace the antecedents of every microbe he met with, and he found for it in every case a living thing, whether in the air, or in water, or in earth." The discovery of argon and helium was also referred to, Lord Kelvin remarking in regard to the more recently discovered substance that Lockyer, who recognised its spectroscopic line thirty years ago, considers that it is not a simple gas but a mixture of gases. If this should prove to be true the discovery would be even more interesting, he pointed out, than if the helium should prove to be a simple element only.

The Society's medals were then awarded as follows:—The Copley Medal to Dr. Karl Weierstrass, for investigations in mathematics; the Royal Medal to Professor James Alfred Ewing, F.R.S., for inquiries on magnetic induction in iron and other metals; the Davy Medal to Professor William Ramsay for his researches in chemistry and physics, and particularly the discovery of argon and helium; and a Royal Medal to Dr. John Murray for his services in connection with the *Challenger* expedition.

The Society next proceeded to elect the officers and Council for the ensuing year, as follows:—President, Sir Joseph Lister, Bart.; Treasurer, Sir John Evans, K.C.B.; Secretaries, Professor Michael Foster and Lord Rayleigh; Foreign Secretary, Mr. Edward Frankland; other members of the Council, Mr. William Crookes, Sir Joseph Fayrer, Mr. Lazarus Fletcher, Mr. Walter Holbrook Gaskell, Mr. William Huggins, Lord Kelvin, Professor Alexander B. W. Kennedy, Professor Horace Lamb, M.A., Professor Edwin Ray Lankester, M.A., Professor Charles Lapworth, Major Percy Alexander MacMahon, R.A., Professor John Henry Poynting, D.Sc., Professor Arthur William Rücker, Osbert Salvin, M.A., Professor Harry Marshall Ward, D.Sc., Admiral William James Lloyd Wharton, C.B

Brighton Junior Association of Pharmacy.—At a meeting held on Wednesday, November 27, a paper was read by Mr. C. S. Ashton on "Mandrakes." After pointing out the similarity that exists between three other solanaceous plants and *Mandragora officinalis* (the alkaloids atropine, daturine, hyoscyamine, and mandragorine being isomeric), the writer proceeded to describe the latter, and to trace the origin and history of the various myths and legends which have grown up around this romantic and interesting herb.

The two main factors contributing to the extraordinary beliefs entertained as to its properties and effects have been (1) the man-like shape sometimes assumed by the root, and (2) the poisonous nature of the plant itself. The first factor is responsible for the belief in its powers as a love philter and promoter of fecundity. It is not wonderful that in an age when phallic worship was a leading feature of several religions, the appearance of a phallus-shaped root should give rise to superstitious fancies concerning it. Some of the old names applied to the plant, such as *Semihomo* and *Anthropomorphon*, refer to the appearance of the root, while the term "love apples" relates to its imaginary aphrodisiacal virtues. This property the doctrine of "signatures" would at once claim for it; an analogous case occurring in the root of the *Panax schinseng*, so highly prized by the Chinese. The Biblical mentions of mandrakes are both in connection with love episodes (Genesis, xxx., 14 to 16, and Solomon's song, vii., 13).

The human-like form is further responsible for the legends of the animal life possessed by the plant, and the shrieks and groans which are said to issue therefrom, while the maddening and deadly effects produced in those who ventured to pull the root without observing the prescribed ceremonials derive their origin from the well-known poisonous properties of the plant. Its original name sufficiently reveals its virulent nature, *Atropa* (one of the Fates), *Mandragora* (from two Greek words meaning hurtful to cattle), and it is highly probable that the ceremonies attending the root gathering were instituted with the idea of surrounding the plant with awe and mystery, thus to prevent its falling into careless and mischievous hands.

The association of the plant with demonology was next noticed. Josephus, the Jewish historian, being quoted in connection with the reputed powers of the root "Baaras" (supposed to be mandrake) to expel demons from those possessed. According to this learned Jew, Solomon was the first to devise means for the exorcism of devils, for which purpose he composed incantations and used roots, being versed in the knowledge of all plants, from the cedar of Lebanon to the hyssop that grows on the wall.

The connection of mandrakes with witchcraft and sorcery was then touched upon; its old name *Circaea* being applied to it because it was thought to be the chief ingredient in the magic potions of the enchantress Circe (Homer's 'Odyssey,' x.). Witches and soothsayers have in all lands and at all times employed one or other of the quartet of plants already alluded to to produce either in themselves or in their consulters the frenzied delirium which passes for the oracular or prophetic gift, and many a fatal accident has occurred from this ignorant handling of potent drugs, necessitating at last the intervention of the law for its suppression.

The mandrake manikins were then referred to. This curious phase of the superstition first arose in Germany, but quickly spread right and left, and reached England during the reign of Henry VIII. Little doll-like figures were carved out of the root and kept as amulets, charms, and talismans. They were thought to bring health, happiness, and good fortune into every house they entered. But as *Mandragora* is not indigenous to this country a substitute was soon found in the common white briony (*Bryonia dioica*), which bears a large fleshy root, and readily lent itself to the artful dodges of the image maker. All the old herbal writers—Turner, Lyte Matthiolus, Gerard, etc., refer to this practice, and roundly rate the impostors who helped to keep the superstition alive. Shakspere alludes to the manikin figures in 2 *Henry IV.*, act I.,

sc. 2, where the burly Falstaff apostrophises his diminutive page as "Thou mandrake! thou art fitter to be worn in my cap than to wait at my heels."

The actual, as distinguished from the purely mythical, properties of mandrake were then adverted to. It was well known among the ancients as an anodyne, narcotic, soporific, and anæsthetic. Mandrake wine was in constant use in surgical operations, where it served the purpose of ether and chloroform. It was also a favourite narcotic drink, so much so that its devotees came to be themselves described as "mandrakes." Demosthenes, the Athenian orator, is said to have likened his lazy and inattentive hearers to those who had eaten mandrake. Shakespere also knew it as a soporific, as the following passages testify:—

"Give me to drink mandragora,
That I might sleep out this great gap of time
My Antony is away."

Antony and Cleopatra, I., 5.

"Not poppy, nor mandragora,
Nor all the drowsy syrups of the world
Shall ever medicine thee to that sweet sleep
Which thou owedst yesterday."

Othello, III., 3.

The power of mandrake to produce madness was then touched upon. This was equally well known to the old writers. Thus Dioscorides states that a "drachm of mandragora taken in a draught or eaten in a cake causes infatuation and takes away the use of reason." Shakespere also is most likely thinking of mandrake when he makes Banquo ask—

"Have we eaten on the insane root
Which takes the reason prisoner?"

Macbeth, I., 3.

In conclusion, the disappearance of mandragora from medicine was glanced at. The extravagant claims made for it and the ridiculous tales told of it have combined to bring about this result. Belladonna has taken its place as an anodyne and mydriatic, opium as a narcotic and soporific, chloroform and ether as an anæsthetic. Its very name has been usurped by the drug which used to counterfeit it when at the height of its popularity. In English herbal medicine *Bryonia dioica* is now known as "mandrake," and in America the same name is applied to *Podophyllum peltatum*, probably owing to the fact that early settlers from the old country found it used for the same purposes and possessing the same hydragogue cathartic properties as the briony they used at home.

The paper was enlivened by many quaint quotations from the old writers, besides several allusions by poets and dramatists to the fabulous stories told of mandragora. Mr. Ashton also exhibited some photos and drawings of the plant and its parts.

Bolton Pharmaceutical Association.—On November 27, the members of the Bolton Pharmaceutical Association held a very enjoyable social evening and smoking concert at Hamer's Commercial Hotel. There was a pretty good attendance of the chemists of Bolton and district, and the chair was taken by Mr. Percy Knott, Vice-President. A new feature in the programme was the introduction of duets for the piano and flute, also a song by Mr. Phethean with flute obligato. The recitations by Mr. Taylor in Lancashire dialect were much enjoyed, but the greatest success of the evening was the performance of Mr. Hindle, who rendered several comic songs in excellent style. The whole programme, however, was got through in a sharp and creditable manner, considering it was the effort of a "scratch" company. The members dispersed with good wishes that this would not be the last pleasant evening they would spend together. The design of the programme caused considerable amusement. The chief figures on this were Avicenna and Galen. The implements of the former are all laid by, and Avicenna, tired of pointing out the "Herbs and Simples," is beating time with his staff, while Galen has hung up the scales and replaced them by the violin. A "research gentleman" at the bottom of the programme is ruminating over a Turkish pipe composed of a flask and thistle funnel.

Plymouth, Devonport, Stonehouse and District Chemists' Association.—At the Foresters' Hall, Union Street, Plymouth, on Thursday evening, November 28, a meeting was held in connection with the Junior Section of the above Association. Mr. Charles J. Park (President of the Association) occupied the chair, and the following other members were present:—Messrs. Jas. Cocks, Johnson, E. A. Hodge, Reynolds, Barber, Hearder, Downing Behenna Vibert, Sleep, Waldom, Darke, and G. Fairweather (Hon. Sec. of the Junior Section). A very interesting and instructive lecture was given by Mr. O. A. Read, M.P.S. (Chief Dispenser of the Royal Naval Hospital, Stonehouse), entitled "The Life History of a Plant." The lecture was the more interesting from the fact that the essayist, who is the author of 'The Botany of the Bermudas,' during a good many years he spent abroad acquired considerable knowledge by specially studying the exotic species and genera. In the course of his remarks he endeavoured to show how closely allied the vegetable was to the animal kingdom. He expressed the opinion that the neighbourhood of Plymouth was very favourable with regard to obtaining botanical specimens for home study. The lecture was much appreciated, and an interesting discussion followed, after which a cordial vote of thanks was proposed by the Chairman.—Mr. E. A. Hodge (Devonport) seconded, and, on behalf of the junior members, cordially thanked Mr. Read for the interest he had taken in their Association. The resolution was carried, and Mr. Read acknowledged the compliment, offering to conduct a series of botanical rambles to be held next summer by the Association.—A vote of thanks to the Chairman for presiding terminated a successful meeting.

Aberdeen Chemists', Assistants', and Apprentices' Association.—At the meeting held on Friday, November 29, Mr. J. Wishart delivered a lecture on "Bees, Ants, and Their Ways." The lecturer, at the commencement, briefly treated of bees and their habits, chiefly with regard to their social life, their mode of reproduction, secretion of wax, kneading of the bee-bread, forms of cells, swarming, senses of hearing and of colour, and, lastly, their economic use. In his remarks upon their sense of colour, he mentioned that blue, according to Sir John Lubbock, was the favourite colour of bees, but that a very curious question arose if such were the case, viz., if blue is their favourite colour, and if bees have had as great an influence on the origin of flowers as naturalists are wont to give them, why then are there not numerous flowers of a blue colour? Referring to the use of the insects he said bees have been used as weapons of defence, and they make very formidable ones, as some Thuringian robbers, who attacked the house of a parish minister, can testify. They refused to listen to persuasion. so the minister told his domestics to turn loose the bees, which they immediately did, and the robbers ran for their lives from the infuriated community and their unique but powerful weapons.

As regards wasps, they were the first papermakers. Termites erroneously known as "white ants" came next for treatment, and the lecturer noted the edifices built by these insects, remarking that were we to compare our works with theirs, St. Peter's in Rome and St. Paul's in London would fall infinitely short of the edifices constructed by these little creatures. He said these white ants are terribly destructive, as they eat through wooden beams, furniture, etc., leaving only a thin shell, which is broken down with the least extra weight, and many are the occasions when an unsuspecting individual, on seating himself on an apparently sound sofa or chair, finds himself, like Belzoni in the Pyramid, reposing among a heap of dust and rubbish. Lastly, he dealt with the "true ants," noting their reproduction; their life history, consisting of the following four stages: (1) egg, (2) grub or larva, (3) chrysalis or pupa, and (4) perfect insect or imago; and their habits. In one species a certain number of the workers are so developed as to form living honey-jars. In several species we find two kinds of workers, viz., those with small heads and those with large heads. The latter variety act as soldiers mainly, but may also act as guards or scouts in some cases.

Reference was made to the fact that some species were more military than others, to their possession of stings and poison glands, their different varieties of nests, the food they are most fond of, their industry, their amusements, and their relation to plants. Certain species of ants found in Texas store up the grain of the so-called ant-rice *(Aristida oligantha)* and even clear disks 10 or 12 feet in diameter near the nest in which they grow this ant-rice. Plants protect themselves against ants by different methods—such as by viscid secretions, by slippery surfaces, by isolation in water, and by certain parts of the flower being crowded together so as to leave either a very narrow passage or none at all. The honey-bee is as a rule the only insect which has sufficient power to gain access to the interior of the flowers of *Antirrhinum*.

Reference was next made to the curious relation of ants to the Epiphyte named *Hydnophytum formicarum*, to their being mushroom growers and eaters, to their destructive properties, their storing up

of grain, and their relations to other animals. It was noted that these were, as a rule, those of deadly hostility. Remarks were also made on the peculiar condition of slavery which exists among ants, their enemies, *e.g.*, flies, mites, ant-lions, and the various different varieties of ant-eaters. In conclusion, the lecturer discussed the question "Are ants moral and accountable beings?" and claimed that ants rank next to man in the scale of intelligence. During the lecture he discussed numerous humorous analogies existing between ants and man.

The lecture was abundantly illustrated by diagrams and specimens, kindly lent for the occasion by Professor Nicholson, Marischal College. A hearty vote of thanks was accorded to the Professor, on the motion of Mr. Wishart, and a similar compliment having been paid to the lecturer, the meeting terminated.

MISCELLANEOUS NEWS.

[*Readers are invited to send local information of pharmaceutical interest. When newspapers are sent the paragraphs to be noted should be plainly marked, whilst cuttings should be verified by the addition of source and date.*]

The Preparation of Quinine Wine.—At the Keighley Police Court, before Mr. John Clough and a full bench of magistrates, a case was heard on November 29, under the Food and Drugs Act, against John and John Edward Dawson, grocers, Oakworth, for selling quinine wine which was not of the character required by the British Pharmacopœia. The defendants had a guarantee from Mr. G. L. Greenwood, chemist, Keighley. The purchase of the wine and the analyst's certificate were admitted. The analysis showed that the sample contained only three-fifths of a grain of quinine per fluid ounce, instead of 1 grain.—Mr. Greenwood said the Pharmacopœia directed that in preparing quinine wine 1½ grain of citric acid and 1 grain of sulphate of quinine should be put to each ounce of orange wine, and that the liquid should then be filtered. In preparing the wine in question he had put in the exact quantities and had afterwards filtered it. The effect of filtration was to leave behind a quantity of tannate of quinine, and that was why the wine was slightly deficient in quinine, but it was really nothing that he could help, as he had followed the formula exactly. To show there had been no intent to defraud he said that the deficiency was only equal to an eighth of a penny on a shilling bottle. He guaranteed the wine as genuine, and was prepared to stand by it. Witness was asked how it happened that ont of a considerable number of samples taken this and another were the only two found to be deficient.—Mr. Greenwood said that possibly the other makers had seen that it would not be safe to follow the Pharmacopœia exactly, and had put in a little more quinine to make up for any displacement in filtration. He should do so in future.—Corroborative evidence was given by William Fowlds, chemist.—Mr. Hankinson, who appeared for the County Council, said this seemed like disputing the analyst's certificate, which had been admitted to be correct, and he asked that the Bench would defer its decision until he could produce scientific evidence.—Mr. Clough: No; your analyst may be right and the maker of this article may be right; I think we shall prefer to say that they are both right.—The case was dismissed.

Prepared Food and its Effects.—An inquest was held before Mr. W. H. Bell, coroner, at Rochester, on Monday, November 25, on the body of Mary May Tranah, aged two months.—The Coroner said there was no doubt tha the evidence would show that the child died from improper feeding. It had been fed partly from the breast and partly on Mellin's food, and almost everybody shonld know the latter was not the proper food to give to a child of that age. It came to the same thing if a child were given insufficient food, or whether it had improper food—both would really starve a child. He did not say there had been intentional neglect in this case, but at the same time there was neglect, as people ought to know what was proper food to give to young children.—Mary Jane Tranah, wife of a dockyard labonrer, residing at Miles Place, Delce, said the deceased was two months old. She had fed it on the breast and Mellin's and Neaves' foods. The child always seemed hungry. Witness gave the child an oyster on one occasion, and on another a piece of an orange. The deceased had not been ill before the previous Friday. Dr. Packman said the child was dead when it was taken to his assistant, who was not qnalified. He had viewed the body since death, and it did not appear to be in a healthy condition. It was much reduced and not above the size of a child six weeks old. The child was weakly developed. He should say that the convulsions were caused by the food not being digested. A child of the age of the deceased could not digest Mellin's or Neave's food mixed with milk and water. He should say the convulsions were caused by improper feeding, probably in ignorance. Children under three months should not be fed on these prepared foods. Fine oatmeal or flonr properly boiled in milk was more digestible than the foods he had named for yonng children.—The Coroner said the child clearly died from improper feeding.—The Foreman: I don't think the doctor's opinion will have much weight with me.—The jury consulted together and the Foreman announced that the unanimous opinion of the jury was that the child was not improperly fed, and that the mother did the best she could under the circumstances, and that death was from natural canses.—The jury would like to add a rider that it would be better if medical gentlemen gave instructions as to how children should be fed. In answer to the Foreman, Dr. Packman said he would not mind saying that the convulsions were cansed by Mellin's and Neave's foods.

Westminster College of Chemistry and Pharmacy.—The annual dinner of the Westminster College of Chemistry and Pharmacy was held at the Holborn Restanrant, on Thursday, the 28th inst., when Mr. E. W. Grimwade, J.P., occupied the chair, supported by Mr. G. S. V. Wills, and Mr. H. Wootton, B.Sc. (Principals), Dr. Alfred Matcham, Messrs. J. W. J. Morrison. E. J. Millard, A. Wootton, A. W. Ball, etc. The guests, to the number of about 150, were received by the principals of the college, and at 6.30 adjourned to the Royal Venetian Chamber, where an admirably served dinner was done full justice to, after which a short toast list was proceeded with.

The loyal toast having been duly honoured, the College secretary, Mr. E. Walden, read the report for the past session, which showed that ninety-two students had been snccessful in the examinations of the Pharmaceutical Society. It was incidentally mentioned that, although the standard required is now much more severe than in former years, yet the average is fnlly maintained. At the last Minor examination twenty-one out of twenty-seven students passed, whilst on two occasions during the year all the Major candidates were successful.

Dr. Alfred Matcham proposed the toast "The Westminster College," conpling with it the name of Mr. Wills, who in responding briefly allnded to several matters of general pharmaceutical interest. After remarking that during the last twenty-three years about 3250 of his stndents had qnalified, and expressing his pleasure at seeing so many old friends and students present, he made some remarks on the want of protection afforded by law to the pharmacist, and said that it was his intention to again seek election to the Conncil of the Pharmaceutical Society during the coming year. Proceeding, Mr. Wills devoted some further attention to an exposition of his views on pharmaceutical politics in general, and caused some amusement by warning those present against the encroachments of the ladies into their ranks, marriage being suggested as a compromise with the enemy. He thought that the appointment of teachers of pharmaceutical students as examiners was unwise, and constituted a very objectionable practice, not that he wished to suggest for a moment that any unfairness resulted, but it gave rise to an unpleasant impression. Allusion was then made to the nnmber of examinations during the year, and the opinion was expressed that it would be a great improvement if only two or, at the most, three were held instead of four. He thought that the October examination could well be dispensed with, as it was mostly attended by stndents who had failed in July, and the interval having afforded them little or no opportunity of attending a school or class, the chances were greatly in favour of failing again. The January examination might also with advantage be held before Christmas. Mr. Wills then referred to the relative percentage of passes in London and Edinburgh, and expressed the opinion that all Minor men should be eligible for election as members of the Society. He concluded by giving some good advice to students, and congratulated Mr. H. Wootton on his success in the recent Bachelor of Science examination at London University.

The other speeches included "The Stndents" which was proposed by Mr. H. Wootton and responded to by Mr. C. Botwood. Towards the close of the proceedings the prizes gained by students

during the past session were presented by the Chairman. An attractive musical programme served to beguile the time merrily, and a most enjoyable gathering terminated about 11 o'clock.

Royal Institution.—A General Monthly Meeting of the Members of the Royal Institution was held on Monday, December 2, Sir James Crichton-Browne presiding, when the following were elected members:—Messrs. C. H. Berners, J.P., J. M. Bruce, M.D., F. Chambers, A. M. Chance, J.P., A. E. Fletcher, F. Fox, J.P., H. Seymour, K. T. Stewart, M.D., G. H. Strutt, F. Tendron, F.G.S., W. H. Warner, M. Webb, J.P., and Mrs. S. H. Phillips.

SCOTTISH NEWS.

Dumfries and Maxwelltown Junior Chemists' Assembly.—The second annual assembly of the Dumfries and Maxwelltown Junior Chemists' Association took place in the Assembly Rooms on Friday, November 29, and proved in every way as successful as its predecessor, nearly sixty couples taking part in the dances. The decorations were entrusted to Messrs. Dunbar, Son, and Pattie, under whose competent hands the various rooms assumed a bright and artistic appearance, the decorations being both extensive and tasteful. Festoons, trophies, flags, etc., were arranged on the walls of the ball-room, and a number of beautiful ferns, palms, and other plants, which were supplied by Messrs. Fotheringham and King, were placed about the room. A number of carboys, with their differently coloured contents, were effectively ranged on the windows, their presence being a symbolic reminder of the character of the assembly. The refreshments were excellently purveyed by Mr. D. Kirk, the legend "Dispensing department," with an accompanying pestle, being facetiously placed over the door of the supper room. Aerated waters were gratuitously supplied by Messrs. Ewing and Co., and Mr. A. Turner. Excellent music was supplied by Mr. A. Hume's band. The arrangements for the ball were admirably carried out by Mr. J. Lockerbie, the secretary; Messrs. G. K. Paton and W. J. Johnstone, who acted as M.C.'s; and Messrs. Wm. Cole, A. Wilson, H. Armstrong, and J. McWilliam.

"Certificated Proficient in Chemistry."—As a result of the recent appeal before the High Court of Justiciary, Hume, one of the parties against whom the Pharmaceutical Society in the public interest proceeded, has altered his billheads or invoice forms. He formerly designated himself "Scientific Instrument Maker and Technical Chemist." Now, by means of an indiarubber stamp, the latter two words are partly obliterated and the following substituted:—"Title disallowed under Pharmacy Act, though I am a certificated proficient in chemistry." Certificated proficient (whatever it may mean) is doubtless very good as a description, but also delightfully vague.

Edinburgh Pharmacy Athletic Club.—The fourth annual smoking concert has been arranged to take place in the West End Café, Princes Street, Edinburgh, on Thursday, December 19, at 8.30 p.m. The club rooms at 79, Leith Street, are now open for the season, and members are supplied with door keys at cost price. This year the Commitee have arranged two special nights, viz.:—Tuesday and Thursday each week, when the room will be open at 8.15 p.m. A member of committee will attend, and lessons in athletic exercises will be given, of which, it is hoped, members will avail themselves. A series of evening cycle runs has also been arranged, and the first took place on Monday last, starting from the shop of Mr. Nelson, chemist, Cannonmills Bridge, at 8.30 p.m. All information may be had from the honorary secretary, Mr. J. P. Gibb, 8, Buccleuch Place.

IRISH NEWS.

Zinci Sulphas in Whiskey was the alleged means used by a young man in the County Tipperary to poison his wife. He was already in custody for threatening to kill her for imputing to him a desire to poison her; and at Cahir Petty Sessions, on Thursday the 28th ultimo, he was returned for trial at the Cork Winter Assizes. Professor E. W. Davy, M.D., of Rathgar, Dublin, was the analyst employed.

The Five Examiners appointed by the Irish Pharmaceutical Council last month have been approved of by the Lord Lieutenant and Privy Council, orders to that effect having appeared in the *Dublin Gazette*. Three of the examiners have already acted for the Society in a similar capacity, Dr. Tweedy having been Preliminary Examiner for five years, while Dr. McKinney, L.P.S.I., formerly held the Druggists' Modified Examination at Belfast, and he now holds both the Pharmaceutical Assistants' and the Registered Druggist Examinerships in that city; while Mr. Thomas W. Robinson, M.P.S.I., has now three examinerships; that for the Pharmacy Division of the Pharmaceutical Licence Examination; the Assistants, and the lately conferred Registered Druggist Examinership. The appointment of Mr. Sparkhall Brown, B.A., as co-Examiner with Dr. Tweedy, marks a new departure as to the conduct of the Preliminary examination, and the appointment of Mr. John Smith, M.P.S.I., to the Botany and Materia Medica Examinership, besides being highly approved of by those acquainted with that gentleman's knowledge of the subjects, is noteworthy in that the Examiners for the Pharmaceutical Licence are now all pharmaceutical chemists in the active pursuit of their profession.

The Apothecaryship to Vincent's Hospital, Dublin, rendered vacant by the resignation of Dr. Philip Flood, L.P.S.I., was filled last Saturday by the appointment of Dr. Richard Shaw, L.A.H.I. Dr. Flood, who has been the apothecary for some years, opened a medical hall in Lower Camden Street, Dublin, about eight months ago, and his professional engagements lately increased to such an extent that he found it impossible to continue to hold the office.

PROCEEDINGS UNDER THE PHARMACY ACT, 1868.

Case Under Section 17, at Glasgow.

At the Sheriff Court House, Glasgow, on Thursday, November 29, the cases of the Pharmaceutical Society (represented by the Registrar) against Alexander Cross and Sons, seed merchants and chemical manufacturers, 19, Hope Street, Glasgow, and T. Kerr, an assistant in the employment of the said Alexander Cross and Sons, came before Sheriff-Substitute Fyfe.

Alexander Cross and Sons were charged with two offences under Section 17 of the Pharmacy Act, 1868, in so far as at the above address on May 30, 1895, they sold to Alexander Spence a quantity of arsenic as an ingredient in a quantity of liquid called "The Ballikinrain Ant-Destroyer" contained in a bottle not distinctly labelled with the name and address of the seller, and to a person unknown and not introduced by some person to the seller, and also that they failed to make any entry of the sale in a book or take any signature of the purchaser in the manner provided for by the Act; and also with having in a precisely similar manner failed to comply with the requirements of the section in selling a quantity of arsenic as an ingredient in a quantity of "The Ballikinrain Ant-Destroyer," sold to Joseph Tait on October 15, 1895, whereby they became liable to a penalty of £5 for the first offence and £10 for the second offence.

T. Kerr, assistant to Alexander Cross and Sons, 19, Hope Street, Glasgow, was charged with having sold a quantity of arsenic as an ingredient in a quantity of the "Ballikinrain Ant-Destroyer" to Joseph Tait on October 15, 1895, whereby he, not being a registered pharmaceutical chemist or chemist and druggist, became liable to a penalty of £5 under Section 15 of the Pharmacy Act, 1868.

Mr. T. B. Morison, advocate (instructed by Messrs. Martin and Barrie, solicitors), appeared for complainer, and Mr. William Borland (of Messrs. Borland, King, and Shaw, solicitors), appeared for respondents.

The complaints having been held as read,

Mr. Borland objected to the relevancy of both complaints. In the case of Cross and Sons, he contended that the complainant had no title to prosecute. Another objection was that respondents were charged with both a first and a second offence on the one complaint.

Mr. Morison explained that the complaint was at the instance of Richard Bremridge, Registrar under the Pharmacy Acts, Cross and Sons having failed to fulfil certain requirements provided by Section 17 of the Pharmacy Act. The title to prosecute was conferred upon the Registrar by the Act. Any person might institute proceedings under Section 17, and the Registrar was in addition specially

authorised to do so by the Act. He had a good title in terms of Section 15 of the Pharmacy Act, 1868.

Mr. Borland contended that Section 15 did not apply in this case, and that no special provision was provided by Section 17. He doubted whether it was within the privilege of any member of the public to sue for a public offence. A private prosecution must qualify by an interest, but where it was only the public interest that was concerned, the public prosecutor alone could prosecute. The Procurator Fiscal was not prosecuting in this case, but only consenting. To be in accordance with the terms of the Act, the complaint should have run as follows:—"The Council of the Pharmaceutical Society of Great Britain, with the concurrence of James Neil Hart," and then Mr. Richard Bremridge might have signed it to show that he was the person signing on behalf of the Council. The actual prosecutor must be the Council. Further, this was a civil action, and could not be prosecuted by summary procedure.

Mr. Morison allowed that it was a civil proceeding, since imprisonment was not contemplated by the Act.

The Sheriff thought there was no direction as to prosecution under Section 17, and it must therefore be by the public prosecutor. If, however, Section 15 applied, the procedure must be that prescribed by the Act of 1852, which did not include criminal process.

Mr. Morison said the question of interest did not affect the matter at all. His construction of the Statute was that any member of the public had a right to prosecute under Section 17. This was simply a summary proceeding for the recovery of a penalty, and did not raise the question of criminal jurisdiction. He called it a civil process. He submitted that Section 15 was applicable. That section provided for the complainer's title, and it was of no account to say the offence was against Section 17.

Mr. Borland said that, even if Section 15 did confer the power to prosecute under Section 17, the former section was not libelled in the complaint as the one under which the prosecution took place. He considered that the Pharmacy Acts were passed for the benefit of a trades union, called the Pharmaceutical Society, which was worked not in the public or pharmaceutical interest, but in the pecuniary interest of the Society. So far from being a benefit to the trade, the greater number of chemists had nothing to do with the Society.

The Sheriff thought that if the complaint was to be regarded as libelled entirely under Section 17, there was no authority whatever for the Pharmaceutical Society or anybody except the public prosecutor to prosecute for this particular offence, and the offences created by Section 15 were not libelled in this complaint. The complainer seemed to wish to take advantage of Section 15 as conferring a general power in favour of the Society.

Mr. Morison urged that he was entitled to take the benefit of the whole of the Pharmacy Acts, and he had libelled them in his title. He was willing, however, to amend the complaint by putting in Section 15.

Mr. Borland objected, however, and

The Sheriff held that the amendment proposed would constitute a new complaint.

The objections to relevancy in Kerr's case were then considered, Mr. Borland contending that the Registrar had no title to recover in his own name. The prosecution must be in the name of the Pharmaceutical Society, whether this were a civil process or a quasi-criminal prosecution.

Mr. Morison said the question of title was exactly the same as in the former case.

The Sheriff said: I cannot take the view that any person is specially entitled to prosecute under Section 17, which is perfectly silent in regard to who shall prosecute. In Scotland, at all events, when an Act is silent as to who shall prosecute, the prosecutor is the public prosecutor in the public interest. In this case it would be the Procurator Fiscal. In regard to the question of Section 15 and Section 17 my view is that the charge against Cross and Sons must fall. I am assuming it to be laid entirely under Section 17, the title being libelled in a wholesale way under the Pharmacy Acts. That is not sufficient to create a title to sue at the instance of the Society, and I hold that the complaint, as regards Cross and Sons, ought to be, if at all, at the instance of the Procurator Fiscal. As regards the other part of Mr. Borland's argument, I think it is disposed of by the Summary Procedure Act. It may be interesting as an argument, but I cannot sustain the objection to the relevancy. The complaint against Kerr is quite relevant and must go to proof.

The Sheriff allowed the defenders a guinea of expenses in the case of Cross and Sons.

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

All Articles, Letters, Notices, and Reports intended for publication in the Journal, Books for Review, and communications respecting Editorial matters generally, must be Addressed "Editor, 17, Bloomsbury Square, London," and not in any case to individuals supposed to be connected with the Editorial Staff. Communications for the Current Week's Journal should reach the Office not later than Wednesday, but news can be Received by Telegraph until 4 p.m. on Thursday.

Any Instructions from Members, Associates, and Students of the Pharmaceutical Society, with reference to the transmission of the Journal, should be sent to the Secretary,—Mr. Richard Bremridge,—17, Bloomsbury Square, London.

Correspondents who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for illustrations should be executed twice the desired size; clean, sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

Queries addressed to the "Editor" will be replied to in the Journal as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries." The Editor cannot undertake to reply to queries through the post.

LETTER.

"Zincol Lint."

Mr. C. S. Ashton says:—"A correspondent asks in last week's *Pharm. Journ.* for information respecting 'Zincol lint.' Is he referring to the antiseptic lint, medicated with zinc and mercuric cyanide, or has he had an inquiry for 'Zincolith,' an oxide made by precipitating zinc sulphate with barium sulphide and roasting the product?"

ANSWERS.

J. A. Thomas.—Your letters have been forwarded as requested.

"Polish."—The composition of the metal polish you name is unknown to us. Perhaps the following may serve your purpose:—Liquefy common soap, 4 ozs., by heating with as little water as possible. Then add prepared chalk, magnesium carbonate, and cream of tartar, ¼ oz. each, and mix thoroughly by stirring.

C. F. Jesper.—The golden rod of the gardens may be either of the following species:—*Solidago canadensis*, *S. lævigata*, *S. rigida*, or *S. altissima*. The wild golden rod is *S virgaurea*.

James Brown; S. C. Redman.—Communications in regard to the despatch of the Journal should be addressed to the Secretary, Mr. Richard Bremridge. Read the instructions at the head of this column.

"Boticario."—Calcium carbide is produced by the union of its elements, when they are heated in the electric furnace. By the action of water, calcium carbide yields acetylene, and alcohol can be prepared from the latter. See the *Pharmaceutical Journal* for July 27 last, page 73.

W. C. Hender.—Printing ink is prepared by heating linseed oil to boiling point, and subsequently igniting it, afterwards adding resin and soap, and later the lampblack or other colouring medium. You can make an extemporaneous ink by grinding together copaiba, or Canada balsam, 9 parts; lampblack, 3; Prussian blue, 1; Indian red, 1; dry yellow soap, 3. Printers' rollers can be made by melting together glue, 5 lbs.; treacle, 15 lbs.; Venice turpentine, 1 oz., and glycerin, 6 ozs., then casting in suitable moulds. See Spon's 'Encyclopedia,' and 'Workshop Receipts,' for further details.

[Owing to pressure on our space several communications are unavoidably held over.]

Communications, Letters, etc., have been received from Messrs. Ashton, Bannister, Barstow, Bayley, Blackburn, Blain, Boa, Brown, Brunell, Button, Clague, Clarke, Coull, Cullen, Davies, Davis, Doble, Dott, Durst, Eberlin, Elliott, Evans, Gare, Geary, Gibson, Gilbert, Grierson, Harris, Hartley, Hender, Hill, Hyslop, Jesper, Laing, Lucas, Macdonald, Male, Morgan, Newsholme, Nicholson, Pearce, Powell, Proctor, Racine, Reber, Reynolds, Russell, Schröder, Sinclair, Webb, Turner, Weddell, Williams, Wilson, Woodward, Wright, Wyatt, Yates.

CHINESE OPIUM.

BY FRANK BROWNE, F.C.S.,
Acting Government Analyst, Hong Kong.

In the Chinese provinces of Kwei-chou, Yunnan, and Szechuen, large quantities of opium are grown for native consumption. In the 'Legation Report on the Trade of China in 1894,' Mr. Beauclerk, Secretary of Her Majesty's Legation at Peking, writes: "The Customs' Revenue was increased by every division of trade with the sole exception of Indian opium. . . . Native opium is rapidly displacing the high-priced imported drug, as will be seen from the various Consular reports."

A reason adduced for this is that the home-grown substance answers all ordinary requirements, and that the price is so low that any other better in quality is bought only by those who can afford it as a luxury.

Professor Attfield in his 'Report for 1892 on the British Pharmacopœia, 1885,' mentions that it had been asserted that many hundreds of medical practitioners, equally familiar with the use of opium in England and India, have prescribed a 10 per cent. morphine Turkish opium, and a 5 or 6 per cent. (average) morphine Indian opium, in similar doses, without noticing any marked difference in sedative effect; at the same time he points out the desirability of further experiments with regard to the narcotising power of Turkish and Indian opium.

It must be remembered also that the percentage of morphine is not the only consideration in determining the value of smoking opium, as it has been shown (*Pharm. Journ.* [3], xiv., 27) that some opiums low in morphine are preferred to others containing more of this alkaloid. A minute examination of Chinese opium has therefore been made in order to ascertain as far as possible not only the amounts of morphine, but also of other alkaloids possessing physiological activity, also its freedom from adulteration, from which results a better idea as to its true value may be had.

Genuine specimens of the 1893 crop were obtained through the kindness of Mr. H. E. Hobson, Commissioner of Customs, Hong Kong, from the provinces of Kwei-chou, Yunnan, and Szechuen respectively. The cost of these opiums varies from 14 to 18 taels for 100 taels weight (8⅓ English pounds).*

Kwei-chou.—This was in flat oval cakes, each weighing one catty (1⅓ English pounds). Each cake was wrapped after the Chinese manner in two folds of white tissue paper, then in thin brown paper, and bore a label on which was written in Chinese characters the name of the province and that of the seller. The drug itself was dark brown in colour, oily to the touch, granular in fracture, fairly hard, and its odour was strongly narcotic.

Yunnan.—This was also in flat oval cakes resembling Kwei-chou opium, and was similarly wrapped and marked. The opium was black throughout, forming a smooth plastic mass, fairly hard, of good appearance and odour, not oily to the touch.

Szechuen.—In similar packages to the preceding. It was so soft that ten folds of a kind of tissue paper had been wrapped round to preserve the shape of the cakes. So much paper is an important consideration in buying this opium, as from a determination calculated on the dried opium, this paper formed 20 per cent. of its weight. The drug itself was black in colour, smooth, plastic, with good odour. It contained, however, paper fibre in little lumps scattered irregularly throughout the mass. Not oily to the touch.* In the gravimetric examination attention was given to—

1. Moisture.
2. Ash.
3. Solubility in cold water.
4. Morphine by the method described in the British Pharmacopœia.
5. Morphine. This and the following alkaloids by the process described.
6. Narcotine.
7. Papaverine.
8. Narceine.
9. Thebaine.
10. Codeine.

The results of this examination are recorded in the accompanying chart.

Both chemical and microscopical examinations were made for the presence of starch, sugar, gum, tannic acid, and other likely impurities. The three specimens were found to be free from all foreign matter, except that the Szechuen variety contained paper fibre, which the microscopical examination showed was of the same character as the paper in which it was wrapped. In all estimations the opium taken was freed from this paper fibre.

Determination of the Alkaloids.—The process found to be most suitable for obtaining a solution containing the alkaloids was as follows:—

Fifty grammes of the opium, in which the amount of moisture had been previously ascertained, was exhausted with warm water. The insoluble portion was gently dried and exhausted in an extraction apparatus by means of ethylic alcohol. The alcoholic solution evaporated left a residue from which, after having been mixed with sand, the greater portion of the alkaloid could be extracted by means of a 2 per cent. solution of acetic acid in water, but the last traces were removed only by increasing the proportion of acid to 10 per cent. and using a gentle heat. The aqueous and acid solutions were then precipitated by ammonia; the precipitate having been removed, the liquid was shaken with amyl alcohol until all alkaloid was removed. The amyl alcohol solution was then evaporated, and the residue, together with the precipitate obtained by ammonia, were treated with boiling ethylic alcohol. The alcoholic solution evaporated left a blackish mass of crystals consisting chiefly of alkaloid.

The process for the separation of the alkaloids now obtained is Plugge's† somewhat modified, certain additions to and alterations in his process having been made in order to quantitatively separate the alkaloids in a state of purity from a solution which contains these alkaloids in a state of but moderate purity.

The additions to and departures from the original process are here described as they were made throughout the separation.

* The Chinese tael is a weight of silver equivalent to 100 candareen; a British dollar is equivalent to 72 candareen.

* A specimen of 1895 Szechuen opium has been sent from Chinkiang. It is in round, flattened cakes, weighing about two pounds each, the base of each cake is a portion of the leaf of the banana plant. It appears to be opium of good quality.

† *Journ. Chem. Soc. Abs.*, lii., 851; *Archiv. Pharm.* [3]. xxv., 343–354.

In the case of Yunnan opium the narcotine and papaverine were precipitated as a gummy mass which could not be washed with water, but this difficulty was got over by using a semi-saturated solution of sodium acetate.

The papaverine from each opium was dissolved in weak hydrochloric acid, and precipitated by phospho-molybdic acid. The precipitate was shaken with baryta water and benzene; from the benzene the crystalline alkaloid was obtained on evaporation. The narcotine in all cases was very pure after crystallisation from benzene.

The narceine precipitate had to be washed with a semi-saturated solution of sodium acetate except in the Kwei-chou opium determination. In Yunnan and Szechuen opiums the narceine precipitate was found to contain narcotine and a little morphine. These were separated by dissolving the precipitate in weak acetic acid, shaking out the narcotine and narceine from the acid solution with chloroform, dissolving the chloroform residue in weak acetic acid, and shaking out the narcotine with ether, having previously made alkaline. The narceine was then obtained by means of chloroform, but being impure was dissolved in weak hydrochloric acid, precipitated by phospho-molybdic acid, and removed from the precipitate by shaking with baryta water and chloroform. The narcotine from the ethereal solution was dissolved in dilute hydrochloric acid, precipitated by phospho-molybdic acid, and recovered by shaking with baryta water and ether.

Thebaine was obtained very pure from Kwei-chou opium by means of sodium salicylate and ammonia as ordered by Plugge, but with the other opiums it was necessary to purify by dissolving in weak acetic acid, alkalising and shaking out with ether.

Finally, the separation of morphine, codeine, and traces of narceine and thebaine, was effected by first shaking the acid solution with chloroform, as was done previously with the narceine precipitate, then having removed the chloroform from the acid solution by a gentle heat, soda solution and amyl alcohol were added to extract the remaining alkaloids. The amyl alcohol having been dissipated, the crystalline residue was treated with benzene, leaving morphine undissolved. The benzene residue was treated with water to remove codeine, and the codeine was then obtained by shaking the aqueous solution with benzene. The portion of the benzene residue from which codeine had been washed out was dissolved in weak acetic acid and added to the chloroform residue also dissolved in weak acetic acid, having added ammonia by shaking this solution containing the traces of narceine and thebaine with ether, the thebaine was separated; the narceine was then removed from the alkaline solution by chloroform. In the three opiums the quantity of these traces of narceine and thebaine was very small.

Observations were made with each alkaloid isolated, in order to see that it responded to its distinctive tests, and particular attention was devoted to the behaviour of each alkaloid, when treated with pure chloroform, benzene, and ether.

Quite a notable quantity of narcotine was precipitated with the narceine in Yunnan and Szechuen opiums. Before purification with phospho-molybdic acid, it was noted in each case that this narcotine melted at about 60°; purification raised the melting point more than 100°.

When transferring the alkaloids from an aqueous solution to chloroform, benzene, ether, or amyl alcohol, it was found that the washing of these latter solvents with a little water was a precaution of considerable importance, decomposition of the alkaloid otherwise being probable.

From the remarks made during the paper, and from the results recorded in the chart, the quality of Chinese opium can be well seen. The Szechuen opium as sent had evidently been collected carelessly, but it is doubtful whether the presence of so much paper and paper fibre indicates intent to adulterate; rather, it seems as if the juice had been collected on paper and the whole mass incorporated, it being too much trouble to scrape off the juice, but this is only a conjecture. Conclusions as to the probable physiological activity of the opiums can be drawn from the results recorded.

Smoking Value of Chinese Opium:—Extracts of Kwei-chou, Yunnan and Szechuen opiums were prepared in the manner described by McCallum (*Pharm. Journ.* [3], xi, 229), and were then handed over to a Chinaman of considerable experience as a buyer, preparer, and smoker of opium. He reported that the process employed had been incomplete as the three extracts possessed a grassy taste not observed in the extract prepared by himself from Indian opium. An examination of his process showed that a toasting operation was included, but as this was not in the process described, this toasting had not been followed in the preparation of the Chinese extracts. The three extracts had therefore been compared with a standard extract prepared in a different manner. As it is essential for purposes of comparison that the process should be the same, further quanities have had to be prepared and are at present stored until ready for comparison, after which the report will be communicated.

It has been already stated that the value of opium for smoking purposes does not depend on the amount of morphine. The *Chinese Observer* reported that comparing the above three extracts with each other, the Kwei-chou was the best and strongest, the Yunnan was second in quality and strength, and the Szechuen was the most inferior, although this last contains much more morphine than the Kwei-chou variety.

Composition of Chinese Opium.

The results are calculated in 100 *parts of the dried opium.*

	Kwei-chou.	Yunnan.	Szechuen.
Morphine	4·321	9·487	11·271
Narcotine	1·968	6·151	6·612
Papaverine	·848	·404	·334
Narceine	·692	·562	·769
Thebaine	·901	·817	·763
Codeine	·065	·157	·181
Morphine by British Pharmacopœia method	3·83	8 94	9 86
Matter insoluble in cold water	51·62	40·50	44·19
Moisture	24 83	29·72	38·21
Ash	4 58	3·13	2 24

A series of similar observations is being made in order to obtain more complete information as to the constituents of Indian opium.

* The morphine, narcotine, papaverine, narceine, and codeine were all weighed in the crystalline form. The thebaine from Kwei-chou opium was a white powder which deposited crystals after solution in ether; the thebaine from Yunnan and Szechuen opiums was in a similar state of purity. Each alkaloid was dried at 100°.

A FLUORESCENT CONSTITUENT OF CALUMBA.

BY ALEXANDER GUNN, F.C.S.

There are probably few pharmacists who have not experienced the difficulty of obtaining fluid preparations of calumba in a brilliant condition. Whether tincture, fluid extract, or infusion, it is found to be a matter of impossibility to remove the turbid appearance by any mode of filtration.

In dealing with concentrated liquid preparations of calumba the difficulty is accentuated, the appearance of such preparations being frequently akin to that of pea-soup. Careful observers may, however, have noticed that such solutions, when examined by transmitted light, are perfectly translucent and that there is evidently no trace of solid matter in suspension.

The firm with which I am connected frequently receives complaints from pharmacists of the turbidity of its calumba preparations, and occasionally the preparation itself is returned as "unfit for use." When it is pointed out that the turbidity is only apparent, and that the opalescence is due to phenomena of optical interference, the explanation is accepted with more or less hesitation, and it appears desirable that some positive evidence should be obtained to prove the correctness of the theory. During the last fortnight I have been engaged in investigating the matter, with results sufficiently encouraging to induce further research.

To demonstrate in a striking and simple manner that calumba contains a fluorescent body, half fill a test-tube with B.P. tincture of calumba. Examine this by reflected light, and it will be seen that there is a fluorescence of a pronounced green tint. Add now a few drops of liquor potassæ, and again observe by reflected light; the fluorescence now is of a velvety deep blue or violet colour.

Although I have not at present been able to obtain the fluorescent constituents in a sufficiently pure condition to ascertain its nature, I have found the following plan successful in partially separating it from the colouring matter of the tincture:—

Take 50 C.c. of the tincture and acidify with 5 C.c. dilute hydrochloric acid. Shake with a sufficient quantity of ether to form a distinct layer on separating. The yellow ethereal solution is shaken with purified animal charcoal during a quarter of an hour and then filtered. The filtrate is now gently shaken with a 1 per cent. solution of ammonia in water. There is a flocky precipitate thrown out of the ammoniacal solution, but on filtration the fluorescence will show up beautifully.

In order to isolate the fluorescent body and to ascertain its composition I take a strong proof spirit percolate of calumba (say of such a strength that 1 = 1), mix with about three times its volume of distilled water, and stir in some magnes. calc. and kieselguhr, which help, although imperfectly, to remove something that interferes with the proper extraction of the fluorescent body. Allow to stand for a day or so, shaking up occasionally, and then filter; add about an equal volume of dilute sulphuric acid, shake with ether and separate the ethereal liquor, which is of a slightly yellow colour. The acid liquid will then be free from fluorescence. The ethereal solution when shaken with ammoniacal water yields the fluorescence to the latter.

I cannot imagine that this fluorescence is due to any already known constituent of calumba. Such a property as fluorescence in an isolated body is, one would suppose, too obvious to be overlooked.

NOTES RELATING TO THE PHARMACOPŒIA.

BY D. B. DOTT.

Acid Hydrobromic.—Sulphuric acid is formed in the B.P. process for the preparation of hydrobromic acid, and it is sometimes prepared by distilling a bromide with sulphuric acid. Sulphuric acid acting on a bromide is apt to yield a certain amount of sulphurous acid, which, unless in very minute quantity, would be an objectionable impurity, and ought to be guarded against.

Acid Hydrocyanic.—I do not see much force in the objections that have been raised to the official method of assay. As the strength of the acid is approximately known it is easy to place in the weighing bottle, previous to taring it, a known slight excess of soda solution. In this way there is no loss by volatilisation, and a moderate excess of soda causes no appreciable error.

Ammonia (strong solution).—The following would be a useful addition to the tests:—"When mixed with an equal volume of water, and hydrochloric acid added in slight excess, no colour or odour must be developed." Some samples fail in one or other of these respects, on account of impurities derived from the gas-liquor.

Ammonia Benzoate.—It has not been noted that this salt is exceedingly apt to lose ammonia. Even by drying at 120° F., a certain amount of the combined ammonia is lost.

Caffeine Hydrobromide.—The crystallised salt of the formula $B.HBr.2H_2O$ contains 24·31 per cent of Br, but the salt in common use is a very basic preparation. Squire states that the latter contains about 1 per cent. of HBr. I have found in the preparation from a well-known house 0·5 per cent. of Br. It may very possibly be that a basic salt is medicinally preferable to the rather acid normal salt, but surely it ought to contain more than 0·5 per cent. of Br. It seems clearly desirable that a standard should be fixed.

Chloroform.—The subject of tests has been pretty fully discussed; some of those proposed appear to be uselessly elaborate. If the iodide of zinc and starch paste test should be introduced, it should be observed that iodide of zinc is rather apt to contain free iodine, which would be completely misleading. It might be better to use iodide of cadmium, which is usually pure, and is, besides, more generally at hand.

Chrysarobin.—Notwithstanding Professor Attfield's explanation that the Pharmacopœia intends the purified substance to be used, as indicated by the characters and tests; the practice in regard to this preparation is by no means uniform or satisfactory. It should be almost entirely soluble in benzene.

Collodion.—Dr. Lauder Brunton lays considerable stress on the ready inflammability of this compound. A much less inflammable preparation may be made by replacing the ether and spirit by acetone and chloroform.

Ergotin, Hydrastin, and the like.—It is very misleading to apply the termination "in" to such substances as these. Perhaps Mr. Ince would suggest a suitable termination for a preparation which is not a definite principle but merely a kind of extract. If the editors of the Pharmacopœia will boldly set a new fashion in this particular they will be doing a good service.

Iron Compounds.—Whatever changes may be carried out among these, some representatives, both of ferrosum and ferricum, will doubtless be retained. Ferrous compounds are in general assayed by standard solution of bichromate, which is an accurate method though a trifle troublesome. There cannot be a doubt that determination by permanganate is a preferable process if the results obtained are equally correct, and if the method is always available. It is a great advantage to be able to observe the end of the reaction immediately by the colour, instead of by the tedious process of testing by drops on a slab, requiring also the frequent preparation

of a fresh solution of ferricyanide. On the other hand, permanganate solution, especially if highly dilute, is not so permanent as bichromate solution. A more serious objection is the well-known fact that in presence of hydrochloric acid, a certain amount of chlorine is liberated by the permanganate, which chlorine, in dilute solution, does not peroxidise; hence an appreciable error. But in testing some of the preparations of pharmacy the permanganate process is liable to more serious error, as is evident by the following experiments. Three gelatin capsules of ferrous carbonate were dissolved in warm diluted sulphuric acid, and the solution titrated with bichromate in the usual way indicated 3·17 grs. ferrous carbonate in each. By titration the error due to the capsules and oil was found to be less than ·01 gr. ferrous carb. When titrated with standard permanganate the same acid solution of capsules was found equal to 3·31 grs. of ferrous carbonate in each. That is to say that permanganate of potash is more readily reduced by various organic compounds than is bichromate, and it is therefore not suitable for the determination of ferrosum in such mixtures. In short, for general pharmaceutical analysis standard bichromate is the thing. There does not appear to be any reason why we should not also have standard solution of permanganate authorised in the new Pharmacopœia, to be used in those cases where it is appropriate, as for the determination of dried ferrous sulphate.

Ferric compounds are assayed by precipitation of the ferric hydrate with alkali, or in some cases by igniting so as to leave the oxide. Mr. Squire, in his excellent 'Companion,' and Mr. Proctor, in his little 'Manual,' both state that the oxide remaining on igniting citrate of iron and quinine is at least partly ferroso-ferric. If fully ignited with free access of air (which is the only proper method of proceeding) the remaining oxide is wholly ferric. This may easily be verified by again igniting with nitrate of ammonia, when no increase in weight will be noted; or by treating the oxide with hydrochloric acid, when it will be found that the solution gives no ferrous reaction.

Hydrogen Peroxide.—Since the discovery that this compound can be distilled to any strength *in vacuo*, and that a pure strong solution keeps well, there ought to be no difficulty in getting a satisfactory preparation. Apart from its other uses I believe it will come to be one of the regular laboratory reagents. It is the purest and best of oxidising agents, readily liberating iodine. from an iodide, converting sulphurous acid into sulphuric, and a ferrous salt into a ferric in the cold, without the objections attaching to the use of nitric acid or chlorate of potash I have previously referred to its value as a convenient source of oxygen.

Infusions.—The proposal to introduce "concentrated" infusions into the Pharmacopœia has met with a certain amount of medical opposition, evidently from misunderstanding. In the first place, it will be quite open to a practitioner who wishes a freshly prepared infusion so to order it in the prescription. Then as to the amount of alcohol present there has been much exaggeration. The amount should not exceed 15 per cent. of rectified spirit in the strong infusion, so that in the infusion actually dispensed there is something less than 2 per cent. of spirit. It is now generally conceded that repercolation is the way for the preparation of a concentrated infusion, but it must not be too readily allowed to be always the best plan. Like most other good inventions, repercolation has its drawbacks. Of necessity it occupies a good deal of time, and as certain aqueous organic solutions are prone to change by fermentation or otherwise, especially when dilute, they have too much opportunity of doing so. It has been suggested to take off a strong cold infusion from the drug and add to it the alcohol, then to exhaust by further percolation or infusion, concentrate by heat to such a volume, that when added to the first portion, the proper amount would be obtained.

Liquor Arsenicalis.—It has been proposed to abolish the solution of potassium arsenite, and of arsenious oxide in dilute hydrochloric acid, and to substitute a neutral solution of arsenious oxide in diluted glycerin. Whether that would be a desirable change must be left for the opinion of medical experts. But the question of colouring this and other poisonous solutions is one on which general opinion may be expressed. The idea that a coloured poisonous preparation is less likely to be swallowed accidentally than a colourless one, is no doubt well founded. It might be desirable to extend the principle to all the more poisonous solutions. I think it was Mr. A. H. Allen who suggested that poisonous preparations should be coloured green. I should say either green or blue, the latter by preference. Red is too well known as a colouring for non-toxic medicines and beverages to be at all suitable. The fact that it is not very permanent is also an objection to the present colouring of liquor arsenicalis.

Liquor Calcis Saccharatus might perhaps be replaced by a glycerin solution, or the latter entered as an alternative.

Morphine.—The question whether morphine should be reckoned as the hydrated or anhydrous base has been raised by Mr. Coull in regard to strength of tincture of opium. There is no doubt that when morphine is dried at 194° F. until it ceases to lose weight, it is anhydrous. That fact was pointed out by myself some years ago, although the contrary had been stated on high authority, and was generally accepted both in this country and in America, as has been frankly admitted by Dr. Squibb. The expression "morphine" has always applied to the hydrated alkaloid, because when obtained by precipitation and dried at a moderate temperature, say, 140° F., it consists of the hydrate. Even at the "temperature of a water bath" the molecule of water is only slowly lost. But it so happens that there is pretty conclusive evidence of what the Pharmacopœia means by "morphine." In the test for morphine hydrochlorate 20 grains of the salt are said to yield a precipitate, which, when dried in a water bath, weighs 16 grains. This is quite correct if referring to hydrated morphine, but quite impossible if applying to anhydrous morphine. We may therefore take it that the word "morphine" means the hydrate, which is according to usage. I quite admit that there is some ambiguity as to meaning under the test for opium, but that may easily be made clear in the new edition.

Morphine Hydrochloride: solubility in rectified spirit.—In the recent edition of 'Scoresby-Jackson' it is rightly stated that "authorities differ very much on this point." It must, in the first place, be remembered that the strength of the spirit greatly affects the solubility. Mr. Lloyd's estimate of 1 part in 62·7 may be quite correct with regard to the strong spirit of the U.S.P. On the other hand, it is quite certain that the solubility I gave some years ago of 1 part in 40 is very nearly correct, if determined by saturating with excess the usual rectified spirit of ·838 sp. gr. with morphine muriate in powder, at a temperature rather over 60° F., and then finding the amount dissolved in a weighed portion of the liquid. It is found, however, that on shaking 1 part of morphine muriate with 41 parts of spirit a little of the salt remains undissolved. This apparent discrepancy is probably caused by a small proportion of the morphine muriate having been rendered anhydrous by the process of drying and powdering, so that it is more soluble than the bulk. However that may be, it seems evident that the solubility should be given as slightly less than 1 in 40 (by weight). It might be conveniently stated as 1 gramme in 53 C.c. at ordinary temperature.

Oils (fixed).—In the main I agree with what Mr. Parry has

written on the testing of these bodies. No one would question the value of the determination of iodine absorption as a test for oils, but it does not follow that all the tests approved by analysts should be adopted by the Pharmacopœia. That manual has hitherto aimed at giving simple tests requiring the minimum of time and apparatus, and it seems probable that the principle will as far as possible be continued. I do not see why viscosity should be disregarded as a test, because it cannot be determined with great precision. Noting the time required for 50 C.c. to run from a burette or pipette, and comparing with a standard oil in the same apparatus at same temperature, is a sufficiently accurate process for all practical purposes. The Redwood apparatus is superfluous for the requirements of the pharmacist.

Oil of Eucalyptus.—It may be taken for granted that the formation of a crystalline compound with phosphoric acid will be introduced in some form as a test for eucalyptus oil. Whether the test can be so applied as to indicate with accuracy the percentage of eucalyptol is still a matter of doubt. I have only tried a few experiments in the ordinary course of analytical work, but have had no difficulty in arriving at the following conclusions:—

1. That the proportion of acid (50 grs. of syrupy phosphoric to 200 grs. of oil) as originally given is too small for an oil rich in eucalyptol.

2. That it is necessary to use more than the calculated amount of phosphoric acid in order to obtain the full yield of crystals, yet that a large excess of acid should be avoided.

3. That there is no definite change of colour indicating that excess of acid has been added, as stated by Helbing and Passmore.

4. That it is advisable in all cases to decompose the phosphate with water, to separate the eucalyptol and weigh it.

The test might be given in something like this form: 10 grammes of the oil are placed in a capsule surrounded by cold water, and 3·5 C.c. of phosphoric acid (1·75) gradually added to the oil with constant stirring. After ten minutes the crystals are collected on calico and repeatedly pressed between fresh folds of filter-paper until the paper ceases to be stained. The crystals are then treated (may be gently warmed, but avoiding evaporation) with 15 C.c. of water, the upper layer carefully separated and weighed. The weight should not be less than 4 grammes.

Operating in this way, I have obtained from two good samples 59·54 and 51·35 per cent. respectively.

Mr. J. C. Umney, in his valuable paper on essential oils, states that eucalyptol prepared by the phosphoric acid process is not pure. If prepared, as I presume it is, by submitting the crystalline magma to powerful pressure, and then decomposing with water, or otherwise, it is impossible that the product can be absolute eucalyptol. It is well known that when a mass of moist crystals is squeezed in a hydraulic press the pressed crystals may contain 20 per cent. or more of adhering moisture. Similarly, when the phosphate of eucalyptol is pressed, a considerable amount of terpenes, etc., must remain in the crystals. On the analytical scale, however, where the crystals are diligently pressed in blotting-paper, there ought to be very little else remaining than eucalyptol phosphate; always assuming that there is no other body than eucalyptol present with which phosphoric acid forms a crystalline compound.

Opium.—In any process of opium-assay in which the morphine is precipitated by ammonia it is advisable to add a few drops of solution of ammonium oxalate, so as to avoid precipitation of basic calcium meconate, which neutralises acids to an appreciable extent (litmus as indicator). A very slight error may otherwise result in titrating with standard acid, more especially if the solution has been allowed to stand a long time after addition of ammonia. It might be desirable to have some means of ascertaining that the neutralisation of the standard acid was wholly due to morphine. It has occurred to me that distillation with iodic acid, and estimation of the iodine with thiosulphate, might prove a suitable method, but I have not yet had opportunity of confirming by experiment. In the same way, the morphine might be determined in a crude alkaloidal precipitate, containing narcotine, etc.

Paraffinum Molle.—I have found the melting point to vary from 33° to 42° C. Some specimens do not darken with sulphuric acid in the cold, others do. Instead of stating that "it is not saponified by solutions of alkalies" it would be more explicit to say, that when treated with boiling soda solution, the latter should give no precipitate or separation of oily matter on adding excess of acid.

Paraldehyde.—The official tests are probably sufficiently exacting. That the compound is not always obtained of perfect purity is evident from the following results of the examination of a sample:—

	Found.	B.P. test.
Sp. grav.	1·0008	·998
Solub. in water	1 in 8·5	1 in 10
Distilled	75° to 116°	124°
Acidity	1·92 p.c. acetic acid	neutral
Congeals	15°F.	50° F.

Quinine.—It seems worthy of note that while the neutral tartrates of morphine and of codeine are very soluble salts, the neutral tartrate of quinine is sparingly soluble (I make it 1 in 238 of water), in this respect resembling the neutral sulphate.

Citrate of Iron and Quinine.—In determining the alkaloid, the process should be "successive treatments of the fluid with ether," not "ether or chloroform." The latter sometimes dissolves more than the ether.

Scammony Resin.—The B.P. says "ether dissolves it entirely." I have found samples from three of the best makers to give 5·5, 3·75 and 1·80 per cent. of insoluble matter, using about 30 parts of ether to dissolve and wash. That is on the assumption that "ether" within the meaning of the B.P. is ·735 sp. gr. If ·720 ether be used, as much as 8 per cent. may be left undissolved. Here it may be noted that ether of ·735 sp. gr. contains too much alcohol to be regarded as ether. It is probable that by diligent washing with ·735 ether anything soluble in alcohol would ultimately disappear. "Ether" as a test should mean ·720 ether.

Spirit.—There would be advantage in introducing strong spirit of 65 over-proof. It could be used in some cases in place of absolute alcohol, as in preparing the solution of ethyl nitrite.

Syrup Ferri, Quin. et Strychnin. and *Syrup. Hypophosp. Comp.*—Special care should be taken in drawing up the recipes for these syrups that unsatisfactory formulæ do not become stereotyped in the Pharmacopœia. They have to be considered both as to strength and keeping properties. One of the most popular of the latter syrups is much weaker in hypophosphites than is generally supposed. The B.P.C. formulæ are not perfect.

Zinc Lactate.—Martindale states that it is "freely soluble in water." I find the solubility 1 in 60.

Proprietary Preparations.—The question as to how far the Pharmacopœia should go in including preparations of a proprietary nature, or imitations of the same, is a subject which is justly regarded by the British Medical Association's Committee as involved in difficulty. It seems to me that as a rule all patented articles should be excluded. I do not see much advantage in having antipyrin and the like in the Pharmacopœia. The question as to imitations of mixtures which have come largely into use is of quite a different nature. If the compilers of the Pharmacopœia are satisfied that a particular mixture or solution will be of service to the medical profession there does not appear to be any reason why it should not be introduced into the Pharmacopœia, even although it strongly resembles a favourite preparation under a fancy name.

REVIEWS AND NOTICES OF BOOKS.

Chemistry of Urine: A Practical Guide to the Analytical Examination of Diabetic, Albuminous, and Gouty Urine. By Alfred H. Allen, F.I.C., F.C.S. Pp. i. to xi., 1 to 212. Price 7*s.* 6*d.* (London: J. and A. Churchill, 1895.)

This work, which is uniform with the author's well-known handbooks on 'Commercial Analysis,' was originally intended to form part of the third volume of the series, but circumstances have led to its publication separately. If we glance at the work which has been done on the subject of urine testing by chemists in this country and abroad, it is readily apparent that a manual giving an account of the characteristics of healthy and morbid urine and concise directions for analysis has been much needed, for, in spite of the good work which has been done—especially in the last decade—a record of the results obtained in the analysis of a number of samples of urine, arrived at by methods which the operator has tried and proved reliable, has been much wanted, both by the analyst and medical practitioner. From an examination of the work under notice, it is satisfactory to be able to say that these requirements are more nearly fulfilled than in any other work on the subject, and the author appears to have taken a step in the right direction.

The first few pages are occupied by a brief account of the general characters of urine, and an account of the constituents fonnd in normal urine. Diabetes then claims attention, and here the question as to the presence or absence of sugar in normal urine is fully discussed, with a snmmary of the opinions more recently advanced by Pavy, Halliburton, and Johnson.

In the pages on the sugars and other carbo-hydrates, Fischer's important researches on the subject have due prominence, and some fifty pages are then devoted to the various methods for the detection and determination of sugar. This section is perhaps the best in the whole book, for there a large amount of original work has been done by testing practically the valne of a large variety of methods, which are arranged under the following heads: Isolation of the dextrose as such, methods based on the fermentation of the glucose, on the optical activity of dextrose, and on the reducing power of glucose, as well as those dependent on the conversion of sugar into definite crystalline compounds. Space will only allow us to mention that Gerrard's cyano-cupric process for the determination of glucose by titration is spoken of as one which will probably supersede all other forms of copper determination of glucose. As described by the author, it is a modification of the original process introduced by himself and Gerrard, which is preferable to any other on the grounds of simplicity and accuracy. He has found it generally convenient also from the fact that creatinine, uric acid, and other reducing constitnents of urine do not visibly interfere with the indications.

The chapter dealing with the detection of albumin contains methods which are tolerably familiar, but it may be noticed that for the determination of this constituent by precipitation, carbolic acid and tannin are recommended as the best reagents. The nitrogenised constituents of urine natnrally occupy a considerable proportion of the work. For the determination of the total nitrogen it may be mentioned that preference is given to Kjeldahl's method over all the others described, whilst further on in discussing the hypobromite process of urea determination, the author is of opinion that it is a good practical method, although by no means so accurate as generally supposed. The latter portion is mostly devoted to a brief account of the various colouring constituents, whilst as an appendix tables of weights and measures, symbols, particnlars of volumetric solntions, and other information are given.

It is impossible to give more than this brief account of the contents of a book which, there is little doubt, will become a standard-book of reference with analysts, medical practitioners, and pharmacists, for although it hardly comes up to the ideal in some respects, it is yet quite apparent that a great amount of labour has been expended in sifting the wheat from the chaff, and it is to be hoped that the author will continue his work in the directions above indicated.

Food and its Functions. By James Knight, M.A., B.Sc. Pp. 282. Price 2*s.* 6*d.* (London: Blackie and Son, Limited, 50, Old Bailey, E.C. 1895.)

Described as "a text-book for students of cookery," this book appeals to everyone. It is an expansion of a course of lectures on dietetics, and seems well adapted for the purpose it is intended to serve. The five parts of the book deal in turn with chemical preliminaries, foods in general, the physiology of digestion, foods in detail, and dietetics. The chemical preliminaries inclnde brief references to carbon, oxygen and combnstion, hydrogen, nitrogen and its compounds, acids, alkalies, and salts. The whole work, moreover, is pervaded with information on the chemistry of food-stuffs. Foods and their proximate constituents are classified, proteids, fats, carbohydrates, sugars, salts, and water being dealt with in order. The varions digestive processes—occurring in the mouth, stomach, and intestine—are next considered, and the methods of absorption, etc., are described at some length, this section of the book being freely illustrated. Nearly half the work, however, is devoted to the detailed consideration of the chief articles of food—milk cheese, eggs, flesh, fish, and vegetable foods—as well as food accessories and beverages. Here chemistry, physiology, and commonsense are practically applied with a very satisfactory result. Finally, there is a brief chapter on the preservation of food, systems of dieting, methods of cooking, etc., under the heading of dietetics. As a whole the book can be commended. Those who are learning to cook will by its aid be enabled to proceed more systematically, whilst others who can cook may learn to cook better. Another, and a larger section of mankind, however, will benefit by learning from the book what are the characteristics of good food, and how to compare the values of different food-stuffs. To each class it will prove its claim to a definite value, whilst helping to pave the way for a more general consideration of the importance of the science of cookery.

Modern Microscopy. By M. I. Cross and M. J. Cole. Second Edition. Pp. 182, illustrated. Price 3*s.* 6*d.* (London: Baillière, Tindall, and Cox, 20 and 21, King William Street, Strand. 1895.)

The first edition of this exceedingly practical handbook was published two years ago, and then well spoken of (*Ph. J.* [3], xxiv., 19). It appears to have been generally received with the favour it deserved, so that the authors have been encouraged to introduce into this re-issue additional information on methods of manipulation, whilst thoroughly revising the subject-matter originally given. Most of the chapters appear to have been extended, and as a result the pages number nearly twice as many as formerly. The first part of the work—that in which Mr. Cross describes the microscope, and gives instructions for its use—is increased from fifty-six to ninety-seven pages, advantage having been taken of the opportunity to deal more fully with the most recent methods of observation. Thus, the remarks on magnifying

power; apochromatic, achromatic, and immersion objectives; angular and numerical aperture; and the influence of the cover-glass on tube-length, render the subjects as clear probably as they can well be put. The chapter on illumination and illuminating apparatus also contains much valuable information that is not generally available in similar handbooks. The sub-stage condenser, though now almost universally used, is a stumbling block in the hands of most students, the usual impression being that it is intended to increase the amount of light reflected upon the object. Here, however, the real purpose of the condenser and the method of properly focussing the light by means of it are explained in as simple a manner as could be wished. The use of the camera lucida and the measurement of objects are considered in the chapter on accessory apparatus.

The second part of the book is also greatly improved, the thirty-six pages formerly occupied by Mr. Cole's lessons on preparing, staining, hardening, and mounting objects having been increased to sixty-eight. A useful addition occurs at the beginning, where the most suitable hardening agents, stains, and mounting media for different classes of objects are collected in tabular form, so that the whole of the details for a given object can be noted at a glance. The fourteen lessons cover the same ground as in the earlier edition, but the directions are more full, and therefore more likely to be intelligible to beginners working alone. The processes described are all really practical ones. There are also more illustrations in the book than before, and a good index is added. The lack of this was a distinct drawback to the first edition. It will be gathered from what has been said that the book is a real improvement upon its predecessor. If the next edition should be improved in equal degree, it will not fall far short, if at all, of being an ideal handbook. As it is, though described as "a handbook for beginners," it appeals more directly to those with a moderate knowledge of the subject, and even the most advanced workers may find it useful for reference to in an emergency.

EARTH-KNOWLEDGE. By W. JEROME HARRISON, F.G.S., and H. ROWLAND WAKEFIELD. Part I. Ninth edition. Pp. 266. Price 2*s*. (London: Blackie and Son, Limited, 50, Old Bailey, E.C. 1895.)

Intended mainly as a text-book for elementary students preparing for the Science and Art Department's examinations in that nondescript subject physiography, this little book will be found very useful as a general introduction to the study of science. This edition has been considerably extended, and the subject-matter brought up to date. It is well written, fully illustrated, and got up in the publishers' well-known excellent style. Apprentices in pharmacy will find it a very handy book for gaining a preliminary general knowledge of many of the chief facts of physical science.

HELPS TO HEALTH AND BEAUTY. BY A PHARMACEUTICAL CHEMIST. Pp. 177. Price 1*s*. (London: James Clarke and Co., 13 and 14, Fleet Street. 1895.

This little book contains two hundred "practical prescriptions," or formulæ for preparations for the hair, hands, nails, feet, skin, teeth, and bath, in addition to perfumes, insecticides, and medicaments for various ailments. As far as possible technical language is avoided, and the directions are clear and concise. The book should prove useful to chemists and druggists, both directly and indirectly, as they will find it convenient for reference in devising new formulæ, and it should also lead to business with customers who may purchase the book and desire to try any of the recipes given, for as a rule the layman will not be able properly to compound the preparations for himself.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

BENEVOLENT FUND GENERAL MEETING.

ELECTION OF ANNUITANTS.

A General Meeting of the Members and Associates of the Pharmaceutical Society and Donors to the Benevolent Fund was held at the house of the Society, 17, Bloomsbury Square, on Tuesday, December 10th, at 12 o'clock, for the election of four annuitants, Mr. MICHAEL CARTEIGHE, President, in the chair.

The notice convening the meeting was read by the Secretary. scrutineers were then appointed, who elected Mr. E. N. BUTT as Chairman, and proceeded to examine the voting papers.

Scrutineers' Report.

We, the undersigned Scrutineers, appointed at the thirty-first election of Annuitants on the Benevolent Fund of the Pharmaceutical Society of Great Britain, do hereby certify that we have examined the voting papers committed to us, and report the following results:—

Board, Thomas F.	5920
Eyre, Jonathan Symes	5652
Heys, Mary V.	3605
Ramsden, George	1972
Willison, Elizabeth A.	5074
Young, Tonkin	2409

*4193 voting papers were received, of which number 89 were informal (40 unsigned, representing 124 votes, and 49 incorrectly filled up, representing 136 votes).

EDWARD N. BUTT, *Chairman.*

HENRY BATE.	W. PRIOR ROBINSON.
HENRY C. BIRCH.	EDWD. B. STAMP.
WALTER T. COOPER.	S. A. STURTON.
F. G. CURTIS.	A. E. TANNER.
W. T. FROST.	H. AYSCOUGH THOMPSON.
W. F. GULLIVER.	JOHN C. UMNEY.
JOHN HOLDING.	J. T. W. WALLIS.
W. MURTON HOLMES.	H. WIGGINS.
CHARLES J. MILES.	HARRY WILSON.
A. J. PHILLIPS.	GEORGE WYLDE.
THOS. HENRY POWELL.	R. FISHER YOUNG.

PERCY J. ROBBINS.

The PRESIDENT then declared the following duly elected Annuitants:—

Board, Thomas F.
Eyre, Jonathan Symes.
Willison, Elizabeth A.
Heys, Mary V.

THE PRESIDENT moved a vote of thanks to the Scrutineers for their services, which was duly carried, and suitably acknowledged by the Chairman, Mr. E. N. Butt, and, after a similar vote by the Scrutineers to Mr. Butt for acting as Chairman during the counting of the votes, the proceedings terminated.

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* 6323 voting papers were issued.

DONATIONS.

At a meeting of the Library, Museum, School, and House Committee, held on Wednesday, the 11th inst., the Librarian and Curator presented the following reports of donations to the Society's Library, Museum, and Herbarium :—

To the Library (London).

Koloniaal Museum, Haarlem :
Nuttige indische planten, door Dr. M. Greshoff, Afl. 2, 1895.

École Superieure de Pharmacie de Paris :
Oliviéro, Étude chimique sur l'huile essentielle de valériane, 1895.
Khouri, Contribution à l'étude du psidium pomiferum, 1895.

Prof. Dr. A. Meyer, Marburg :
Der Apotheker und das Studium von Botanik und Pharmakognosie, 1895.

To the Museum.

Mr. Frank Browne, Hong Kong :
Specimen of Chinese opium from Szechuen.

Messrs. Horner and Sons, London, per Mr. J. C. Stead :
Oils of *Anethum sowa*, two samples of oil of cubebs, one of oil of clove, and one of the sesquiterpene separated from it, with specimens of the fruits and of the cloves from which they were distilled.

Messrs. W. J. Bragg and Co., Liverpool :
Large sample of Aracati jaborandi leaves.

Messrs. T. Christy and Co., London.
Coca leaves from Antigua.

To the Herbarium.

Mr. E. H. Farr, F.L.S., Uckfield.
Phyteuma spicatum, P. orbiculare, Rosa agrestis, R. stylosa, R. systyla, Œnanthe lachenalii, Hieracium murorum, Erythræa capitata, Sibthorpia europœa, Crepis taraxacifolia, Senecio campestris, Valeriana dioica.

Mr. W. P. Hiern, M.A., Barnstaple.
Specimen of *Juncus tenuis* from North Devon.

EVENING MEETING IN LONDON.

On Wednesday the 11th inst., an evening meeting was held at 17, Bloomsbury Square, London, the President, Mr. Michael Carteighe, in the chair. A paper on "Chinese Opium," by Mr. Frank Browne, Acting Government Analyst, Hong Kong, and formerly a student and demonstrator of the Society, was first read by Professor Attfield, and is printed at p. 493. In the discussion which followed.

Mr. Lucas referred to a paper by Mr. McAllum, on opium smoking, and said that experts agreed that opium without much morphine was best for smoking. With regard to toasting, when he was in Hong Kong, it was customary to take the extract out of the pan when it reach a certain consistency, and hold it over a gentle fire. It was then considered sufficiently done. As regarded Chinese opium he had seen some with as much as 10 per cent. of morphine, which was as good as opium from Turkey or elsewhere.

Mr. Christy said in China they were very short of anything like bottles, and therefore they wrapped the mass of opium, which was in a semi-liquid state, round with fibrous papers. The Chinaman weighed his opium very carefully, and took care that the residue should not be weighed with it by employing an accurate test as to the quality. Thus, he toasted his opium by taking a little spade and dipping it in the pot, and then holding it over a small flame, when a little fume or vapour passed off. One heard of people being poisoned by opium smoking, but in almost every case that had come before him poisoning had been produced by taking the opium out of a gummy pipe. It was with the greatest difficulty that a person could recover after being so poisoned.

Mr. E. M. Holmes pointed out that opium-smoking differed in its effects from opium-eating, and was far less injurious. He did not think it was yet known what was the action of the substances formed by the destruction of the constituents of opium when heated.

Mr. Martindale mentioned that in India the Government test was solely the amount of extracted morphine, and not the percentage of morphine the opium contained. He had some pills sent to him which were supposed to be cures for the opium habit in China, and they all contained morphine.

Mr. MacEwan thought the importance of the subject lay in the fact that for twenty years the Chinese had been cultivating the poppy plant, and were now practically the largest producers of opium in the world. If Turkey ceased to supply us with a considerable amount of opium we might yet look to China for our supply. This fact Mr. Browne had brought forward, especially in regard to Szechuen opium, which was so admirable that, if produced under proper conditions, it would satisfy the requirements of the Pharmacopœia, which was not the case with Indian opium. The highest quality of this Chinese opium was very similar in composition to the best Indian opium morphine

Professor Greenish agreed with Mr. MacEwan, and said it must be borne in mind that Indian opium had been prepared for exportation, and steps were being taken to ascertain if by improved cultivation and collection it was not possible to produce opium which would compete with that of Turkey. He thought that would probably be accomplished, and that we should obtain from India, opium with higher percentages of morphine than hitherto.

Professor Attfield characterised the paper as very important from the pharmaceutical point of view. Opium was perhaps the most trusted drug throughout the world, yet it was not known to what extent it might be trusted. In England it was practically tested by the amount of morphine, and we hoped we were doing right, but were not sure of it. He understood that Mr. Browne was going to give the results of a similar investigation as regards Indian opium, and he would like to suggest that Mr. Browne should do the same with regard to colonial opium. Mr. Browne was one of their own men, and was deserving of their heartiest encouragement.

The President proposed a hearty vote of thanks to Mr. Browne for his paper, saying that an investigation of the constituents of opium grown in all parts of the world would be of great value, and was a work not likely to be done in a busy place like London. He was very much interested in what Mr. Christy said. For the life of him he could not see why a Chinaman should not smoke opium. It was one of those forms of interference with the liberty of the subject which should not be tolerated for a moment. Inquiries had shown that opium was bad for women who had to bear children, but the general evidence against it was not so strong as fanatics made out. The enormous value of this drug in the cure of disease all over the world was so great that it would be worth the while of the Legislature to expend £1000 a year for ten years in having such work performed as Mr. Browne had done.

The vote of thanks was passed with acclamation.

The next communication was on "A Fluorescent Constituent of Calumba," by Mr. Alex. Gunn, which appears at page 495, and gave rise to the following discussion :—

Mr. Spilsbury asked whether the preparations exhibited were prepared from one description of root only, or from various descriptions one saw in the market. Some were of a greenish yellow, and others of a good yellow.

Mr. Holmes said it might be useful to test the liquid to see if there was any saponin in it, as he noticed that it frothed.

Professor Greenish said that all the calumba used by retail druggists had undergone some sort of preparation before it came into their hands. One person had told him he dressed it, but would not say how.

Mr. Ward said that fresh calumba was always yellow, and it was only the older varieties that were washed.

Mr. MacEwan said that he understood the person referred to by Professor Greenish used a sort of mangle with rollers. The drug went in bad calumba and came out worth 1*s.* per lb. more.

Mr. Christy said the same process was adopted with bad kola nuts.

Professor Attfield said so little was known about calumba that their thanks were due to anyone who enlightened them about it, and that Mr. Gunn, who was an old student of the School of Pharmacy, had done to a considerable extent.

Mr. Martindale said the subject was worth following up. There were various drugs which exhibited this property—gelsemium, for example.

The President said the best encouragement to Mr. Gunn would be the expression of a hope that he would carry his experiments to completion.

Mr. Gunn having briefly replied, a vote of thanks was passed unanimously.

Mr. E. M. Holmes, the Curator of the Society's Museum, then referred to various specimens that were exhibited at the meeting—

RECENT DONATIONS TO THE MUSEUM.

By E. M. Holmes, F.L.S.

False White Horehound.

Some months since, Professor H. H. Rusby sent, amongst other interesting donations to the Museum, a specimen of white horehound with very little aroma and still less bitterness. By the taste alone it could be readily distinguished from *M. vulgare*, but in appearance the foliage so closely resembled the latter that it might easily be passed over as the genuine plant. It was not until I found, mixed with it, a small portion of the inflorescence that I was able to identify the species.

The calyx teeth were then observed to be only five in number and very slightly curved, and thus it was evident that the plant belonged to a different section of the genus, since the *Marrubium vulgare* belongs to a section which has from six to ten calyx teeth. Those of the true horehound are ten in number, and are so strongly recurved as to be hooked. On comparing the leaves and calyces with those of the plants belonging to the section having five teeth, I found that they agreed best with *M. candidissimum* in having subulate erect bracts as long as the calyx. In *M. vulgare* they are generally hooked like the calyx teeth. This plant extends from Spain to the Talusch Mountains in Persia, and has been reported from Italy, Ischia, Dalmatia, Carinthia, and Roumelia. Other species which are also used like horehound, according to Rosenthal, are *M. alysson*, L., and *M. peregrinum*, L. Both of these belong to the same section as *M. candidissimum*. In the former the leaves are villose, with soft woolly hairs, and there are practically hardly any bractlets (*bracteæ submillæ*); whilst in the latter the leaves have only very short hoary down (*cano-tomentosis*), and the outer bractlets are only half as long as the calyx.

A New Variety of Jaborandi.

During the last twelve months some jaborandi leaves have been in the English market which differ in several particulars from the genuine or Pernambuco kind. Until recently I have been unable to obtain specimens with the leaves attached to the stem or fruit.

The leaves are about 2½ inches long by 1 inch broad, resembling in size and shape those of *Laurus nobilis*. They are lanceolate, entire at the margins, usually emarginate at the apex, and have a short petiole, usually less than ¼ inch (about 3 Mm.) long, and always curved and twisted on one side. The midrib and veinlets are prominent on both sides of the leaf, although slightly more so on the under surface. In texture they are thin but tough, and in colour are of a brownish green. As compared with the true jaborandi, they have a more shining surface, but very little difference in the colour of the two surfaces. They differ from all the jaborandi leaves hitherto imported, in consisting of simple leaves, which are sometimes opposite, and sometimes in irregular whorl-like tufts at the apex of the branchlets. The fruits are small, about 8 Mm. long by 6 Mm. broad. In the only specimens found amongst the leaves, the pedicels are about ¼ inch long, but are not complete, and are therefore probably longer.

The only known species of *Pilocarpus* to which these leaves bear a resemblance is *Pilocarpus spicatus*, A. St. Hil., but the leaves of this plant as represented in the Kew Herbarium are uniformly much larger, have a less glossy surface, and the pedicels of the flowers are shorter even than those of the broken fruit stalks. It seems probable, therefore, that the new jaborandi may belong to an undescribed species closely allied to *P. spicatus*.

The leaves have been chemically examined by two chemists of repute. The one obtained ·10 of a crystalline nitrate, but considered that it was not pilocarpine; the other obtained 0·257 per cent. of a crystalline nitrate of pilocarpine and 0·121 per cent. of a non-crystallisable alkaloid.

These differences in results may be due to the fact that the leaves have appeared in commerce mixed with those of *P. microphyllus*, which is known to contain some nitrate of pilocarpine. I have, however, handed a pure sample of the leaves to Messrs. Paul and Cownley for examination, and hope thus to obtain definite information as to the alkaloid or alkaloids they contain.

Judging from the taste, I imagine that they do not contain pilocarpine, since an entire leaf when chewed causes only a biting and numbing sensation like that of pellitory, but hardly any flow of saliva.

I am indebted to Messrs. W. J. Bragg and Co., of Liverpool, for a liberal supply of the leaves, and a few detached fruits. I am informed by this firm that the leaves are imported from Aracati *via* Ceará, and I have, therefore, ventured to distinguish the drug by the name of Aracati jaborandi.

Tea-Seed Cake.

The seeds of *Camellia japonica* and *C. sasanqua* (*C. oleifera*, Abel.) are extensively used in China for the extraction of a fixed oil, which is used for culinary purposes and as a hair oil. Specimens of the oil were exhibited ten years ago in the Japanese Court of the International Health Exhibition, and were noticed in the *Pharmaceutical Journal*, vol. xv., pp. 634–637. The late Mr. R. H. Davies examined the oil at my request, and found that it contained 83 per cent. of oleic acid, and like olive and almond oils might be regarded as a sweet or non-drying oil. The seed cake, after the expression of the oil, is used by the Chinese as a domestic insecticide, also for garden insects and worms. Its acridity appears to be due to saponine.

Kuro-Moji Oil.

A small specimen of this fragrant Japanese oil was recently presented to the Museum by Mr. T. Wardleworth, of Liverpool. The oil has, he tells me, been imported for some years past in considerable quantity for use in perfumery, especially for scented soaps. It is the produce of a lauraceous tree growing on the island of Nippon, Japan, amongst woods on the mountains. The wood of the tree, as well as the bark, is aromatic, and is used by the Japanese to make tooth-picks, which serve also the purpose of perfuming the breath. The specimen of the fruit exhibited was presented by Mr. Wardleworth, and the Japanese drawing representing the foliage was lent by the same gentleman. The specimen of the plant in the Society's Herbarium represents the young leaves covered with the long soft hairs which slowly disappear as the leaves arrive at maturity. (See *Pharm. Journ.*, *ante*, p. 384.)

Oil of Tansy.

The specimen of this oil exhibited this evening was distilled by Mr. J. C. Sawer, of Brighton, and possesses some interest as showing how an essential oil may vary in its constituents under different conditions of soil and climate. In the recent semi-annual report of Messrs. Schimmel and Co. (October, 1895), this oil is alluded to in the following terms:—

"The fact that Bruylants failed to find camphor in his tansy oil may be due to the great differences existing in oils of different origin. As an example, we may here refer to an oil recently forwarded to us by Mr. J. Ch. Sawer, of Brighton, England. This specimen had been distilled from green cultivated tansy herb. Its odour was only very slightly like that of the ordinary oil distilled from the wild plant, but strongly camphoraceous, and resembled rosemary oil, afterwards giving place to a fine ambergris-like aroma. Mr. Sawer's oil contained so much camphor that even at 0° C. that substance separated out in appreciable proportion. The most striking difference between this English oil and the ordinary commercial variety (American oil was observed in its optical behaviour, the English oil being lævo-rotatory)—·27 in a 100 Mm. tube—in almost the same degree that the American oil, as a rule, is dextro-rotatory."

The last statement is remarkable, since Stillé and Maisch, in the United States 'Dispensatory,' 1894, p. 1579, distinctly state that oil of tansy deviates polarised light to the left.

Messrs. Schimmel's experiments with tansy oil showed that it contained not ordinary camphor, but the rare lævogyre modifications of that substance mixed with a little borneol. The camphor was not, however, obtained until in fractional distillation the thermometer had risen to 205°, and it was therefore present in much smaller quantity than in Mr. Sawer's oil.

Bruylants (*Ber. d. Deutsche Chem. Gcs.*, ii., 449) failed to detect camphor in tansy oil, but discovered in the oil the ketone now known as thujone, and which is found also in the oils of *Thuja occidentalis* ("arbor vitæ"), sage, and wormwood. This body is of some chemical interest.*

Oil of tansy appears to be more extensively used in the United States than in this country. Messrs. Schimmel estimate the output of the oil in the United States this year at 100 lbs. The oil, as well as the plant, appears to be used for amenorrhœa, worms, and occasionally as an abortifacient. Its use in doses of more than 1 to 4 drops is dangerous. A teaspoonful of the oil has proved fatal, and grave symptoms have been produced by a dose of from 15 to 30 minims (Stillé and Maisch, l.c. p. 1529).

* By boiling it with a solution of ferric chloride, Wallach obtained from it 25 to 30 per cent. of carvacrol. By the action of permanganate on thujone two isomeric crystalline acids are formed; *e.g.*, thuja ketonic acids, $C_{10}H_{16}O_3$. The a. modification requires 40 parts, and the b. 70 parts of boiling water for solution, and the latter crystallises out on cooling, the former does not. Dry *b.* thuja-ketonic acid yields a ketone when heated, and this ketone in alcoholic solution treated with sodium yields an alcohol with an odour resembling linalool (*Ph. J.* [3], xxiii., p. 428; 'Schimmel Report,' October, 1895, p. 48).

CORRESPONDENCE.

[*Letters to the Editor should be written as concisely as possible, on one side of the paper only, and preferably with name and address for publication.*]

THE JOURNAL AND THE TRADE.

Sir,—I was pleased to see in your issue of 7th inst. an appreciation of the *Pharmaceutical Journal* as it is now put before us. Since the first days of my apprenticeship I have been a subscriber to the Pharmaceutical Society, and have always found in the Journal something which, even in those early days, I could read with pleasure. Evidently, however, Mr. Alexander Laing has not shared this feeling, as he refers to your publication as having been a "stumbling block." It has been until recently the custom of the official organ to appeal more particularly to the higher class of pharmacists, but in the present volume much matter has been inserted which is of interest to all. The most noticeable of the new features is the Market Report, which I have frequently had occasion to consult lately, and have always found particularly useful and reliable. The effect of these changes will, I take it, be to cause more chemists to join the Society.

Mr. Laing complains about the guinea subscription, and is evidently under the impression that the Journal is all that he gets therefor. But to mention only one advantage offered, the privilege of obtaining on loan standard pharmaceutical literature from the Society's Library so reasonably is surely worth the other half guinea. Your correspondent also remarks that the First examination is of no practical value. As this matter has been so thoroughly gone into by others, I will but say that for my own part I should like to see the State take the matter in hand, and, by enforcing an entrance examination and a curriculum of study at a university, raise British pharmacists to the status occupied by their Continental brethren.

Mr. Laing speaks of making "one tremendous assault on the Legislature." How does he propose to do this when the Society is so poorly supported? An intelligent Parliament would look with suspicion upon a corporation representative of say one-third of a class asking for additional powers. When the Pharmaceutical Society is supported by all the registered chemists of Great Britain much can be accomplished, but no good at all can come from this holding aloof from the Society and continually carping at its doings.

Liverpool, December 9, 1895. Prosper H. Marsden.

CONCENTRATED INFUSIONS.

Sir,—I regard the fresh infusions of the B.P. as remnants of a barbarous age, which only retain their place in virtue of the conservatism of old habits. They are possessed of so little value, therapeutically, that there would be no loss to medical practice if they disappeared at once, and I look upon the concentrated infusions as now prepared by pharmacists of repute as good and efficient substitutes for them. If a medicine were being prepared for my own taking I should prefer to have it dispensed with the concentrated preparation. Judging from the thousands of gallons of concentrated infusions consumed in the dispensaries of medical men who dispense their own medicines and from the small consumption of the crude drugs by the same practitioners, medical men themselves prefer to use concentrateed infusions rather than make the fresh. The whole matter has adjusted itself in common practice in a way that involves no trouble or risk, and might very well be allowed to work out its own salvation through the natural process of evolution and the survival of the fittest. But seeing that it is proposed to put into the Pharmacopœia a new class of preparations as substitutes for infusions, we may well feel anxious to be saved from our friends. Superstitious pharmacists may hold up their hands in holy horror at the wickedness of those who substitute concentrated infusion of quassia for an equivalent of the fresh, and yet if not looked after, these gentlemen will do what is far worse—confound the whole thing. Attfield will put into the B.P. "Ess. Gent. Co." of the nature of a fluid extract and I do not know of what strength; Umney will prepare a concentrated infusion ten times the official strength; but the medical practitioner will still send his orders and his prescriptions for inf. gent. co. conc., and the practical pharmacist will not know what to do.

For twenty years to come medicine will be prescribed by ℥i. and ℥i., and doses will be indicated by tea-spoons or table-spoons and, so long as that is the case, no relation of strength can be so convenient as that which has been in use and found desirable for the last forty or fifty years, namely that fl. ℥i. of a strong or concentrated preparation shall be the equivalent of fl. ℥i. of the weaker. I agree with what Mr. Hallaway says about the objection to making the term "essence" official for a class of preparations quite different from those to which this term is now habitually applied. What would the pharmacist make of an order for "Ess. Aurantii," or "Ess. Rosæ," if those terms were applicable to fluid extracts of the drugs, as well as to solutions in spirit of their essential oils? This is a practical objection. It appears to me that Dr. Attfield objects to calling a concentrated infusion by its customary name, because the term may be understood to mean a normal infusion concentrated by evaporation. This is purely a theoretical objection, and has no practical force. Concentration does not imply evaporation. We concentrate the sun's rays by a convex lens or a concave reflector. I concentrate my attention upon what I am writing, and if Dr. Attfield will concentrate his efforts upon the production of a good working pharmacopœia, he need not evaporate either his efforts or his infusions. I trust that common-sense will prevail, and if any cognisance be officially taken of the strong infusions now in common use, the object sought will be to give good working formulæ for the production of such a liquor as will produce, when diluted with seven volumes of water, a solution having the same strength as the official infusion, and in any case where this cannot be accomplished, to leave that drug out of the list.

Newcastle-on-Tyne, December 9, 1895. B. S. Proctor.

THE "ANTI-CUTTING RECORD."

Sir,—I trust you will allow me to express my opinion regarding the scheme proposed in that latest outcome of the nostrum proprietor—the *Anti-Cutting Record*. As you very properly remark in the *Pharmaceutical Journal* for November 9, the scheme proposed is directly opposed to pharmacy as a profession, and, as far as I have been able to judge, involves a co-operation of certain makers of proprietary medicines with a view to boycotting any pharmacist who will not join hands with them, that is providing they get a sufficient number to fall in with their proposals, which, according to the latest issue of the publication in question, they appear confident of doing.

A criticism of your remarks is published in the same issue, and, unfortunately, in stating that "the maintaining of the best traditions of professional pharmacy is not the sole end and aim of retail chemists," I am afraid that they have, to a great extent, hit the right nail on the head. There is no denying the fact that there are many men who only trouble to obtain the minimum qualification exacted by law, and after doing so, forget everything but the "Almighty Dollar." Among this class, no doubt, will the bulk of the recruits to the ranks of "Anti-cutting" be found.

I think I am correct in saying that the principal end and aim of the best educated pharmacists—men who evince a keen interest in the more elevated branches of their calling—is to better the position and raise the status of pharmacy generally, and that among men of this description such a plan as that proposed in the *Anti-Cutting Record* will be rejected as unworthy of their consideration. Whether the promoters of this scheme will succeed in carrying it into effect remains to be seen, but I consider it very doubtful if they will be able to command the co-operation of a sufficient number of members. Taking all the bearings of the case into consideration, I should think it will be to the decided advantage of professional pharmacy if they do not. Professionalism.

December 10, 1895.

Localisation of the Alkaloids in the Solanaceæ.—M. P. Molle has investigated the distribution of the four alkaloids—atropine, hyoscyamine, hyoscine, and nicotine—in the various organs of the Solanaceae. He finds them to be generally distributed through the aerial organs, but most concentrated in the youngest vegetative parts; they are especially abundant in the epiderm and in the vascular-bundle-sheath and abound also in the root-cap. In the floral organs the largest quantity is contained in the carpels and ovules. In the mature seeds the alkaloids occur only in the integument, never in the embryo or endosperm (*Bulletin de la Soc. Belge de Microscopie*, vol. xxi., 1895, p. 8).

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LONDON: SATURDAY, DECEMBER 14, 1895.

THE WORK OF THE BENEVOLENT FUND.

OF the three objects specially mentioned in the Charter of the Pharmaceutical Society as being worthy of the united efforts of all persons engaged in the business of pharmacy, that of providing a fund for the relief of the distressed members and associates, or their widows and orphans, has been accomplished with a greater degree of success than either of the others. Education upon a systematic basis is still a work to be carried out in the future, and protection of the trade interests of chemists and druggists is, perhaps, further out of reach than it was fifty years ago. But though these two important features of pharmaceutical organisation are still only desiderata, it is creditable to the human nature of British pharmacists that the work of benevolence has not been left equally in the background. But even in this respect, as in most others, the work that has been done has not been a result of united co-operation: it has, on the contrary, been carried out by a comparatively small section of the entire body, and for the most part by those who constitute the Pharmaceutical Society. Here, as in all other instances of endeavour to promote the interests and the advancement of pharmacy as an occupation, the work, whether of a public nature or protective, has been done, and is still being done, by a small number of persons, while the great majority of those engaged in the business stand aloof from any active participation, but without effort on their own part to assist progress, are content to share any advantage which may result from the endeavours of others.

Still the work of benevolence, though carried out under these disadvantages, has not been without results at once advantageous to the recipients of assistance, satisfactory to the contributors, and creditable to the general body. That such has been the case will be evident from a retrospective view of what has been done by the Benevolent Fund, and material for such an estimate of its services was furnished by Mr. BUTT, as Chairman of the Scrutineers, at the election of annuitants which took place last Tuesday. It appears from the statistical data collected by Mr. BUTT that at the end of the year 1894 there were forty-two persons in receipt of annuities from the Benevolent Fund of the Pharmaceutical Society. Of that number one has received a total sum amounting to £750, eleven have received from £700 to £500 each, and thirty have received from £400 to £100 each. Between 1872 and 1887 there were twenty-six annuitants elected, and of these twenty-four were widows, the total amount received by the twenty-six annuitants being £10,990. Between 1888 and 1894 sixteen annuitants were elected, four of them being widows, and the total amount received by them was £1995, making a gross amount of nearly thirteen thousand pounds (£12,975) within the period referred to.

From these data it will be seen that the work done in the relief of distress has not been inconsiderable, and further examination also shows that it has been done in a catholic spirit, for out of the forty-two annuitants above referred to there were thirty-six in regard to whom no subscription had ever been received, while seventeen of them had never been connected with the Society other than indirectly by registration in conformity with the Pharmacy Act, 1868, as having been in business prior to that date. The record of occasional grants during the year 1894 tells a similar tale, the amount paid in that way to chemists and druggists not connected with the Society or to their widows was £312, and the same persons had received previous grants amounting to £507, or a total of £819. During the same year chemist and druggist members or their widows received £214, associates or their widows received £102, and pharmaceutical chemists or their widows received £100, making a total of £416. Adding to these amounts the previous grants received by the same persons it appears that those not connected with the Society received in all £819, and those connected in some capacity with the Society received £931. On the basis therefore, of work done, it is evident that the Benevolent Fund has a claim to much greater and more general support than it has hitherto met with. The relief of distressed members of the craft or of their relatives is a duty incumbent upon the whole body, and every member of it should contribute something towards the fulfilment of that duty. To take the case of the present election as an illustration of the good that might be done by a very small individual contribution from every member of the trade, it will suffice to point out that with the command of another hundred pounds, and a prospect of continued general support, annuities could have been granted to the whole of the six approved candidates without subjecting any of them to the trouble, expense, and anxiety of another election.

EVENING MEETING IN EDINBURGH.

AT the next evening meeting of the Pharmaceutical Society in Edinburgh, on Friday, December 20, Mr. J. A. FORRET will treat of simple calculations for the analysis of certain mixtures, and also describe a convenient arrangement for continuous percolation. Subsequently, Mr. J. RUTHERFORD HILL will exhibit a series of lantern slides illustrating the micro-organisms of water.

DEATH OF AN ANNUITANT.

IT is with deep regret that we announce the death on Wednesday morning of Mr. THOMAS F. BOARD, who headed the poll at the election of annuitants on the Benevolent Fund the previous day (see page 499). Mr. BOARD was sixty eight years of age, and his case was an exceptionally deserving one. He had applied twice to be elected as an annuitant on the Fund, and his decease at the moment of success cannot fail to provoke feelings of deep compassion that he should not have lived to enjoy the little extra comfort that had so recently been placed within his reach.

ANNOTATIONS.

A Pharmacist as University Curator.—By a recent decree of Convocation of the University of Oxford, the office of Curator of the Fielding Herbarium has been duly constituted, and this has been followed by the election of Mr. G. Claridge Druce to the post. Mr. Druce, who is well known as a pharmacist and an examiner to the Pharmaceutical Society, is an honorary M.A. of the University of Oxford. He is also the author of a 'Flora of Oxfordshire,' and is at present engaged in the compilation of a 'Flora of Berkshire.'

The Question of Business Goodwill.—In the House of Lords, on Thursday, the 5th inst., it was decided that, in a case where a merchant had bequeathed to his sons the goodwill of his business, but did not in his will specifically mention the business premises as part of his bequest, the word goodwill was, nevertheless, sufficient to cover the premises essential to the carrying on of the business, and to pass such premises to the devisees of the goodwill. This decision should prove of considerable interest.

Poisoning Cases in Scotland.—During the year 1893, deaths were recorded in Scotland in the case of 65 males and 26 females as the result of accidental poisoning, whilst 19 males and 6 females committed suicide by means of poison. Opium and its preparations were responsible for 25 accidental cases and 15 suicides; chloroform, 7 and 1 respectively; carbolic acid, 1 accident and 4 suicides; whilst no other substance ordinarily regarded as a poison was responsible for more than 2 deaths. Alcohol is credited with causing death accidentally in 5 cases, tobacco in 1, bee-sting 1, ptomaines 2, high game 1, putrid meat 1, podophyllin 1, and potassium bromide 1. All these are officially regarded as poisoning cases.

Gallantry Rewarded.—Reference was made in the Journal a few months ago (*ante*, page 191) to the courageous conduct of one of the younger members of the Pharmaceutical Society, formerly a student in the School of Pharmacy, Mr. C. E. Robinson, in rescuing from drowning Mr. Councillor Edgar Horne, of Derby. In recognition of this gallant conduct, it was unanimously resolved at the last meeting of the Committee of the Royal Humane Society "that Mr. Charles E. Robinson is justly entitled to the Honorary Testimonial of this Society inscribed on vellum, which is hereby awarded him, for having on August 16, 1895, gone to the rescue of Edgar Horne, who was in imminent danger of drowning at Sutton-on-Sea, and whose life he gallantly saved." The testimonial is signed by the Duke of Argyll, the President, and Colonel Horace Montagu, Chairman of Committee.

Fruit Preserved in Alcohol Vapour.—In a report by Mr. Henry P. du Bellet, United States Consul in Rheims, the results of experiments made by A. Petit, chief of the laboratory of horticultural researches in the National Horticultural School of Versailles, are detailed. Mr. Petit noticed that pears and apples were preserved for several months by being kept in an atmosphere saturated with alcohol vapour, even when previously showing signs of approaching decay, while fruits stored under the same conditions, but not exposed to the action of alcoholic vapours, became rapidly covered with mould. He then experimented with grapes, and it is stated that fruit left for two months in a recipient containing a bottle of alcohol, and placed in a damp cellar, was removed in a perfect state of preservation, the fruit being firm, full and palatable, and having all the qualities of fresh-plucked fruit. Fruit cut from the same vines and laid on wood shavings, alcohol being absent, was found to be covered with mould and badly decayed in less than a month.

The British and Colonial Druggists' Diary for 1896.—This useful publication contains forty-eight pages of matter of the usual nature, such as the chemist and druggist has frequent occasion to refer to. The information is, of course, brought up to date, and several new features are introduced.

Pharmaceutical Reports.—A circular, signed by Dr. H. Thoms, President of the Pharmaceutische Gesellschaft, is now being issued with a view to diffusing information regarding the system of reporting recently adopted by that body. The Pharmaceutische Gesellschaft has established a central office in Berlin for the preparation of reports on "all papers concerning botanical, chemical, and pharmacological investigations of the medical and poisonous plants of all countries." The results will be published periodically in the 'Berichte der Pharmaceutischen Gesellschaft,' the intention being to provide a comprehensive summary of permanent value to investigators. All authors of papers coming within the scope of the proposed enterprise are requested to send copies of the same addressed "An die Bibliothek der Pharmaceutischen Gesellschaft, Berlin S.W., Hollmannstrasse 25." In exchange, they will receive the collective reports when issued by the Society.

The Anti-Adulteration Association (Registered).—This Association has been formed with the following objects:—1. To put more regularly into force the provisions of the Food and Drugs Adulteration Acts, and to prevent their becoming practically inoperative, "through the energetic greed of dishonest traders, the apathy or helplessness of consumers, or the inadequate punishment dealt out to offenders in the majority of cases where offences against the Acts have been proved." 2. To obtain by Statute such modifications of the Acts as are necessary in the interests of the public, and of honest, fair-dealing manufacturers and retailers. 3. To protect consumers by publishing, from time to time, reports and analyses, together with other useful information concerning foods, beverages, drugs, etc., and their adulteration or purity. 4. To protect and encourage honest dealers and genuine manufacturers by the issue of official certificates of purity and excellence, under certain regulations. Arrangements have been made with the proprietors of *Health News* for that paper to become the organ of the Association, and the annual subscription of half a guinea entitles the subscriber to receive a copy of the paper monthly, post free. A donation of £3 3*s*., or upwards, constitutes life-membership. Further particulars, concerning membership, etc., can be obtained of the Secretary, Mr. Robt. Wm. Smith, 61 and 62, Chancery Lane, London, W.C.

Pharmacists at Play in the United States. — In the 'Proceedings' of the Kentucky Pharmaceutical Association for 1895, appears a "programme of entertainment at the annual meeting held at the Mammoth Cave." This is described as a "most delightful innovation," and certainly seems to indicate that Kentucky pharmacists do not take their pleasures sadly. Prizes were awarded to competitors who named correctly ten official roots and herbs, ten specimens of wild flowers, and ten odours respectively; but there was also a "Trilby" contest for ladies only—"all participants exposing feet only; most shapely wins." A button-sewing contest for gentlemen only; a "prevarication" prize for travellers; with a hen race, a frog race, and a necktie contest, were amongst the other events in this eclectic programme. The prizes, by the way, included boxes of cigars, pipes, bottles of whisky, perfumes, and various proprietary articles, a case of champagne being offered as a consolation prize "to the one who can present best proofs that he does not smoke or chew tobacco, drink spirituous, vinous, or malt liquors, or dally with 'the s(c)hips that pass in the night.'"

"THE CHEMISTRY OF CONFECTIONERY."—Even bakers and confectioners are being driven to the acquirement of special knowledge regarding the substances they use every day in their business, and the conductors of the *British Baker, Confectioner, and Purveyor*, recognising the value of such knowledge, have commenced the publication of a series of articles under this heading. In the first article, however, which is devoted to the consideration of essential oils and resins, the method of treatment is somewhat crude. The different processes for the extraction of essential oils cannot well be described to novices in some four hundred words, and it is doubtful if many bakers or confectioners will be much enlightened by the information that essential oils may be divided into terpenes, cedrenes, aromatic aldehydes, and ethereal salts. The analytical tests and methods described are also too technical in the main for non-technical readers. Our contemporary should publish something more practical, and give details more fully, if it desires to furnish matter of definite value to its readers. Otherwise, its enterprise is to be commended and encouraged, as much as any other technical application of scientific knowledge.

PODOPHYLLUM EMODI.—According to the *Imperial Institute Journal*, Professor Wyndham R. Dunstan, M.A., F.R.S., one of the Consultative Committee of the Research Department of the Imperial Institute, has been engaged for some months in making a complete investigation of the constituents of *Podophyllum emodi*, of which a supply has been furnished to him from the Indian collection at the Imperial Institute, and their properties are being carefully compared with the constituents of the American *Podophyllum peltatum*. The results so far obtained are said to promise important conclusions as to the value of the Indian drug. It is also stated that, in conjunction with a well-known physician, Professor Dunstan is conducting experiments on the medicinal value of the resin obtained from Indian podophyllum, and in this direction such promising results have already been obtained that it has been thought desirable to extend the inquiry by examining the medicinal effects of each of the constituents that have been separated from the plant.

SCIENCE PROGRESS' for December contains little of direct interest to pharmacists. C. D. Whetham states the actual condition with regard to our knowledge of the phenomena that accompany the passage of currents of electricity through liquids, and endeavours to distinguish between ascertained facts and the necessary consequences of those facts, on the one hand, and the hypotheses which have been framed in order to explain them, on the other. The article gives a useful summary and comparison of the theories of electrolysis. Dr. E. Starling communicates the first part of an article on some applications of the theory of osmotic pressures to physiological problems, examples being given to show the many possible applications of the theory in determining the work done in the chemical functions of the body. Other papers are on "Mineral Transformations," by H. A. Miers; "The Study of the Ancient Sediments," by J. E. Marr; "Williamson's Researches on the Carboniferous Flora," by D. H. Scott; and the conclusion of Leon Asher's biographical sketch of Carl Ludwig, who, he observes, "was the first to make chemical considerations an integral part of experimental research in physiology. With his accustomed genius for analytical method he contrived to vary the chemical conditions, and thereby induced most important vital reactions. While he left the study of the constituents of the animal body to chemists, he undertook an examination of the chemical processes in the various organs, and made these work to his bid and call. Like physics and anatomy, chemistry also became in his hands a tool for the service of experimental biology."

PROCEEDINGS OF SOCIETIES.

CHEMICAL SOCIETY.—The meeting on Thursday, December 7, was devoted to the consideration of a series of organic papers, dealing with camphor and its derivatives. The first of these papers was "On the Oxidation of Camphene," by J. E. Marsh, M.A., and J. A. Gardner, M.A.

In this paper the authors gave a further account of the various products obtained by oxidising camphene with nitric acid. The main product is a tribasic acid—camphoric acid—of the formula $C_{10}H_{14}O_6$, which may be purified by crystallisation from strong nitric acid. This acid melts about 200°, and at the same time decomposes. On treatment with acetyl chloride, it loses a molecule of water and yields a monobasic anhydro-acid of the formula $C_{10}H_{12}O_5$, melting and at the same time decomposing at 204°–205°. This anhydro-acid, which they name anhydro-camphoic acid, may be crystallised from ether or acetic ether, and is soluble in water. On long boiling with water, or, better, by boiling with a dilute acid, it again takes up the elements of water forming camphoic acid.

On distillation, camphoic acid loses water and carbonic anhydride, forming a mixture of the anhydride of a dibasic acid—camphopyric acid, $C_9H_{14}O_4$—and an isomer of this acid—isocamphopyric acid. On heating to 200°, anhydro-camphoic acid loses carbonic anhydride quantitatively, forming camphopyric acid. This camphopyric acid is the lower homologue of camphoric acid, and shows a remarkable similarity to this acid in all its reactions.

The authors describe two varieties of this acid—cis- and trans-camphopyric acids—melting respectively at 208° and 194°. The isocamphopyric acid mentioned above melts at about 160°, and may be obtained by mixing the cis and trans acids in equal proportions. Cis-camphopyric acid may be converted into the trans acid through the agency of phosphorus pentachloride. They also describe in detail the action of phosphorus pentachloride on camphopyric acid, and here again it shows a great similarity to camphoric, yielding under suitable conditions camphopyryl chloride $C_9N_{12}Cl_2O_2$, and chloro-camphopyrl chloride $C_9H_{11}Cl_3O_2$. They also described chloro-camphoryl chloride.

Camphopyric acid, like camphoric acid, on long-continued treatment with hydriodic acid, yields a certain amount of hexa-hydro isoxylene. The authors also discovered among the oxidation products of camphene small quantities of camphoric acid, succinic acid, and terephthalic acid. In order to explain the chemical behaviour of camphene, more especially on oxidation, the authors proposed a new tri-dimensional formula for camphene.

Dr. Foerster next read a paper on the α-dibromo camphor, and in it showed that whereas the β compound forms a nitro-derivative when heated with fuming nitric acid, the α compound yields a compound of the formula $C_{10}H_{12}Br_2O_2$ melting at 152°, and having lactonic properties. Alcoholic potash forms the compound $C_{10}H_{12}O_3$, which on hydrolysis yields an acid, $C_{10}H_{14}O_4$. He points out that as the $\beta\,\gamma$ unsaturated acids give a lactone and mono-bromo compound, it is possible to arrive at the constitution of these compounds, and further showed that the conversion of the bromo-camphorenic acid into its campholid (or isomeric lactone), was accompanied by a very remarkable change in its optical activity, similar to that observed in the case of the sugar acids.

Dr. Lapworth followed with a paper on π dibromo-camphor, and Dr. Kipping shortly described two isomeric mono-nitro-camphors. Dr. Armstrong was also down for a paper on "Camphor and its Constitution," but owing to the lateness of the hour, contented himself by pointing out to Dr. Marsh that the bromo camphor prepared and described by him by the pharmaceutical method, differed from that obtained by the direct action of bromine on camphor, without the use of alcohol as a solvent, and in view of the fact that there seemed to be two isomeric nitro-compounds, it was important to be assured of the absolute identity of Dr. Marsh's bromo camphor, so as to substantiate the possibility of isomerism among the mono-substituted derivatives of camphor.

SOCIETY OF CHEMICAL INDUSTRY.—The Liverpool section of this Society held its second meeting of the session at University College, on Wednesday, December 4, the President of the parent Society, Mr. Thomas Tyrer, making this the occasion of his official visit to the section. A paper was read by Dr. G. H. Bailey on "The Volatisation of Salts during Evaporation." It was pointed out that during the careful evaporation of extremely dilute solutions of salts of the alkalies, quantities of the salts, albeit small, pass off with the steam. The amount of loss increases with the concentration of the solution,

and varies also with the nature of the salt employed.—A discussion followed the reading of the paper, confined mainly to a consideration of the physical conditions likely to have any influence on the production of such phenomena, which are undoubtedly of more extensive existence than has hitherto been suspected.—Several shorter communications of considerable interest were then brought before the Society, Dr. Campbell Brown illustrating the illuminating propetties of acetylene, and pointing out various difficulties in the way of using the gas as an illuminating agent, and Dr. Kohn showing an experiment illustrating some of the causes of the illuminating power of hydrocarbon vapours. Mr. Douglas Herman exhibited a highly interesting series of transparent silver films, and Mr. W. P. Thompson a number of unique specimens of embossed wood.

Society of Chemical Industry.—A meeting of the Manchester section of the Society was held on December 6 at the Victoria Hotel, Mr. G. E. Davis presiding. The Chairman welcomed Mr. Thomas Tyrer, the President of the Society, who was paying an official visit to the section. He referred to the good work done by Mr. Tyrer in his association with the journal of the Society. Without the journal to act as a stimulus the Society would have languished.—Mr. Tyrer said he thought the wishes and hopes of the founders of the Society had not been disappointed. Its growth had been periodic, and with it had been associated a great variety of mind, ability, and talent. Its business, he was glad to say, was conducted with impartiality, and without undue preference being shown to any section. Dealing with the question of technical education, Mr. Tyrer criticised adversely the existing state of affairs, It was not fine buildings, he said, that were wanted, but fine equipments. There was plenty of money, he thought, in every locality to satisfy the needs of that locality with regard to technical education. In a recent visit to America, he visited six technical institutions there, and he did not think the equal of any one of them could be found in England. Their equipments were almost perfect. In nearly every town of any size there was a college of pharmacy, and the arrangements in each department were very satisfactory. Mr. Tyrer then gave an interesting account of the great Bethlehem Ironworks in the Lehigh Valley.—Dr. Lewkowitsch subsequently read a paper entitled "Contributions to the Analysis of Fats."

Chemists' Assistants' Association.—At the meeting held on the 5th inst. there was a very satisfactory attendance to hear Mr. R. A. Cripps, F.I.C., read a paper on "Some Official Infusions and their Concentrated Representatives."

The author stated that his original intention was to prepare specimens of "concentrated infusions" by processes selected from those published on various occasions, as well as by other methods which suggested themselves to him, and to compare these products with freshly-made official infusions as to aroma, colour, taste, and extractive, supplemented in some cases by further tests. This plan had seemed preferable to examining under similar conditions, samples of concentrated infusions as sent out by wholesale houses since the latter subject had received attention on several occasions, notably by J. Barclay, who after an examination of trade specimens of concentrated infusions of gentian (*Ph. J.* [3], xxiv., 693) records a variation of from 21·11 to 38·87 per cent. of proof spirit, 2·3 to 7·2 per cent. of solid extractive, and specific gravity of ·987 to 1·013.

Whilst engaged on the necessary experiments, a paper was read by Martindale (*Ph. J.*, *ante*, p. 415) on official "Infusions and Decoctions," which evoked many useful suggestions, some of which will probably be embodied in the new Pharmacopœia, and were referred to by Mr. Cripps in his remarks. The most important are as follows:—

1. Reduction of time of infusion.

2. Adoption of a uniform strength (1 in 20), with certain exceptions.

3. Introduction of a class of preparations to represent the so-called "concentrated infusions" having (*a*) another name, (*b*) a strength ten times, instead of eight times, that of the official infusion.

Proceeding, the author championed the retention of infusions in the Pharmacopœia. He did not agree with those who would supply their place with liquid extracts or tinctures, and cited the great popularity of infusions of gentian, calumba, and senega in support of his contention. The objection often urged against them of variability was greatly due to the insufficient directions given, for degree of comminution, time, etc., and such terms as "cut small" should not find a place in the B.P., since one might interpret it as cubes of ¼ inch or so, whilst another would cut the pieces quite fine. With proper precautions in these respects, the infusions would be liable to scarcely any variation apart from that due to natural differences in the drugs used. Mr. Martindale's two most important suggestions were reduction in time and proposed greater uniformity of strength. With the first of these the author cordially agreed, and his own results, which were tabulated with those of Lyon, Barnes, and Martindale, showed that the difference in extractive percentages due to this factor are great only in the case of krameria and ergot, and to a lesser degree with buchu. In the second of these, however, the shorter time is of the utmost importance, and diminished strength can readily be counter-balanced by an increased proportion of drug. With regard to uniformity of strength, the advantages are not very apparent, for it naturally entails a change in the doses, which at present are nearly all the same. Certainly an advantage is obtained in such infusions as clove, which being merely used as vehicles do not require any alteration in dose except to bring one exception into uniformity with the others, but with the infusions of chiretta, cascarilla, and valerian, a distinct disadvantage results, for in the first case the increased strength, combined with the use of boiling water, produces an infusion containing four times the proportion of extractive, and it would perhaps be better—if boiling water be adopted—to make the strength 1 in 80 or 1 in 100, and thus retain an infusion of about the same strength as heretofore. In the case of valerian, increase of strength would necessitate halving the dose, which would then be exceptional. With regard to cascarilla, it was pointed out by Mr. Cripps, in the discussion whioh followed the reading of Mr. Martindale's paper, that the advocated change would necessitate a dose of from 2 to 4 fluid ozs.; but the latter considered the objection unimportant, on the ground that cascarilla is used only as a vehicle. Since then Mr. Cripps has obtained the evidence of a prominent medical man, who, for more than a quarter of a century has prescribed the infusion with excellent results, especially in some of the earlier stages of phthisis, and he deems this sufficient reason for the retention of the present formula. Turning to the consideration of the so-called "concentrated infusions," it was considered that the use of chloroform as a preservative was open to serious objections on account of its flavour and liability to volatilisation, and that alcohol was the most preferable, as in addition to its preservative power it increased the solubility of such resinous principles or volatile oils as may be present in the drug. The term "concentrated infusion" was characterised as very unsuitable, since the alcohol present will cause the precipitation of the mucilage, which ought to be present in the diluted preparation if it is to correctly represent the official infusion, and Professor Attfield's remark was quoted in support of this, that if an infusion be really concentrated to one-eighth of its original bulk, the resulting extract will, when diluted, produce a solution of plant principles extremely unlike the original infusion. Of the three terms, essentia, liquor, and mistura, which had been suggested by the latter, preference was decidedly given to the first by Mr. Cripps, who considered the terms "liquor," and "liquid extract" were obviously unsuitable. If the term "essentia" were adopted, he thought that a strength of 1 in 10 would be of advantage in accordance with the tendency of decimalism, and would have the effect of causing dispensers to dilute the preparation first, instead of adding 6 or 8 drachms of the parent concentrated infusion, regardless of the volume occupied by other ingredients. It was to be remembered that the official recognition of "essentiæ" in no sense condoned their use in place of fresh infusions.

The remainder of the paper was devoted to the consideration of six of the most important infusions—calumba, quassia, rose, senega, orange, and gentian.

Calumba.—Moffat (*Ph. J.* [3], xx., 683) advocates its preparation by macerating the sliced root in cold water for twenty-four hours. It is then strained, and a portion having been reserved and mixed with rectified spirit, so that the finished product may contain 20 per cent., the remainder is evaporated over a steam or water bath. The process is continued until exhaustion is complete, when the evaporated product is boiled to precipitate mucilaginous matter and effect sterilisation, and added to the spirituous reserved portion. Objection was taken to this method on the ground that so large a proportion of the liquor is subjected to the heat of evaporation, and the following experiments were carried out, the root in each case being in No. "6" powder.

1. Fresh infusion 1 in 20.

2. Fresh infusion evaporated to one-tenth, and 20 per cent. of final volume of S.V.R. added.

2*a*. Fresh infusion evaporated to one-tenth, and 15 per cent. of final volume of S.V.R. added.

3. Damped with chloroform water (1 fl. oz.=1 M.), and after packing percolated with the same menstruum, reserving part of the required quantity of percolate. Evaporated the remainder, added to reserved portion, boiled the mixed liquors, and added S.V.R. to make 20 per cent. of finished preparation.

3*a*. Ditto, using 15 per cent. of S.V.R.

4. Repercolation with a mixture of S.V.R., 1 fluid part, and water, 4 fluid parts.

It was found that No. 4 was decidedly superior in aroma, and equal to the fresh preparation, whilst there was little or no perceptible difference in taste.

The solids were as follows :—

1.	B.P. × 8=6·02 per cent.	3.	=5·97 per cent.
2.	=5·04 „ „	3*a*.	=5·82 „ „
2*a*.	=4·78 „ „	4.	=7·11 „ „

All gave a faint turbidity with Mayer's reagent, the fresh not more pronounced than the concentrated. It was found that repercolation gave the best results, and it was recommended that the "essence" should be stored in a warm place, the proportion of S.V.R. being not less than 20 per cent. by volume.

Quassia.—Moffat gives the same process as for calumba, but only single maceration.

The following were prepared with a coarse powder :—

1. B P. infusion (1 in 80).

2. B.P. infusion 1 in 80 with boiling water.

3. Cold maceration for twenty-four hours without evaporation. Finished product to contain 20 per cent. S.V.R.

3*a*. Ditto. Finished product to contain 16 per cent. S.V.R.

3*b*. Cold maceration. Strained product boiled. Finished product to contain 16 per cent. S.V.R.

4. Ditto. Using boiling water for infusions of sixteen hours ; 20 per cent. of S.V.R.

4*a*. Ditto ; 16 per cent. of S.V.R.

4*b*. Ditto. Infusion was boiled before adding 16 per cent. of spirit.

4*c*. Marc from above treated with 4 ozs. more water, strained, and 20 per cent. S.V.R. added.

5. Percolation with aqueous menstruum containing 20 per cent. S.V.R.

6. Percolation with water alone, followed by boiling ; 20 per cent. of S.V.R. added.

The preparations made by hot infusions were more bitter and rather darker in colour. The solids were :—

1	× 8=·116 per cent.	4*a*	= ·202 per cent.
2	„ 8=·192 „	4*b*	= ·214 „
3	=·170 „	4*c*	= ·122 „
3*a*	=·158 „	5	= ·164 „
3*b*	=·174 „	6	= ·188 „

Percolation gives no advantage over maceration, hence the latter is to be preferred.

Rose.—Extraction by pressure has been advocated by Moffat, but Mr. Cripps stated that the petals are apt to go very spongy and break the press cloth. He had obtained the best results by :—

1. Maceration in equal parts of spirit and water for forty-eight hours, followed by percolation with water, the sulphuric acid being added to the percolate before making up to the final quantity. Allow to stand for seven days, decant, and filter the residue.

2. Percolation of the petals in "No. 6" powder with a mixture of spirit and water (1 to 4) ; the acid is added when percolation is complete.

Senega.—Moffat proposes the same process as for calumba, but also suggests that aqueous re-percolation would probably give good results. This was afterwards carried out by Hendry (*Ph. J.* [3], xxii., 663), but the author having compared the latter's results with several others, found that the aroma is not so good as when prepared by maceration in a mixture of equal parts of spirit and water, followed by percolation with water, or by re-percolation with menstruum containing 20 per cent. of spirit. All the processes tried yielded products which were satisfactory in colour, but the taste was difficult to determine on account of its persistence. All the infusions deposited, more or less, the maximum being noticed in those which had been boiled. The B.P. infusion yields the largest percentage of extractive, followed by that prepared by repercolation with 20 per cent. S.V.R. without subsequent filtration. An attempt was made to determine the proportion of saponin in the more important cases, and from the results obtained it was concluded that by keeping a preparation containing 20 per cent. of spirit considerable changes occur whereby saponin is converted into saponegin. When dispensing concentrated infusion of senega, the bottle should always be shaken. The fact that it is nearly always prescribed with ammonium carbonate ensures the solution of the deposit.

Orange.—Moffat suggests aqueous repercolation. This process Mr. Cripps had not tried, although he purposed doing so. He had prepared :—

1. B.P. infusion.

2. Percolation with 20 per cent. S.V.R.

3. Percolation with 25 per cent. S.V.R.

4. Digestion with equal parts of S.V.R. and water, followed by percolation with water.

It was found that No. 4 blocked the percolator hopelessly. Nos. 2 and 3 gave fairly good results as to aroma and flavour, but the proportion of mucilage is so great that the solid extract after filtration is low, and, moreover, a large deposit forms on keeping. The percentages of solids were—

1. ..... 1·79 per cent.
2. ..... 1·19 „ „
3. ..... 1·18 „ „

Gentian.—Of the many formulæ proposed for this, the author had tried seven. Moffat prepares it by repercolation of the orange and gentian with cold water, adding a tincture of lemon peel ; Johnstone, by maceration of all the ingredients in 33 per cent. spirit, followed by boiling water.

The processes tried were :—

1. B.P. infusion.

2. Fresh infusion ¼ hour.

3. Johnstone's process.

4. Moffat's process.

4*a*. Moffat's process, the percolate being boiled before adding tincture of lemon.

5. Repercolation with tincture of lemon and water.

6. Moisten with tincture of lemon, followed by percolation with cold water.

7. Same as No. 6, percolating with boiling water.

The proportion of solids in the clear preparation were :—

1.	1·08 per cent.	4*a*.	·76 per cent.
2.	1·04 „ „	5.	·91 „ „
3.	·74 „ „	6.	·89 „ „
4.	·77 „ „	7.	·80 „ „

It was considered that the best results were obtained by No. 5, the colour being nearest to the fresh, whilst it had a good aroma of gentian. Johnstone's and Moffat's preparations were slightly superior in the aroma of lemon.

Mr. W. Roberts remarked that he had prepared concentrated infusions of gentian by adding a tincture of orange peel to an aqueous preparation of the other drugs, and had found it answer very well. He had also obtained good results with infusion of roses preserved by the aid of sugar. He was not in favour of the term "essentia," but would prefer the one in general use "concentrated infusion."

Mr. A. T. Hill asked if Mr. Cripps had noticed any difference in the colour of infusion of calumba prepared in summer and in winter. His experience was that the former was much darker.

Mr. R. H. Jones was of opinion that the percentage of extractive, being an arbitrary standard of comparison, should not cause the consideration of aroma and elegance in appearance to be neglected, especially as the former often referred to inert matter. He thought that the fact that Mr. Barclay had found two samples of concentrated infusion of gentian, equal to if not better than the first preparation, indicated that it was quite possible to represent the first infusion by a concentrated preparation, and he did not advocate the inclusion of both classes of these preparations in the Pharmacopœia, as it might lead to confusion. With regard to infusion of ergot, he disapproved of using twice the amount of drug and infusing for fifteen minutes. Some years ago he had obtained very good results with concentrated infusion of senega prepared by Moffat's process, and he would like to know if Mr. Cripps considered saponin the body to which the drug owed its activity.

Mr. C. D. Moffat said he was bound to confess that his views as to the preparation of some of the concentrated infusions had been modified since reading the paper to which Mr. Cripps had referred, and at the present time he would not advocate evapora-

tion except in very rare instances. Five years ago extraction by pressure and repercolation was just beginning to receive the attention it merited for the preparation of this class of galenicals, and he had obtained excellent results by the first process, especially with senna, rhubarb, and buchu. With regard to aqueous repercolation for orange, he had found the process eminently satisfactory, and exhaustion was attained with great facility so long as care was taken not to pack the drug tightly into the percolators, otherwise the clogging, which Mr. Cripps had complained of when working with a 50 per cent. spirit menstruum, would certainly occur. It was well to note that Alcock showed two years ago that freshly-prepared infusions varied in extractive equally with their concentrated representatives.

Mr. C. Morley considered the term "concentrated infusions" a very suitable one to apply to the stronger preparations, for although literally a misnomer, they exist merely for the purpose of approximating as nearly as possible, when diluted, to the fresh infusion, and are seldom given in their original form. In fact, though generally prepared by processes other than infusion, they yield such a preparation in effect. From a pharmacist's point of view he was opposed to their introduction into the Pharmacopœia, seeing that the opportunity would then be lost to conscientious dispensers of showing superiority over those who made use of the concentrated preparations. In addition, standardisation would be necessitated, and the temptation to buy factory-made preparations would be increased.

Mr. G. Roe remarked that the infusion of ergot was seldom dispensed by the pharmacist, the tendency being more in favour of the liquid extract. His experience of chloroform as a preservative had not been satisfactory.

Mr. W. H. Jones suggested the term "Infusum (or Decoctum) Fortior." He did not consider that the term "infusion" could be correctly applied to a preparation in which various strengths of spirit had been used for extraction.

The President (Mr. E. W. Hill) expressed the indebtedness of the Association to Mr. Cripps for bringing the result of so much practical work before them. He thought that Mr. Cripps had somewhat over-rated the importance of infusions, those of strong drugs being very little used, owing to their indefinite strength; while the "aromatics," which were chiefly used as vehicles, had not up to the present been well represented by concentrated preparations.

Mr. Cripps having briefly responded to the various points raised, a hearty vote of thanks was accorded to him with acclamation, and the meeting then terminated.

Exeter Chemists' Association.—A movement is on foot at Exeter to establish a junior section, under the auspices of this Association, somewhat on the same lines as the junior section of the Chemists' Association at Plymouth. Such an organisation is believed to be very desirable in the city now that the pharmaceutical classes have been started at the Technical College attached to the Albert Memorial Museum under the conductorship of Mr. Ware. The inaugural meeting will probably be held in January. The movement is to a large extent the outcome of the recent visit of Mr. Carteighe to Devonshire. The promoters have every reason to hope that the materia medica cabinet, which the Pharmaceutical Council has decided to grant the Association, will prove very useful to the members of the proposed junior section.

Liverpool Chemists' Association.—At the meeting on Thursday, Nov. 28, Mr. Harold Wyatt, junr., read the following note :—

"*A Reaction of Ammonium Ichthyol Sulphonate*," *by Harold Wyatt, junr.*

A prescription I had to dispense recently has been the means of bringing under my notice a decomposition which takes place when ammonium ichthyol is brought into contact with alkaloids or their salts.

The formula ran as follows :—

℞ Morphina hydrochlor	gr. iv.
Ichthyol ammon	gr. xxx.
Ung. petrolei .....ad.	℥i.

Misce fiat unguentum.

On rubbing the morphine hydrochlorate with the ichthyol on an ointment slab, the smooth cream at first formed suddenly became clotted, drops of watery liquid separated, and the clotted portion left the tile and adhered to the spatula. By the addition of two grains of powdered soap I was finally able to turn out a smooth and presentable ointment.

In an attempt to explain the decomposition (for such it undoubtedly was), morphine hydrochlorate and ichthyol were heated over a water bath until the ichthyol became solid, leaving a clear aqueous liquid containing chloride of ammonium, which was proved by the application of the usual tests. It was evidently an instance of double decomposition, resulting in the formation of a morphine ichthyol sulphonate and ammonium chloride. The pure alkaloid morphine gave a similar compound with the liberation of ammonia gas. When quinine hydrochlorate was decomposed by the addition of successive portions of ammonium ichthyol to a hot aqueous solution placed over a water bath until there was only a slight precipitate, on testing a drop of the aqueous liquid with Dragendorff's iodo-bismuthic alkaloid reagent a quinine ichthyol of a peculiarly brittle character was the result. The following equation probably represents the reaction :—

$$\underset{\text{Ichthyol ammonium}}{C_{28}H_{36}S_3O_6(NH_4)_2} + \underset{\text{Quinine hydrochlorate}}{2(C_{20}H_{24}N_2O_2HCl,2H_2O)}$$

equals

$$\underset{\text{Quinine ichthyol-sulphonate}}{C_{28}H_{36}S_3O_6H_2{\cdot}2(C_{20}H_{24}N_2O_2)} + 2NH_4Cl + 4H_2O$$

From this it will be seen that alkaloids form ichthyols as readily as do the alkali metals, the resulting ichthyols being of firmer consistence, and well suited to internal administration in pilular form.

Dr. Symes, in proposing a vote of thanks to the author, said that here was a dispensing difficulty which had been overcome successfully, but Mr. Wyatt had not stopped at that point, as is usually the case, but had gone further and tried to get at a satisfactory explanation of the cause, with the result that he had added a little more to the knowledge already possessed of those complex bodies, the ichthyols. In supporting the vote of thanks Mr. Conroy complimented Mr. Wyatt on his practical paper.

Professor R J. Harvey Gibson, M A., F.L S., Professor of Botany in the Liverpool University College, then proceeded to give his promised lecture, as follows :—

"*Some Old-Time Herb Gardens*," *by Professor R. J. Harvey Gibson, M.A., F.L.S.*

The lecturer explained that his reason for taking such a subject for his discourse as "Herb Gardens" was that it was only by a careful consideration of their history that one could really understand the development of the science of botany, from the fact that originally the botanical gardens existed merely for the practical purpose of supplying medicinal plants for the apothecaries use, and were therefore only herb gardens destitute in the first place, at any rate, of any scientific value. In ancient Rome, the only garden of this kind of which any reliable record is obtainable, is that of Antonius Castor, a physician who lived beforo Virgil's time; whilst the gardens of Theophrastus and Aristotle, in Greece, were of similar nature. Between these and the first evidence of any awakening to the importance of a study of the vegetable world there is a space of some ten or more centuries until such botanists as Fuchs; in the 15th century, began to busy themselves trying to discover in the west of Europe the plants mentioned in the old Greek and Roman classics, and having identified these as they thought, they wrote treatises and herbals on them purely of a literary character, and of little use scientifically. A careful worker and expert botanist, Gaspard Bauhin, of Bâle (1560-1624), may be regarded as the father of the modern science of botany, though his fame is so overshadowed by that of Linnæus and others that he seldom receives his due mead of praise. He it was who, throwing aside the arm-chair method of botanising indulged in by his predecessors, went into the fields gathering his specimens, and then in his study attempted to describe them and classify them according to their family characters, that is to say, he first attempted a natural classification. In addition to this he employed first a binominal nomenclature. Andrea Caesalpino in the 16th century proposed an artificial classification, and the great Linnæus coming forward with his own system, the natural method was quite lost sight of or disregarded, though Linnæus himself said he believed that ultimately a natural system would be that universally followed.

By the botanical results of the travels of Clusius and others, the researches in plant anatomy of Malpighi, and the microscopical investigations of Sprengel, Kölreuter, and the Englishman Hales, the science of botany may be said to have been fairly established as a new field for research, upon which numerous workers rapidly entered. Thus botany as a science was the result of a study of

the elements of the vegetable world from purely utilitarian motives, that is to say, with a view of determining their usefulness in medicine and the healing arts. As regards the herb gardens of the middle ages there is little authentic information to be gleaned, that at Monte Cassino in Catania 1309, in the Benedictine School of Law and Medicine, and another formed by Gualterius in 1333 in Venice, on a piece of ground given to him by the Municipality for the purpose of growing medicinal plants, as is recorded in the archives of the city, are the only ones of which we have any trustworthy data. The garden of Padua, founded by Francesco Boardafidi in 1535, was then described minutely by Professor Gibson, from its being the first of the numerous gardens which rapidly sprang up in Italy about this time, followed by that of Leyden University in 1577, and Montpellier, the most famous of the French gardens, in 1596. Richard de Belleval, a native of Picardy, the founder of the garden of Montpellier, obtained land from the Parliament of Languedoc for the purpose of making a collection of living plants with which to assist the professors of the Montpellier Medical Faculty in illustrating their lectures.

For this purpose the medicinal plants were grown in a part of the garden distinct from the rest, and in strictly alphabetical order, so that here in Belleval's garden we have a separation of the purely economic and the scientific sides of botanical gardening nearly akin to that existing at the present day. The botanists of the time esteemed very highly the work done in this Montpellier garden, and speak of it with the greatest respect. It was greatly damaged during the siege of 1622, but soon recovered, thanks to the energy shown by Belleval under the powerful patronage of Cardinal Richelieu. After the death of Belleval, in 1632, the order in which the garden was laid out was twice changed, first to Turnefort's system and lastly to that of Linnæus, but when A. de Candolle was appointed custodian he soon had it altered to his own classification upon the natural system. Whilst he was director glasshouses and an arboretum were added, and when he left to take up the appointment of Professor of Botany at Geneva the Montpellier Gardens were at the acme of their fame. Various other gardens of a like nature were founded on the Continent about the same date as that of Montpellier, those at the Universities of Heidelberg, Breslau, and Leipzig, and the Jardin des Plantes in Paris during 1597. This latter owes its being to the King becoming tired of the want of variety exhibited in the flowers forming the bouquets of his court ladies, to remedy which he caused the Jardin to be instituted so that a sufficient change to satisfy his Majesty's exacting taste might always be forthcoming. The result in the long run, however, was such that a Professorship of Botany was founded in 1630. Many other towns followed suit, Strasburg in 1619 Jena in 1629, Oxford in 1632, Messina in 1638, Chelsea in 167 Edinburgh in 1680, and Berlin in 1714. The Chelsea Physic Garden is the oldest public botanical garden in Great Britain, but there were private ones of older date, such as that of Gerard, the author of the herbal, which was situated in Holborn, and that of Tradescant, the famous Dutch traveller, gardener to James I., who had an extensive garden of exotic plants in Lambeth.

The founders of the Chelsea Garden were the members of the Society of Apothecaries, who have maintained it for over two centuries entirely for scientific purposes, as was stipulated in the deed of gift, executed by Sir Hans Sloane, in which the growing or cultivation of plants for purely pharmaceutical purposes, or for trade was strictly forbidden. The origin of this so-called Physic Garden was somewhat amusing, and anything but scientific. The ground was first fixed upon as an eligible spot for building a boat-house for the state barge of the Apothecaries' Company. This ground was walled in about 1674, and planted with trees in 1678, and herbs were grown in it for use in the company's laboratories, some of these plants being from time to time exchanged for others from the University of Leyden. Sir Hans (then Dr.) Sloane bought the estate in 1712; and, as might have been expected of a man of his parts, a pupil of the chemist Stahl and of the botanist Tournefort, and a friend of the great Ray, a new era of usefulness was begun in the Chelsea Garden. In 1722 he handed over the land to the Apothecaries' Society, at a yearly rental of £5, and an undertaking that 50 specimens of 50 species of distinct plants, well dried and mounted as herbarium specimens and properly named should be handed over to the Royal Society each year until 2000 had been duly delivered. In a catalogue issued in 1730, written by Miller, the head gardener, are enumerated 499 plants, mostly medicinal, so one may judge of the extent of the gardens at that time. Exotics were cultivated in hot-houses in 1732, and in 1736 Linnæus paid a visit to the garden, shortly after which the plants were arranged according to his system. The directorate of the Chelsea gardens exhibits many notable names:—Hudson, the author of 'Flora Angelica'; Curtis, editor of the 'Botanical Magazine'; Sherard, the founder of the Sherardian professorship at Oxford; and Lindley, the noted systematist, are a few of the principal.

Professor Gibson then briefly described the garden of Upsala, founded by Rudeck in 1660, and under the direction of Linnæus in 1742, the first garden laid out entirely on scientific grounds, the properties of the plants being ignored, and only their botanical character considered, so that one was able to see that the gardens of Padua, Montpellier, and Upsala, represented the three steps from the utilitarian to truly scientific botanical garden. The gardens of Kew, St. Louis, Madrid, and that at Buitenzorg in Java, were then mentioned by the lecturer, and illustrated by numerous photographs shown by the optical lantern. Many of these had been specially prepared for the lecture, which was listened to with unflagging interest by a highly appreciative audience.

At the close a vote of thanks was proposed by the President to Professor Gibson, and supported by Messrs. T. F. Abraham, P. H. Marsden, T. H. Wardleworth, and others.

Plymouth, Devonport, Stonehouse, and District Chemists' Association.—At a meeting of the Committee of this Association, held at Plymouth on Tuesday evening, December 3, two new members were elected, namely, Messrs. Hester and Vibert. It was decided that a conjoint ball be held by the senior and junior section in January next, the ball held by the junior section at the Foresters' Hall, in April last, having been a great success.

Liverpool Pharmaceutical Students' Society.—The meeting postponed from November 28, was held in the University College on Thursday evening, December 5. A miscellaneous communication was given by Mr. Edwin Williams, advising that in making the B.P.C. emulsio morrhuæ, shaking should be tried in preference to using a mortar. Several members agreed with Mr. Williams, and Mr. Wyatt said that his experience with similar emulsions containing powdered tragacanth was that the quickest way, and at the same time the best, was to put the gum into a dry bottle, about twice the capacity of the quantity of emulsion being made, add the flavouring essences dissolved in enough S.V.R. to well wet the gum, then pour in the oil, shake, and finally add the aqueous portion of the vehicle and continue shaking vigorously until an emulsion was formed.

Mr. Theo. H. Wardleworth passed round for the members' inspection specimens of Tara beans—legumes rich in tannic acid, brought from Peru, and used in tanning, produced by the *Coulteria tinctoria*.

The President, Mr. T. S. Wokes, then called upon Mr. R. H. Mitchell to read a paper upon "Ointments."

Mr. Mitchell first drew the attention of the members to Mr. Gerrard's paper on the ointments, published in May of this year, and the series recently printed in the columns of the *Pharmaceutical Journal*. The paraffin bases, he said, were used in the B.P. of 1885 in anything but a sensible fashion, and with a very small amount of discrimination. Hydrated wool-fat at present was almost in a similar position, and it was to be hoped that the mistake of using it in every formula would not be made in the forthcoming Pharmacopœia. The various ointments were then discussed in detail, as follows:—

Ung. Acid. Borici is unsatisfactory, being too hard. A better formula is, 5 parts soft paraffin, 1 part hard paraffin, and as many surgeons prefer a softer ointment than even this formula produces, it would be well to have an

Ung. Acid. Borici Molle made of the same strength as the B.P., but with white soft paraffin.

Ung. Acidi Carbolici.—This is also too hard, and has the serious objection of being so strong in acid that, on standing, the phenol crystallises out. The strength should be reduced to 1 in 30, and 3 parts of soft paraffin and 1 of hard used instead of the present base.

Ung. Acid. Carbol. Molle made with soft paraffin should also find a place in the Pharmacopœia.

Ung. Acidi Salicylici should be made with lard.

Ung. Antim. Tart. would be better if the antim. tart. were rubbed down with glycerin first, so as to make a smoother ointment.

Ung. Belladonnæ is right as regards its efficacy, but its colour is not pleasing to medical men nor to their patients. An alcoholic extract of belladonna leaves would give a brighter and more presentable ointment.

Ung. Calaminæ is recommended for omission, and correctly, too.

Ung. Cantharidis is very tedious to prepare, and seldom prescribed. Squire's suggestion to use liq. canth. conc. made with acetic ether, added to the lard, might be adopted with distinct advantage.

Ung. Cetacei should have the benzoin omitted, as it causes irritation. A writer in the *Pharmaceutical Journal* recommends the Greek formula: Equal parts of olive oil, white wax, and spermaceti. This may do for Athens, but in our Liverpool climate it seems more suitable for making into wax candles than for use as an ointment.

Ung. Chrysarobin does not yield a smooth ointment. Made as follows the result is all one can desire: Chrysarobin, 20 grs.; glycerin, 60 minims; benzoated lard, 1 ounce. Melt the lard, rub the chrysarobin with the glycerin, and, when smooth, add the melted lard.

Ung. Capsici should be included, made from the B.P.C. formula.

Ung. Creosoti, *Elemi*, *Eucalypti*, and *Gallæ* are recommended for deletion. This would be quite a mistake as regards the latter two at any rate. The ung. eucalypti should be softer and weaker in oil.

Ung. Hydrargyri, if made from Gerrard's formula (mercury, 2 parts; hydrated wool-fat, 1 part; benzoated lard, 1 part), is very easily made and keeps well. It should be called ung. hydr. fort., and a dilute ointment, or ung. hyd. mitius (1 ung. hyd. fort. to 2 parts adeps), should be included in the ointments, for if the fort. is sold as mercurial ointment, it is so strong that there is great danger of its incautious use producing salivation; besides, the medical men frequently order milder mercurial ointments.

Ung. Hydrarg. Co. ought not to be omitted, and should be made by melting all the ingredients together as Squire advises.

Ung. Hyd. Nit. is satisfactory, but the mild form would be better prepared with lard instead of soft paraffin, when it would be less liable to discoloration.

Ung. Hyd. Oxid. Flav. ought to find a place in the Pharmacopœia, as its use is extensive in ophthalmological practice for painting the eyelids. I would suggest this form: Hyd. ox. flav., 5 grs.; paraff. molle, 1 ounce.

Ung. Hyd. Oxid. Rubr. has caused considerable discussion, and is characterised by Mr. Gerrard as "bad medically and pharmaceutically," and one which "can only be got smooth by making small portions and wasting much time over the final mixing." It is certainly the reverse of an ideal formula, but not quite so bad as Mr. Gerrard would have one believe. From its uses a paraffin base is best to make it with, as the hyd. ox. is not intended to be absorbed. A good ointment is made with hyd. ox. rub., 2 ozs., 124 grs.; paraffin dur., 3 ozs.; paraffin. molle, 13 ozs.

Ung. Ichthyol would be a useful addition if made as follows:—Ammonium ichthyol, 80 grains; hydrous wool-fat, ½ oz.; benzoated lard, ½ oz.

Ung. Iodoformi should be made with hard and soft paraffin, and is then a better ointment medically, keeping very well.

Ung. Picis Liq.—According to the writer of the *Pharmaceutical Journal* series of articles on the ointments, this is "faultless, retaining its consistent softness," etc. He must live in a warmer climate than we do in the North, as my experience leads me to say this ointment is much too stiff. Mr. Gerrard uses, instead of half the wax, an equal amount of wool-fat (hydrous), whilst Mr. Squire substitutes almond oil. Gerrard's method gives the best results.

Ung. Plumbi Subacet., *Plumb. Carb.*, *and Pot. Sulphuratæ* it is proposed to discard. The two first are not much used, but the latter is better if the pot. sulphurata be rubbed with S.V.R. before adding the lard.

Ung. Plumbi Oleatis would be a welcome addition made by the formula of Kaposi: Lead plaster and paraffin. molle, equal parts.

Ung. Resinæ.—This, like the ung. hyd. ox. rubr., is a fruitful cause of annoyance from its absurd stiffness. Resin, 8 ounces; yellow wax, 4 ounces; olive oil, 16 ounces, is vastly superior.

Ung. Sabinæ.—If this be deleted, an oleum sabinæ and benzoated lard ointment would be a good substitute.

Ung. Sambuci Viride might be introduced and a good formula given. The commercial samples all show a tendency to bleach and turn rancid.

Ung. Simplex is too hard in cold weather and apt to become lumpy and rancid. The rancidity is, perhaps, caused by too much stirring and beating to form a white ointment. A softer ointment is wanted, one made with half the quantity of wax would do.

Ung. Staphisagriæ has a formula the opposite of scientific: the expressed oil should be used to make it.

Ung. Sulphuris.—Those who have used sulph. præcip. for this will be able to appreciate the improvement in appearance and the ease of manipulation resulting from the innovation.

Ung. Sulph. Iodid.—Benzoated lard should be used for this from its being more readily absorbed, and 40 minims of S.V.R. to the ounce should be added to rub the sulphur iodide down with, when a marked difference in the smoothness of the ointment will be noticed. The suggestion of Mr. Prott, of Belfast, of dissolving the sulphur and iodine in the heated base in chemical proportions does not appeal to me as an up-to-date method of dealing with this ointment.

Ung. Terebinthinæ is sometimes prescribed, and should be retained.

Ung. Veratrinæ, made with paraffins, is a mistake. Hydrous wool-fat should be used with an equal quantity of benzoated lard.

Ung. Zinci and *Zinci Oleatis* are both satisfactory.

In concluding, Mr. Mitchell said he did not lay any claim to great originality, but had not suggested any changes he had not tried and found to answer in practice. A brisk discussion followed, most of the members present participating.

Mr. Edwin Williams then opened a discussion upon the subject "Is the Pharmaceutical Society Worthy of Our Support." He pointed out that no considerable improvement in the condition of pharmacy could take place unless each member of the trade were a member of the Society, and paid into its funds. It could then be moulded into any shape the members pleased, and they could get anything out of it they wished within reason. A discussion followed, in which the President, Messrs. Marsden, Jackson, Pierson, Mitchell, and Ashworth joined, and a vote of thanks was accorded to Mr. Williams for his paper.

PROCEEDINGS UNDER THE PHARMACY ACT.

The Sale of Poisonous Ant-Destroyer and Weed-Killer.

On Tuesday last, before Sheriff-Substitute Gebbie at the Dumbartonshire Sheriff Court, James Bryson, seedsman, 11, Princes Street, Helensburgh, was charged at the instance of the Pharmaceutical Society with having contravened the 15th Section of the Pharmacy Act, in that he kept open shop for the sale of poisons, having on May 30 last sold to Alexander Spence, chemist and druggist, 133, High Street, Linlithgow: (1) a quantity of arsenic as an ingredient in a bottle of "Ballikinrain Ant-Destroyer," and (2) a quantity of arsenic as an ingredient in a tin of "Smith's Perfect Powder Weed-Killer," whereby he became liable to a penalty of £5. Respondent was defended by Mr. Hugh H. Osmond, writer, Helensburgh, and Mr. Robert Macfarlane, writer, Dumbarton, prosecuted. Respondent pleaded not guilty.

Mr. J. Rutherford Hill proved that respondent's name was not on the Register of Chemists and Druggists, and that the "Ballikinrain Ant-Destroyer" and "Smith's Weed Killer," purchased of defendant, contained a very large quantity of arsenic. If the seller had been a qualified chemist and druggist, there could have been no objection in the world to his selling these preparations, as he would then have had a special knowledge of poisons, and would be generally understood to exercise care in virtue of his qualification.

Alexander Spence deposed as to the purchase of the preparation. He called at Mr. Bryson's shop when it was in charge of defendant's sister, Mrs. Keith, who stated that she was there temporarily. Having asked for a bottle of "Ballikinrain Ant-Destroyer," Mrs. Keith told him to look for it himself, as she was not acquainted with the arrangement of the shop. Witness saw the bottle on a shelf and pointed it out to her. She handed it over to him, and he paid half a crown for it. He next asked her for "Smith's Weed Killer." After looking about for some time, Mrs. Keith said she had seen it somewhere in the shop that day, but could not lay hands on it, and asked him to go back in an hour, when Mr. Bryson would be in himself. Witness did so, and Mr. Bryson then said he had not got it in stock. A chemist, he said, kept it for him, but he would get it for witness, who said he would be passing in half-an-hour, and Bryson told him he would have it ready by that time. On returning in half-an-hour he obtained a tin, paying 1s. 9d. for it. The tin was lying on the counter, and Bryson when wrapping it in the paper told him the

preparation contained poison, and that he had to get the signature of the purchaser. But he said that "it was merely a farce," and that "people might as well be poisoned by a weed-killer as by any other poison." He said it was just the law, and he would have to do what the law said. Witness signed a receipt showing that it was poison, and noticed that Mr. Bryson's signature was also attached. Printed on the sheet were the words:—"Introduced by James Bryson." Mr. Bryson, in further conversation with him, said he sold this weed-killer and lots of other poisons. He did not ask witness where he resided, or anything else.

At this stage, the Sheriff interposed, and asked what the defence was?

Mr. Osmond; My defence is that I quite admit the sale of the "Ant-Destroyer," but I did not sell it, and I did not keep the "weed-killer." My position is this: Mr. Bryson five or six years ago was asked to take up the agency in Helensburgh for the "Weed-Killer." The makers subsequently informed him that there might be difficulty under the Act about his selling it, and that it would be better to arrange with a chemist to take over the agency. He did so, and transferred the agency to Mr. Harvie, a chemist in Helensburgh.

Sheriff Gebbie: Your defence is that you purchased the "Weed-Killer" from the chemist, and sold it for him?

Mr. Osmond: No, not quite that, my lord.

Sheriff Gebbie: Did he not pay the chemist for it?

Mr. Osmond: Certainly.

Sheriff Gebbie: And in law, you, having sent to the chemist's for it, and bought it and sold it to the customer, are under the Act.

Mr. Osmond: I did not buy it in that way. The chemist sold it to anybody who came from Mr. Bryson with an order. We sent over this schedule to the chemist, signed by Mr. Bryson as introducing the customer, and on receipt of this order, the chemist issued the preparation. We have this signed by Mr. Spence, countersigned by Mr. Bryson, who introduced him, and countersigned by Mr. Harvie.

Mr. Macfarlane: It seems to mo that this is an attempt to evade the Act.

Mr. Osmond: No; there is no evasion. Mr. Bryson tells this witness that he has not got "Weed-Killer," but that he will get it for him. He signs this paper and sends across to the chemist for the preparation, then gives the purchaser the tin.

Sheriff Gebbie: Just so, and he pays the money. The question is whether respondent is liable to a penalty for selling it in this way.

Mr. MacFarlane: And then, there is the advertisement "sold by James Bryson."

Mr. Osmond: The explanation of that is this. He had some of those handbills in his shop when he held the agency, and neglected to destroy them.

Mr. MacFarlane: Then the observations of Mr. Bryson to witness were accompanied by the further remark that he sold several other poisons?

Mr. Osmond: I have evidence to show, as regards the "Ant-Destroyer," that it was kept for the convenience of one or two customers—that it was not for profit it was kept. Practically almost nothing of this "Ant-Destroyer" was sold.

Sheriff Gebbie: But respondent had it in his shop. (To witness), What did he say to you about the "weed-killer?"

Witness: He said the chemist kept the stuff for him.

Mr. Macfarlane: Was the signature of "George Harvey, chemist," attached to the schedule when you signed it?

Witness: No; nothing but James Bryson.

Mr. Macfarlane: Is it correct to say that Bryson introduced you to George Harvie, chemist?

Witness: No; I was introduced to no one.

Minnie Florence Ashton, or Williamson, said that she had assisted as saleswoman in Mr. Bryson's shop. It was customary when people came in asking for "Smith's Weed-Killer" to get them to sign their name and address to a form, give them an order on the chemist for the stuff, and then witness entered the transaction in a book. There was no such thing as going with a purchaser to the chemist's shop and introducing him.

Henry Taylor Harvie, son of Mr. Harvie, chemist, Helensburgh, said his father was a registered chemist, and local agent for "Smith's Weed-Killer," of which a stock was kept in the shop. They frequently got orders from Bryson for that preparation. Mr. Bryson got half the profit on the orders he sent to them.

Mr. Macfarlane then addressed his Lordship. With regard to the "Weed-Killer," it occurred to him that Mr. Bryson had simply resorted to a very clumsy arrangement to evade Section 15 of the Act. He did not say that Mr. Bryson was doing that according to his own judgment of the thing, but the device was altogether clumsy. The whole case appeared to him to be as strong as it was possible to be, and much stronger than that recently decided in Edinburgh against a dealer in photographic chemicals.

Mr. Osmond maintained in reference to the sale of the "Ant-Destroyer" that only a mere technical breach of the law had been committed. These proceedings were extremely unusual, so unusual, that in the case of the photographic material dealer, in Edinburgh, a special test case was made of it. He presumed the Pharmaceutical Society was working chiefly in the interests of chemists, the idea being, and it was a perfectly natural one, to keep the sale of poisons to their own profession. He fancied that this case was meant simply as a warning. It could not have been raised through vindictiveness against Mr. Bryson, because he was not injuring the Society, but simply as a warning to seedsmen and florists. As to the arrangement with the chemist, he submitted there was no attempt whatever to evade the Act on the part of Mr. Bryson, who thought he was perfectly entitled to do as he did. Further, the chemist was not stocking this particular preparation merely to cover Mr. Bryson against prosecution, because Mr. Harvie sold it to other customers. It was the chemist also who supplied the stuff to Mr. Bryson's customers, and for getting orders Mr. Harvie allowed Mr. Bryson half the profits. That was a perfectly natural arrangement, and not an arrangement which came under the description of keeping open shop. The man made that very arrangement for the express purpose of keeping free of the Act. The Pharmaceutical Society should take steps to stop the practice not against the people who sold these preparations, but against the Government and the manufacturers, because it was the manufacturers who were responsible, and not the small dealers.

Sheriff Gebbie: I am afraid I cannot take that plea. I am dealing with an Act of Parliament. Whether it is a judicious Act or not I cannot say.

Mr. Osmond: I am merely stating that as an extenuation of the offence. If the Pharmaceutical Society is doing this for the sake of the public then it is its duty to have their Act amended so as to get at the manufacturers, and thus have the practice stopped. The great part of the people who buy and sell this stuff are not in the position of knowing what is or is not in the Act. This Act is not particularly well known except to chemists and druggists, and therefore I think it is the Society's duty to have the manufacture stopped.

Sheriff Gebbie, in delivering judgment, said: The complaint here is a little peculiar, I think, because there are two offences. There is a difficulty in my dealing with it. If I find this party guilty of both offences, the section says: "Becomes liable in a penalty of £5 sterling." Does that apply to the one or the other, or both?

Mr. Macfarlane: This is one offence, my Lord, of keeping open shop, and these two separate counts are mere illustrations of how the offence came about.

Mr. Osmond: It is practically two offences. He is charged with an infringement of the Act in selling these two separate poisons.

Sheriff Gebbie: True, but he points out that the charge is one of keeping open shop. It seems to me that under this complaint it is a matter of indifference whether I deal or not with the second instance as to whether it proved a sale or act; because the first count shows no inconsistency. It meets the whole complaint. Giving his opinion with regard to the second charge, the learned Sheriff went on to point out that Section 15 distinctly stated "that any person who shall sell or keep open shop for the retailing, dispensing, or compounding of poisons shall be liable. Technically, he said, there was an offence committed under this section, for as the evidence had been given it showed that Mr. Bryson, when anyone asked for "Smith's Weed-Killer," said "I don't keep it in stock, but I can get it for you from the chemist." It was sent for and got, and handed over in the shop, and it was then paid for, and the receipt signed in the shop. That brought it under the section. His Lordship had no doubt Mr. Bryson did not suppose he was committing an offence under the Act. He quite admitted that, and looking at the circumstances of that particular case he would be disposed to convict him on that alone. But, continued the Sheriff, as there is only one offence charged of keeping open shop, if he has done it in one instance that is quite enough to justify the charge, and I modify the penalty to one guinea, and two guineas of modified expenses.

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

All Articles, Letters, Notices, and Reports intended for publication in the Journal, Books for Review, and communications respecting Editorial matters generally, must be Addressed "Editor, 17, Bloomsbury Square, London," and not in any case to individuals supposed to be connected with the Editorial Staff. Communications for the Current Week's Journal should reach the Office not later than Wednesday, but news can be Received by Telegraph until 4 p.m. on Thursday.

Any Instructions from Members, Associates, and Students of the Pharmaceutical Society, with reference to the transmission of the Journal, should be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London.

Business communications—including advertisements, orders for copies of the Journal, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London. Cheques and money orders should be made payable to "Street Brothers."

Correspondents who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for illustrations should be executed twice the desired size; clean, sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Queries addressed to the "Editor" will be replied to in the Journal as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries." The Editor cannot undertake to reply to queries through the post.

Reprints of articles cannot be supplied unless authors communicate with the Editor before publication.

LETTERS.

Pharmacist or Factory Girl.

"Traveller," in reply to the letter of "the secretary to one of the largest makers of pharmaceutical preparations in this country," writes "that 'Amused' may be amazed to know that ophthalmic discs in strengths required by the medical profession were prepared by a retail chemist in London more than twenty-five years ago. Extract of malt *in vacuo*, was prepared by another London retail chemist, certainly more than twenty years ago. Animal extracts, as applied to medicine had not then come into existence, but the retail chemist is perfectly capable of producing them, and actually does so. . . . . The first two instances were customers to me as a wholesale druggist's traveller, but they did not advertise in the medical papers to obtain success by exploitation of the medical profession, thus relegating the pharmacist to the position of a huckster selling a something with a label on."

"F.C.S., M.P.S." also writes to say that he has read with some interest the recent correspondence on the above subject, and he expresses the opinion that "the wholesale manufacturing chemist has become an absolute necessity for the present age." He proceeds to state that the elegant, convenient and palatable productions so much appreciated by medical men and their patients have to a great extent replaced the old-fashioned "black draught" and other equally nauseous concoctions, and he suggests that the introduction of the former has been largely due to the research and energy of the abused "factory proprietors." As a practical man, and one who has had experience in both wholesale and retail, he is of opinion that "the retail chemist has not the space at his command, the appliances necessary, the time at his disposal, or the inclination to compete with the manufacturer on a large scale."

Thought Photography.

"J. B. S." writes as follows:—"There is a natural phenomenon which makes 'thought photography' quite possible, so far as ideas of shape and form are concerned. My investigations were begun twelve years ago, and I gave the name of 'form transference' to this phenomenon, and fixed some of the conditions associated with its production. This was recorded in a letter published in the *Hospital Gazette* of November 17, 1883. All our ideas of shape are real images which have the distinctive character of radiating through opaque media: it matters not whether such ideas are perceptions of objects or whether they are recalled by memory. For example, a silver object looked at or thought of is received as a soft deep purple with a yellow halo, iron passes badly, glass, bright substances, etc., radiate well. Now, this demonstration I was unable to follow up at the time by means of a sensitive plate, although urged to do so by the editor of a photographic paper. The simplest way to demonstrate the natural phenomenon of 'form tranference' is to practise it as a parlour game. We shall find some children become so adept that we can easily pass numbers and letters to them, although they may be in an adjoining room. These letters and numbers are simply thought of strongly by the 'visualiser,' and the agent, whose eyes are shut, receives them as greenish or lavender-coloured projections on a purple background. I regard it as an atavic sense pertaining biologically to fœtal life and possessed by gregarian animals, insects, etc., as a means of inter-communication. Bind the shut eyes gently with a handkerchief, what do you see? all purple; press the lids, and what do you see? greenish phosphenes. Just as such phosphenes appear, so will appear, in suitable children or even old people, the various objects which we think of or look at, especially glass, silver, pencil writing, etc. Sight is by no means the only sense of which the realisations are intercommunicated."

ANSWER.

"Rex."—The term "diatomic" is applied to a molecule containing two atoms. It is sometimes incorrectly used in the sense of "bivalent." Whereas, however, the "atomicity of a molecule" refers properly to the number of atoms in the molecule, the "valency of an atom" indicates the maximum number of monovalent atoms with which the given atom combines to form a molecule.

QUERIES.

"Llandudno" wishes to know what is the usual premium to charge in the case of an indoor apprentice bound for three years.

Optical Lantern Makers.—A correspondent asks for the name of the firm making the "Metamorphoser" lantern (registered patent No. 15,440), and the "Terpuoscope" (registered patent No. 12,860).

"Calumba" asks for particulars of practical works on electric light, search lights, etc.

OBITUARY.

Jackson.—On November 21, Christopher Jackson, Chemist and Druggist, Acton. (Aged 55.) Mr. Jackson had been a member of the Pharmaceutical Society of Great Britain since 1870.

Smith.—On November 24, William Smith, Chemist and Druggist, East Dereham. (Aged 42.)

Jones.—On November 26, M. H. Jones, Chemist and Druggist, Islington. (Aged 46.) Mr. Jones had been an Associate of the Pharmaceutical Society of Great Britain since 1871.

Fairbrother.—On November 28, Joseph Fairbrother, Chemist and Druggist, Manchester. (Aged 86.)

Westlake.—On November 30, John Westlake, Chemist and Druggist, Sutton. Mr. Westlake had been an Associate of the Pharmaceutical Society of Great Britain since 1873.

Board.—On December 11th, at Cheltenham, Thomas F. Board, aged 68. Mr. Board was one of the successful candidates at the election of annuitants on the Benevolent Fund on Tuesday last, and thus survived his election by a few hours only.

PUBLICATIONS RECEIVED.

Proceedings of the Fourteenth Annual Meeting of the Virginia Pharmaceutical Association. 1895. From the Secretary of the Association.

Les Drogues Simples D'Origine Végétale. Par MM. G. Planchon and E. Collin. Vol. II. Pp. 988 with 753 illustrations. Price, the two volumes, 30 francs. (Paris: Octave Doin, 8, Place de L'Odéon, 1896.) From the Publisher.

[The publication of several reports is unavoidably deferred]

Communications, Letters, etc., have been received from Messrs. Athey, Ball, Barclay, Bayley, Bevan, Birts, Blackburn, Blinkhorn, Brackenbury, Buckpitt, Burrell, Butler, Button, Christy, Clarke, Cracknell, Cripps, Davies, Davis, Dixon, Ferguson, Fielding, Gair, Gayle, Graeme, Griffin, Gunn, Harvey, Hill, Hoit, Jones, Kirkby, Martin, Miller, Mitchell, Ough, Palmer, Peck, Picken, Prentice, Proctor, Reynolds, Rideal, Salter, Shuttleworth, Smith, Spinks, Stevens, Wallas, Weddell, Will.

THE INTRODUCTION OF PHOSPHORUS AND ITS COMPOUNDS INTO PHARMACY.

PHOSPHATES AND HYPOPHOSPHITES USED IN MEDICINE

In addition to phosphorus, various phosphides, and phosphoric acid (see *ante*, p. 433), a large number of phosphates and hypophosphites are now used in medicine, but want of space prevents more than a very brief reference to them, more especially as many of them are now but little used.

The introduction of calcium phosphate has been already referred to. Its advantages are still a matter of dispute, but it is supposed to possess the power of stimulating and regenerating the nervous system and tissues containing phosphorus or lime. According to Dysart (*Practitioner*), the "lactophosphate" such as is obtained by dissolving calcium phosphate in lactic acid and emulsifying it with cod-liver oil, is the most readily assimilated form for its administration, and a so-called "physiological phosphate," prepared from bones from which the organic matter has been removed by means of caustic soda, has been recommended for admixture with bread in the proportion of one part in the hundred, for building up the osseous portions of the body.

Probably one of the chief reasons for the present extended use of the phosphate and hypophosphite of calcium lies in the fact that although it is probably not efficacious in all the large variety of complaints for which it has been recommended, it is apparently without injurious effect in any case. The 'National Dispensatory' states that calcium phosphate is prescribed in cases of scrofula, tuberculosis, caries, weakness of blood, and many other complaints, and Ruddock's 'Homœopathic Vade Mecum' refers to its value for treating diseases of the osseous system, such as rickets (one of the first uses to which this compound was applied), curvature of the spine, hip disease, etc. Ringer ('Handbook of Therapeutics') states that it is valuable for young and rapidly growing children and for women weakened by child-bearing; and Milne Edwards (*Medical Times and Gazette*, 1856, p. 489) is said to have found it of assistance in the re-formation of the callus.

The phosphate, hypophosphite, and pyrophosphate of iron are largely used, but the action appears to depend mainly upon the tonic properties of the iron, as, according to the 'National Dispensatory' (p. 739) the value of the phosphorus is doubtful. The iron phosphate of the British Pharmacopœia is a mixture of ferrous and ferric phosphates, and contains at least 47 per cent. of the former, whereas the officinal salt of the U.S. Pharmacopœia is a soda-iron phosphate and citrate, and resembles the pyrophosphate (*Cf.* 'U.S. Dispensatory').

It is stated that a "superphosphate of iron," produced by dissolving phosphate of iron in a minimum of phosphoric acid, was introduced in 1851 as a new remedy, by Dr. Routh, of London. The pyrophosphate of iron—which is generally employed in the form of a solution of the iron salt in ammonium citrate solution—is said to form one of the most suitable forms for administering iron phosphate, on account of the absence of inky taste, and of the excess of iron which it contains. It is also often employed in the form of a double phosphate with one of the alkali metals.

Sodium phosphate was employed medicinally as early as 1787, as already mentioned, and was probably in use at a still earlier date. It was recognised as distinct from the "microcosmic salt"—the double phosphate of sodium and ammonium obtained from urine—by Hellot in 1735, and was called "sal mirabile perlatum" by Hauft in 1740. It is employed as a mild purgative, and, according to Luton, is valuable in cases of scrofulous ophthalmia. Prevost and Binet state that it has no action upon the biliary system.

Sodium pyrophosphate is largely employed for the preparation of iron pyrophosphate, and is also used to a lesser extent for the same purposes as the ordinary phosphate. The hypophosphite has been used for cases of nervous exhaustion ('National Dispensatory'), but its benefit is said to be a matter of doubt. Among the other phosphates and hypophosphites which are used medicinally may be mentioned those of potassium, which are used similarly to the sodium salts; ammonium phosphate, introduced in 1846 by Dr. J. H. Buckler ('American Journal of the Medical Sciences,' January, 1846) for the cure of gout and rheumatism; zinc phosphate, which is said to be preferable to other zinc salts in cases of sweats from phthisis, and for replacing phosphorus lost from cerebral tissue; and manganese phosphate, which is used to replace part of the iron in syrups of iron, and as a medicinal agent for various complaints (see Wiegand, *American Journal of Pharmacy*, July, 1854, 'U.S. Dispensatory,' and Squire's 'Companion').

Phosphates and hypophosphites of the alkaloids are also employed. The phosphate of berberine, the most soluble salt of that alkaloid, is said to be useful in intermittent fevers, as is also the hypophosphite (see Professor Lloyd, *American Journal of Pharmacy*, July, 1877). Quinine, strychnine, morphine, pilocarpine, etc., are also administered in the form of phosphates and hypophosphites, and H. W. Jones (*Pharm. Journ.*, 1889, p. 256) states that the solution of strychnine and morphine in hypophosphorus acid is a useful form in which to administer them hypodermically.

A large number of tonics and "chemical foods" are now made by mixing several phosphates and hypophosphites, often with the addition of strychnine, quinine, morphine, etc., with a view of producing a medicine of general application. A syrup introduced in 1854 by Wiegand (*Am. J. of Pharmacy*, 1854, p. 111), consisted of the phosphates of calcium, potassium, and sodium, with hydrochloric acid and sugar, and a similar one containing phosphate of iron was introduced by him a year later (*loc. cit.* 1855, p. 104).

The syrups and chemical foods prepared by Parrish, Squire, Fellow, and Easton, have been frequently discussed in works dealing with pharmacy, but the experience has been that it is almost impossible to produce a compound of regular and uniform composition from the prescriptions which have been published. As early as 1857, Edward Parrish (*Am. J. of Pharmacy*, 1857, p. 573) published a statement that a secret preparation much used in Philadelphia contained phosphate of soda, phosphate of lime, glacial phosphoric acid, sulphate of iron, carbonate of soda, ammonia, cochineal, oil of orange, sugar, and water, the proportion of each being given. Since then, many other formulæ for Parrish's food have been published. They will be found in the *Pharmaceutical Journal* (1871, p. 856; and 1877, p. 482), Squire's 'Companion,' and the 'London Medical Recorder' (1888, p. 519). The syrups of Fellow and Easton differ from the above in containing as essential constituents quinine and strychnine (see 'Aitken, Science and Practice of Medicine,' 3rd edition, v. I., p. 637; *Chemist and Druggist*, 1893, v. I., pp. 422 and 795; and Squire's 'Companion').

A hypophosphite syrup corresponding somewhat with that of Fellow, and known as "byno-hypophosphites," has recently been introduced. It contains the hypophosphites of iron, manganese, lime, and potassium together with cinchona and nux vomica. The sugar ordinarily used for these syrups is replaced by bynin, or liquid malt, the diastase of which is believed to assist digestion.

SHORT NOTES ON THE PREPARATIONS AND FORMULÆ OF THE BRITISH PHARMACOPŒIA.

LINIMENTS.

The liniments of the B.P. are not a numerous class, nor are they apparently considered important, since they were entirely omitted from the lists sent out by the Therapeutic Committee of the British Medical Association with the intention of learning from its members the extent to which certain drugs and galenicals were actually used.

Linimentum Aconiti.—The formula for this does not appear susceptible of improvement.

Lin. Ammoniæ is a fruitful source of trouble, as it becomes so thick by keeping as to refuse to flow from the bottle, and when newly made it is thinner than it should be. When sold as hart's-horn and oil, which is not a Pharmacopœia synonym, there is more latitude allowed to endeavours to overcome this inconvenience, and various methods are in use, adding a little oleic acid or spirit being the most frequent. The following gives an unexceptionable product, with a slight increase in strength :—

Stronger solution of ammonia	1½ fl. oz.
Solution of lime	4½ „
Olive oil	9 „
Oleic acid	½ „

Dilute the stronger solution of ammonia with the lime water, and mix with the oil, shaking well; lastly add the oleic acid and shake again.

Lin. Belladonnæ.—It would be sometimes convenient to prepare this extemporaneously from the alcoholic extract, were it not for the very marked difference in colour between the official liniment and that so prepared. If Cripps' proposal to make it from a standardised liquid extract is carried into effect, as Professor Attfield has foreshadowed, the same difference will be apparent.

Lin. Calcis is largely used as a domestic remedy, although only prescribed twice.

Lin. Camphoræ.—For use in this and other preparations the flowers of camphor should be made official, and the directions might be amended thus:—Dissolve the camphor in the oil in a closed vessel by a gentle heat.

Lin. Camphoræ Comp. measures 22¼ fl. oz. when made in the quantity directed, and contains, therefore, about 1 of camphor in 9.

Lin. Chloroformi.—The presence of oil is usually overlooked by prescribers who combine it with spirituous liniments, which cause it to separate.

Lin. Crotonis.—Peculiar to the British Pharmacopœia.

Lin. Hydrargyri.—Recommended for omission by the Pharmacopœia Committee.

Lin. Iodi.—This would seem to give general satisfaction.

Lin. Opii.—Unless a considerable interval of time occurs between the mixing and the filtering the latter must be repeated.

Lin. Potass. Iodid. c. Sapone.—This may be more quickly prepared thus, using 1 ounce only of soap:—Reduce the soap to fine shreds and dissolve in 5 ounces of water in a porcelain dish over a water bath. Dissolve the iodide of potassium in the remaining 5 ounces of water, add the glycerin, and pour the mixed liquid into the soap solution, stirring briskly, add the oil of lemon, with constant stirring, to the cream-like product. Thus made it can be poured at once into wide-mouthed bottles, and sets immediately.

Lin. Saponis.—This cannot apparently be improved upon. From oleic acid and caustic soda it may be prepared extemporaneously, but the liniment so made is hardly so bright as that made by following the official process.

Lin. Sinap. Comp. loses strength greatly in keeping, and its deletion was recommended by the Glasgow and West of Scotland Pharmaceutical Association.

Lin. Terebinth. shares with other emulsions the attribute of being perplexing to the dispenser, and yielding varying results. The quality of the soap is the chief cause. Lately fashion in pharmacy has demanded that soft soap shall be green, and possibly the colour is obtained by the use of linseed, hempseed, or other drying oils. Certainly some samples are leathery rather than gelatinous in consistence, and troublesome to manipulate with an equal quantity of water. Using boiling water, and stirring well with a knife in a mortar previously warmed, adding the solution of the camphor in the turpentine very gradually, and treating it like whipped cream, gives a good result. Even with three times the quantity of water ordered, the product, if emulsified, will often be too thick to send out in a narrow-mouthed bottle. A valuable suggestion made by Mr. Giles, of Folkestone, is to use only half the quantity of the soap, and to dissolve it in the turpentine with the camphor; add then the water gradually, with vigorous shaking until a thin milky emulsion is produced. Half as much again, or 3 ounces of water, will generally suffice, but a little more is sometimes required. The whole quantity of soap ordered in the Pharmacopœia will not dissolve in the turpentine, after twenty-four hours' digestion, with frequent shaking. The use of oleic acid and solution of potash was suggested in 1874 by Professor Tichborne, and in 1888 by Mr. Jones, whose formula is pronounced very good by Squire. The quantities ordered correspond to 1 ounce only of a soft soap containing 20 per cent. of water.

Lin. Terebinth. Aceticum seems to give general satisfaction.

The Pharmacopœia contains no representative of the liniment, which is most extensively used by the public, viz., an egg emulsion of camphor and turpentine with acetic acid or vinegar.

Calcium Oxalate in the Pericarp of Umbelliferæ.—In a paper presented to the Academy of Sciences of Vienna, Dr. R. von Wettstein treats of the presence of crystals of calcium oxalate in the pericarp of Umbelliferæ, and its value for the purpose of classification. Observations were made on 220 species, belonging to nearly 100 genera. He finds that the presence of these crystals, and still more their mode of distribution, is very often characteristic of natural groups. The various modes of deposit may be classed under three heads, viz., those of *Hydrocotyle*, of *Sanicula*, and of *Scandix*. The *Hydrocotyle* type of pericarp is characterised by an endocarp composed of an inner hard layer and an outer coat containing crystals, and is universal in the tribes *Hydrocotyleæ* and *Mulineæ*. The genus *Erigenia* must be excluded from this section of the order, while *Hermas*, *Actinotus*, and *Astrotricha* must be included in it. In the *Sanicula* type the clusters of crystals are usually grouped at particular spots of the pericarp, and deposited in parenchymatous cells; it is characteristic of the tribe *Saniculeæ*, from which *Arctopus* and *Lagæcia* must be excluded, while, on the other hand, *Lichtensteinia* and other allied South African genera must be placed in it. The *Scandix* type is characterised by the occurrence of usually single crystals in several layers of cells along the commissure and around the carpophore, and is universal in the *Scandicineæ* and the *Caucalineæ*.

THE USE OF DRUGS.*

BY W. R. GOWERS, M.D., LOND., F.R.S.

The physician's experience of the use of drugs is acquired under conditions not altogether favourable. It is his task to deal with cases that have resisted the efforts of practitioners who are often wise, persevering, and equipped with knowledge in a degree increasingly adequate and effective. Success in treatment by drugs after such antecedent efforts, seems to me to testify to the undeveloped capacities in the means employed. However this may be, I am convinced that the method of treatment to which the average practitioner is chiefly restricted now, as he was in the past, to which he is limited by a compulsion not less at the present time than in former days, has not only a power that can be realised now, but also a potentiality yet to be developed.

It has, therefore, been with great interest that I have seemed of late to see more clearly why this should be. When I say "I have seemed to see it," I do not mean that it is not conspicuous to many. The scepticism regarding the use of drugs to which I have referred is, I think, less now than a few years ago. One favourite foothold was the statistical demonstration of inutility—as, for instance, that the average duration of acute rheumatism was the same whatever treatment was employed or when no agents were used. That is no longer possible, since we have sought help from the willow which casts its shadow on the damp places in which there thrive the bane and antidote. Since the salicylates were employed I fancy the significance of the loss of this convenient argument has been felt. Then, moreover, the empirical advice, "Try all things; hold fast that which is good," to which in the hands of peasants we owe many of our most precious aids, has been applied to the results of modern chemistry, and every tangible achievement of science has been seized by the "advanced pharmacy" of the present day.

But can we discern the reason why drugs are useful? Consider. I show you two tubes. Each contains a small quantity of a white powder—about half a teaspoonful. Each consists of the same elements. One is practically harmless; the other contains within it the power of death to 1000 men. The one is quinine; the other is aconitine—the alkaloid which makes so deadly the plant whose flower our ancestors called "monkshood" in the far-off days when the original was always before their eyes. It is an almost startling fact that in this minute quantity of powder, hardly visible to those at a distance, there is such a potentiality of death. Picture to yourselves 1000 men. That which is in this tube would end the life of every one of them. There is a latent power within this powder beside which the lightning flash is feeble, and to which the earthquake might give place, so far as the comparison depends on lethal certainty. But the resemblance in the aspect of these two substances is not all. As I said, each consists of the same elements: each is made up of carbon, nitrogen, oxygen, and hydrogen. Each consists of the elements which compose air and water, with some carbon added—soot, if you like. Why is one almost harmless, and the other a most deadly poison? I might have chosen for the lower term of the comparison a simple food, but then the amount of nitrogen would have been less, and the resemblance in construction less close. The answer may be given, "It depends upon the chemical constitution." True, but this takes us a very little way. When we discern that the difference depends upon the way in which the atoms of the elements are arranged in molecules, and the molecules are grouped together, we are no nearer an explanation. We see a little more, however, when we realise that chemical constitution means that energy is held "latent" (as it is said) ready to be released when the elements can form simpler, closer compounds, and that on the same kind of constitution and the same kind of simpler union, and similar release of energy, in the constituents of the living tissues seems to depend all vital function. As far as we can see, all the energy which is released in the animal body is released in consequence of chemical union under the mysterious influence of life. When such union and such release are going on, the process may be changed entirely by the contact of molecules of allied constitution, with latent energy on the point of release, so held as to blend with that which is being set free as living tissue. Blending with this it may augment or oppose it. Remember that a difference in chemical constitution means a difference in the readiness with which the elements separate and re-unite, and on this depends the effect exerted by the energy they bear. I have recently endeavoured to explain this in a small book,* in which you can, if you desire, pursue these conceptions.

Nerve force, as far as we can see, is the result of such chemical change occurring under the influence of life in the molecules which compose nerve tissue. Chemical compounds may come into relation with the substance in which the change is occurring without exerting the slightest influence upon it. But another substance may come, even in amount inconceivably minute, whose molecules are so arranged as to fit in, as it were, with the changing molecules of the living tissue. The energy the new molecules bear seems to blend with that which is in process of ordered release in the living tissue, and to blend so suddenly and so effectively as to derange it entirely. The various nerve tissues which compose the centres seem to us the same, but they must differ in their precise chemical nature and in the precise chemical action which their life-work involves. This fact is revealed to us only by their different response to different chemical agents, but the revelation is often a startling one. The difference in response is certain, the uniformity in the nature of the agent is certain, and therefore the difference in result must be due to a difference in that on which the agent acts. Although we have no other evidence of this, consider the absolute significance of such facts as that atropine acts first upon the nerve substance of the eye, and strychnine upon that of the spinal cord. Such an influence as I have spoken of seems to be almost universal in the case of aconitine. Its contact with any acting nerve structure seems to be, as it were, so direct, instant, and precise as to generate, as it were, an avalanche of energy, sweeping all before it, or opposing the process of liberation of energy with a momentum that involves a sudden stillness among the whirling atoms whose throb is far below the range of human sense. Among the nerves thus influenced may be those on which depends the action of the heart, and with a sudden spasm or a sudden stillness the heart stops and life is ended. That which so acts we call a poison. Widely different from this as is that vehicle for energy which we call a food, the difference is one of degree. Every form of food is such by taking to the tissues new energy in fresh molecules. Between the two—the poison and the food—there is an almost infinite gradation of substances whose influence is exerted in like way by chemical compounds upon the chemical processes of life, upon the state of nutrition, and upon the mode of action of the living tissues. It is in this intermediate region that there is the range of therapeutic influence conveyed by the vehicles we call drugs. The difference is of course in part one of quantity. But it is by the relation of the latent energy of the agent to the energy being released in the tissue, and to the secondary effect of the action thus produced upon nutrition, that one wide scope for the influence of drugs can be readily perceived. There are others, but they are different aspects of the same influence, and the facts may, I think, be best epito

* Extract from an address delivered before the Harlesden Medical Society, and printed in the *Lancet* for November 23, 1895.

* 'The Dynamics of Life.' (London: J. and A. Churchill.

mised by the statement that treatment by drugs would be correctly named "dynamical therapeutics."

Although I believe that it is generally true that what we call "matter" is only effective, whether it be employed as food, medicine, or as poison, because it is a vehicle for energy, some apparent exceptions should be at least mentioned. In the functional action of all structures in the body, molecules are constantly passing off which, having formed with oxygen lower compounds and having yielded their latent energy, are useless, and these are constantly being replaced by others formed under the influence of life from the material which the plasma has brought to the vicinity of the structure. It is possible that the molecules of some poisons may enter into the constitution of the tissues in abnormal amount, and thus disturb function by deranging the release of energy. There are also some cases in which atoms of some different element seem to enter and replace normal atoms, and thus derange. Whenever arsenic is brought in contact with the nerve elements, whatever be its combination, it induces not only functional, but also structural changes in these, leading ultimately to their degeneration. We can only explain this by supposing that atoms of arsenic are taken up by the nerve substance in the course of the molecular renewal which attends functional action, and it is reasonable to suppose that this is due to its close relation to phosphorus, which we know is a constituent of the nerve material. It is possible that such substitution may take place in a slight degree without any injurious consequences, and even, in morbid states, with benefit. The influence on the nutritional process may be actually beneficial when this is already in some way deranged. It may promote the subsequent due assimilation of phosphorus, and make this more adequate and effective. Of course this is only a speculation. It is sometimes a help to conceive how that may be which we cannot but perceive as a fact.

These remarks have reference, of course, only to the medicina agents which act through the blood. There is a considerable scope for thought regarding the action of agents which do not pass into the blood, which act only upon the surface, or on that portion of our real exterior which is within us, as the alimentary canal. In this region, moreover, there is some room for bringing conception to the test of experiment. Many purgatives, of course, act through the blood, but chemical processes seem to take less part in the operation of saline aperients. These act rather by "flushing out,' the liquid in which the salt is dissolved being merely added to by osmosis and exciting contraction. The subject, indeed, requires more special study than it has received. The great service of salines seems to me to be effected by removing that which would be in part re-absorbed.

One other phase of modern therapeutical thought is to me a mystery. It is the contrast which is often drawn between the empirical and the rational in the use of drugs, and the disparagement of the former in comparison with the latter. Possibly it is a result of the influence of the scientific training which now dominates medical education. Beneficial as this training is, its influence may acquire a momentum that carries the effect too far, and, indeed, its influence may spread too widely for the good of those whose life is to be devoted to the hard and often routine work of applying knowledge. The intense love for pure science begotten in the better class of medical students of the present day, warm with the ardour of youth, makes them slow to sink into the grooves to which they are predestined, and hinders their perception of that which they might gain and see therein. They yield at once to the distinction between the rational in therapeutics and the merely empirical. It is all very well to esteem the rational, but we have, I hope, seen that this esteem should not be allowed to cause an aversion from that which is precious, and yet cannot be called "rational" in the common narrow sense of the word. The antithesis of the empirical and the rational is itself an error. It is an instance of a common tendency to put a positive conception into a negative word. Because the empirical is not the rational it is conceived as irrational—the only simple negative we have, but one that implies far more than simple absence of the quality excluded. The "irrational" should be merely the "not rational," but in effect it carries us as far beyond neutrality as does "unreasonable." No one means by "unreasonable" a simple absence of the quality of reasonableness. We are so accustomed to the use of the mere negative for the opposite positive that an effort may be necessary to perceive the real meaning of the words Not only is the empirical not positively irrational: it is doubtful how we are justified in considering that a truly rational element is absent from the empirical. The term "rational therapeutics" is applied to treatment in which a drug is given with success in accordance with preconceived ideas or with a theory. The theory may turn out quite wrong, although the result is the same. What, then, becomes of the rationality? In empirical therapeutics a drug is given because it is found by experience that in the particular condition it does good. Often we cannot even guess why.

But the fact remains, and surely to act upon observed experience is as truly a rational proceeding as is action upon a theory which may be incorrect. After all, the medicinal treatment which can be based upon any definite theory is small. How seldom, moreover, can we use a drug to advantage which was discovered save by the purest empiricism. In not one drug in twenty, perhaps not one in fifty, of those of most certain service, can the use be traced to anything except unguided experiment. Our knowledge of these drugs, derived from the past—and often from the distant past—must be assumed to be the result of experiments innumerable, perhaps continued through the long tens of centuries in which the human race has lived among surroundings which alike compelled and suggested endeavours to counteract disease by every available means. The need for food must itself have led men to a knowledge of the physiological action of most herbs of the field, especially when domestication brought the habits of animals under observation, habits such as must have had the power of example. It is probable that since man became able to observe and to reason, every common herb of the field and fruit of the tree has been at some time tested, and thus by slow degrees the knowledge of a physical good and evil has been acquired.

It is strange, indeed, to note how far back goes the use of the drugs on which we most rely. Most of them can be traced into the mists of the popular knowledge which it is so easy to sneer at and would be so difficult to do without, or until they are lost in the bluer mists in which the distance shrouds alike the hills of Greece and deserts of Arabia, or to the time when the world learnt its wisdom from the land where now only the sculptured symbols of man's thought stand silent in the cold moonlight of a long dead past. We smile at the popular herbal remedies. But it is to these that we owe the majority of our most useful drugs. I cannot conceive a therapeutist surveying a list of the chief drugs on which we depend in our daily work—and do not depend in vain—without a sense of wonder and perhaps of humiliation. We disinfect our rooms with burning sulphur; and so men did before the time of Homer. We purge sometimes with rhubarb, especially when some subsequent astringent influence is desirable, and so did the old Arabians for the same special reason. The value of castor oil in its chief use was familiar, probably for ages, to the natives of the East and of the West Indies before it was made known in Europe by a physician from Antigua 150 years ago. Aloes was employed in the same way

long before the time of Dioscorides and Pliny. The knowledge of the influence of ergot in parturition we owe to the peasants of Germany, and the use of male-fern for tapeworm goes back to the old Greeks and Romans. The employment of mercury in syphilis by inunction and fumigation, which our nineteenth-century therapeutists regard with such satisfaction, seems to go back to the time of the Crusades, and it is said that its use can be traced in Malabar as far back as the ninth century. Podophyllin as a purgative we owe to the North American Indians. If we go through all the drugs on which we most rely we find the same story. Even in the case of those which are the latest additions to our resources, we find that, with very few exceptions, their use arose from what we must regard as pure empiricism. It was by accident that the local anæsthetic influence of cocaine was discovered. The unexpected results of simple experiment afforded us the chief use of antipyrine; and that which is perhaps the greatest practical discovery of modern times in the influence of drugs on disease—the use of bromides in epilepsy—was the result of a chance observation of its use on an allied state—also empirical. To this day we are without any rational perception of its mode of action or of the reasons for its use in given cases. I yield to no one in my sense of the importance of the rational in therapeutics; but we need to be careful lest, in contrasting the rational and the empirical, we allow our esteem for the one to induce a depreciation of the other. We can afford to despise no source or kind of help, or to permit our estimate to be lessened by the many warping influences to which our thought is liable.

I have, indeed, tried to frame a definition of rational therapeutics which I could illustrate by examples. I will not say that I have wholly failed, but my success is not sufficient to let me submit it for your consideration. But the attempt has impressed me with a doubt as to the propriety of considering that a theory, to explain an empirical discovery, makes the therapeutics rational. It is very easy to frame a theory of the action of a drug, and it is easy to extend this theory to the nature of the disease in which the drug does good, and at the same time to ignore the many other possible ways in which the effect may be produced, and so to build from a small and uncertain foundation an edifice with some new knowledge may reduce to that which most builders call "rubbish."

When I recommend a drug I am often asked, "How does it act?" Occasionally I can give some inadequate reason, but I am generally compelled to answer, "I do not know; it is often useful in this condition." Sometimes I can add, "There are several ways in which it may act." Sometimes I am obliged to say, "I have no idea how it does good." It has not been my privilege to add much to our therapeutical resources, but the few agents I have recommended have been based on pure empiricism. A few days ago I received a pamphlet from a distinguished French physician, Dr. Féré, who confirms the statement which I made sixteen years ago regarding the occasional service of borax in epilepsy, a confirmation which many others have furnished. In inveterate cases which do not yield to bromide, borax sometimes does good that is definite and distinctly greater than that which bromide produces in those cases. But I cannot say why. It was one of many things I tried, simply as a peasant might try in succession a number of herbs. Further, the diminution in the tendency to the distressing pains in locomotor ataxy which is caused by the regular administration of chloride of aluminium is so distinct that I have little doubt that the time will come when this drug will find a place in the Pharmacopœia. But I had no better reason for trying it than the fact that arsenic is a metal and so is aluminium. Of the rational we have here no trace, although I should take objection to the difference involved in the application of the epithet "irrational."

SOME MATTERS RELATING TO PUBLIC HEALTH.

The annual reports of the Local Government Board, like those of the Metropolitan Asylums Board, constitute invaluable archives, embracing many subjects of great interest to the community. From the report of the Local Government Board for 1893-4, two examples may be selected for comment; first, the report of Dr. S. Monckton Copeman on an outbreak of epidemic dermatitis at the Bethnal Green and other infirmaries, and secondly, the report by Mr. W. H. Power, F.R.S., on the causes of lead poisoning referred to public water supplies derived from moorland sources.

Epidemic dermatitis when fully established most closely resembles pityriasis rubra, an affection marked by universal inflammation of the skin, and abundant exfoliation of large dry flakes of epidermis. Epidemic dermatitis appears to differ, however, both from eczema and pityriasis rubra in its marked epidemic and contagious characters, as was first pointed out in 1891 by Dr. T. D. Savill, who based his views on the study of 163 cases, which occurred at the Paddington Infirmary in that year. In this instance as in the later epidemics, the majority of the persons who contracted the disease were aged and infirm; there were, however, many exceptions to this rule. Dr. Copeman's investigation began at Bethnal Green, where in May and June, 1893, eighty-six cases occurred, and all of them except five were observed in the sick wards of the infirmary. The five exceptions were persons, inmates of the workhouse, who had to pass daily through part of the infirmary to reach the dining-hall. About a fortnight before the first seven cases occurred there had been noticed a general loss of appetite in the patients occupying the infirmary.

As soon as the eruption appeared many of the patients had some fever; in one case this reached 103° F., whilst in Dr. Savill's cases in Paddington the temperature remained normal at the beginning of the attack. The microscopical examination of the skin and discharge was intrusted to Dr. Andrewes, who, like previous observers, found only changes common to most inflammatory conditions of the skin and pyogenic organisms, which are present in many conditions and even on the normal skin. The site first affected by the eruption varied in different cases. In 50 per cent. it was the wrist or forearm; in 18·8 per cent. the face, scalp, or neck; and in 11 per cent. the feet or legs; in the remaining cases, in various other parts. In whatever part of the body the eruption appears it is usually at first localised and often trivial in appearance, extending gradually over the body, but in some cases the skin of the whole body was almost simultaneously affected. The loss of appetite noticed before the outbreak of the attack laid the various articles of diet under suspicion, and this part of the investigation was thoroughly carried out. Dr. Copeman was able to ascertain that only the milk was taken in common by all the persons affected, and the bacteriological report of Professor Crookshank and the chemical report of Professor Stokes show that the milk was of bad quality. It contained bacteria largely in excess of the numbers that occur in milk which has been carefully collected; in one sample there were 98,000 bacteria to the cubic centimetre. Professor Stokes pronounced the sample as the worst he had ever met with, and found that it contained 60 per cent. of added water. Thus a practical result of the investigation was a change in the milk supply, although it was impossible to refer the outbreak definitely to the bad milk. The investigation has been of service in drawing attention to a remarkable form of skin disease, but while it confirms the belief that the disease is contagious it has not cleared up the pathological nature of the disease or its relation to other skin affections. As in former epidemics, a considerable number of the cases ended fatally. At the Shoreditch Infirmary as many as ten nurses contracted the disease. Dr. Copeman observes: "The

malady does not by any means exhibit one universal type, and consequently it is all the more likely that outbreaks may on occasion have been brought about by the treatment in an institution, among numbers of persons susceptible by reason of age and debilitated system, of a patient suffering from the disease in unrecognisable form. It would, indeed, appear not unlikely that the skin rash, if one of the most frequent, is not an absolutely essential concomitant of the general constitutional disturbance, and *vice versâ*; and that, like influenza, the disease may exhibit in excess, now one, now another of various symptoms pertaining to it, even within the compass of a single outbreak. It would also appear to resemble in certain respects such diseases as malaria and syphilis, in that its hold on the system may apparently persist, with only occasional manifestations, for an indefinite period."

Before concluding this notice reference may be made to the form of treatment that has been attended with most success. This is use of creolin baths and creolin ointment. The former, as recommended by Savill, are made by adding to 15 gallons of water, at 95° F., 2½ pints of a 1 per cent. solution of creolin. One bath a day is required. The ointment is ½ to 2 per cent. in equal parts of lanolin and water.

Chronic lead poisoning, as is well known, shows itself in many different ways, such as colic, gout, paralysis, kidney disease, and insanity. When such symptoms are common in any given district there is call for a thorough examination of the water supply. In certain districts of Yorkshire, Lancashire, Cumberland, and Westmoreland, there had been grounds for suspecting the water supply, and in 1890 an investigation was commenced by Mr. W. H. Power, who secured the assistance of competent assistants. The work was found to be full of difficulties, so much so that after some years of patient labour, which is fully recorded in the "Report," in several points it still remains unfinished. In the districts where lead poisoning is common, the water is collected from the moors. The rain first falls on the peat, collects there in the hollows, and runs away to the collecting reservoirs, partly by the burns and partly through the earth, reappearing as springs. In the West Riding district the chemical and bacteriological examination of the water was carried out by Dr. A. C. Houston. A remarkable difference was found to exist between the "pool" and the "spring" waters, the former being notably acid, the latter always neutral in reaction. It is an old observation that the lead-dissolving capacity of a water is proportionate with the degree of its acidity, and this was found to be true for the moorland water. Dr. Houston states that certain waters when brought experimentally into contact with lead exhibit a double action: first, a solvent power which he has named "plumbo-solvent ability"; and secondly, the property of forming a nearly insoluble compound of lead, which is loosely attached to the metal, to which it affords not the slightest protection against further attack; "erosive ability." Freshly distilled water tested by the most delicate reagents was found to have occasionally a slight acid reaction, and when this was the case it possessed marked plumbo-solvent power, but no erosive ability; the acid distilled water lost both its acidity and its plumbo-solvent power on boiling.

Pure rain and pure snow water were found to be neutral in reaction. All the samples had marked "erosive ability" without any plumbo-solvent power. Moorland waters when acid invariably dissolve lead, and may or may not have the erosive property. The latter is of importance, in that the finely divided lead compound may be suspended in the water and so reach the consumer, especially in cases where the water is unfiltered. Moorland spring waters are usually free from both the solvent and erosive actions. This observation is co-related with the older one, to the effect that waters possessing much temporary hardness, in other words natural waters other than rain or moorland waters, do not as a rule possess ability to dissolve or erode lead, and Dr. Houston found that addition of a hard water to acid peat water usually deprived it of its lead solvent and erosive properties. With these facts before him Dr. Houston proceeded to seek the cause of the acidity of peat water, and by a careful series of observations found that there was good reason to attribute it to two species of bacteria which live in peat.

BANANA FLOUR.

The question asked by an American correspondent in the *Pharmaceutical Journal* for November 2 (p. 392) regarding the manufacture of banana flour, and the process used for making beer from it, may best be answered by referring the enquirer to the *Kew Bulletin* for August, 1894, pp. 304 to 314, and to the *Journal of the Society of Arts* for May 10, 1895, p. 592. Lest those periodicals, however, should not be available, a brief summary may not only be useful to the correspondent in question, but may also be interesting to the readers of the *Pharmaceutical Journal* generally.

It is shown that the production and use of plantain meal as an article of food is of great antiquity, and is frequently mentioned by old authors. Samples of plantain and banana meals were exhibited at the Great Exhibition in 1851, and again in 1862, particularly amongst the exhibits of British Guiana; and in the catalogue of products from that colony shown at the Paris Universal Exhibition of 1867, the following account of the preparation of plantain meal is given by Dr. Shier:—"The plantain is sometimes so abundant and cheap that it might if cut and dried in its green state be exported with advantage. It is in this unripe state that it is so largely used by the peasantry of this colony as an article of food. It has always been believed to be highly nutritive, but I have not found in any sample of the dried plaintain which I have analysed a larger amount than ·81 per cent. of nitrogen, which corresponds with about 5½ per cent. of proteine compounds. When dried and reduced to the state of meal, it cannot, like wheat flour, be manufactured into macaroni or vermicelli, or, at least, the macaroni made from it falls to powder when put into hot water. Plantain meal is prepared by stripping off the husk of the plantain, slicing the core, and drying it in the sun. When thoroughly dry it is powdered and sifted. It is known among the Creoles of the colony under the name of "Conquintay." It has a fragrant odour, acquired in drying, somewhat resembling fresh hay or tea. It is largely employed as the food of infants and invalids. In respect of nutritiveness, it deserves a preference over all the pure starches on account of the proteine compounds it contains. The plantain meal would probably be best and freshest were the sliced and dried plantain cores exported, leaving the grinding and sifting to be done in Europe. The flavour of the meal depends a good deal on the rapidity with which the slices are dried, hence the operation is only fitted for dry weather, unless, indeed, when there was occasion for it, recourse were had to a kiln or stove. Above all, the plantain must not be allowed to approach too closely to yellowness or ripeness, otherwise it becomes impossible to dry it. The colour of the meal is injured when steel knives are used in husking or slicing, but silver or nickel blades do not injure the colour. Full-sized and well-filled bunches give 60 per cent. of core to 40 of husk and top stem; but in general it would be found that the core did not much exceed 50 per cent., and the fresh core will yield 40 per cent. of dry meal, so that from 20 to 25 per cent. of meal is obtained from the plantain, or 5 lbs. from an average bunch of 25 lbs, and an acre of plantain walk of average quality, producing during the year 450 such bunches, would yield a ton and 10 lbs. of meal. Even supposing the meal not to command over half the price of arrowroot it would still form an excellent outlet for

plantains whenever, from any cause, the price in the colony sank unusually low."

A variety of the banana known in Trinidad as the "Moko," and said to be of but little or no value except as a shade tree, was reported upon in 1887 as follows: "No banana gives such an excellent meal as the 'Moko,' or so agreeable in flavour and taste. The preparation of the meal is as follows: The green moko was skinned, sliced thin, and dried in the fruit drier, then ground fine in an ordinary corn mill, and afterwards sifted through a muslin sieve; this latter removes any fibre, and leaves a delicate, fine meal. The slices dry in two hours. A 15 lb. bunch will yield 3 lbs. of prepared meal, which at 6*d.* per lb. is 1*s.* 6*d.* per bunch. Two women could prepare 56 lbs. of meal per day. The cost of production, packing, etc., has to be considered, but the price estimated to be obtained in this way for the fruit must be considered a satisfactory one; at least, it is better than that now obtained, which may be said to be *nil.*"

On the subject of the use of banana meal in brewing, the following notes by Mr. Kahlke, one of the best known makers of yeast in Germany, may be interesting. He says: "Banana flour without doubt, from its richness in starch and its good flavour, is particularly suitable for the manufacture of yeast. This flour is easily rendered saccharine. The yeast obtained by adding banana flour to the other ingredients has a a good colour, all the requisite properties of an excellent class of yeast, and, moreover, keeps well. The alcohol obtained from it leaves nothing to be desired, so that this flour may be introduced as an article of commerce, and employed without any special preparation. Satisfactory experiments have also been made in some breweries; where 20 per cent. of malt has been replaced by the flakes and flour of bananas, the flavour of the beer was not altered, and the quantity of liquid was increased, and the malt was replaced by a less expensive substance. Experiments are being made in which the proportion of banana flour is increased." One of the great Belgian brewers writes thus: "These flakes are macerated in the vat with the malt, and the result was much superior to that of maize. The drainage of the mixture was a little difficult at first, but after being stirred a second time the draining proceeded rapidly, briefly the use of the flakes may be considered both advantageous and easy in brewing." Different banana flours, and notably that prepared specially for the manufacture of glucose, have been tried in some glucoseries. Although difficulties were met with in the manufacture, principally with respect to discoloration, it has been shown that the glucose obtained from it has a good flavour, is very sweet, and slightly aromatic.

THE CHEMISTRY OF INDIAN HEMP.

An attempt has recently been made by F. Marino-Zuco and G. Vignolo to determine definitely what are the active principles of *Cannabis indica* (vide *Gazetta Chimica Italiana*, 1895, pt. 1, pp. 262-268). On exhausting the crude drug by boiling it with water acidulated with sulphuric acid, they obtained an alkaloidal substance which, when converted into hydrochloride, formed a colourless, deliquescent, crystalline mass, about four or five grammes only being obtained from fifty kilos of the drug. The physiological action of this salt showed it to be a powerful cardiac depressant, much more active than the product from *Cannabis sativa.*

But the authors have succeeded only in adding to the difficulties which already beset the subject. Polli has pointed out that vegetable acids destroy or invalidate the physiological action of *Cannabis indica.* It was not to be expected, therefore, that still stronger acids would extract the active principle, or principles, on which the value of the drug depends, the chief value of *Cannabis indica* being as a soporific, and calmative in the sleeplessness of melancholia, and as an anti-spasmodic in tetanus, etc., one of its most marked characters being its peculiar action on the brain.

The experiments of T. and H. Smith, in 1846, showed that the soporific and other properties of the drug were contained in the resin and during the last fifty years no further information of practical value on the subject has been forthcoming. In 1876, Preobrensky obtained from Indian hemp a volatile alkaloid supposed to be identical with nicotine, but Dragendorff suggested that this was due to tobacco mixed with the drug, the two being often smoked together. In 1881, Siebold and Bradbury extracted a volatile alkaloid in very minute quantity, to which the name of cannabinine was given, and in 1883, Matthew Hay obtained in minute quantity a crystalline alkaloid which possessed a tetanic action. This was called tetanocannabine, and was stated by Jahns in 1889 to be identical with choline. In 1891, H. T. Smith extracted an alkaloid of varnish-like consistence, with an odour resembling that of coniine, and forming a sulphate that could be crystallised from alcohol. The cannabin tannate of Merck (1889), the pure cannabin of Bombelan, and the cannabindine of Kobert can scarely be regarded as pure active principles.

The chemistry of this remarkable and powerful drug still remains to be elucidated, therefore, and the active principles to which its complex action is due yet await isolation. It may, perhaps, serve as a hint to investigators to recall a statement which appears in Schlimmer's (Persian) 'Pharmacopœia' (p. 102), from which it appears that the dervishes make an extremely somniferous preparation by boiling the tops of Indian hemp in fresh butter or oil of almonds. "Of this a sufficiently minute quantity introduced into an ordinary culinary preparation will cause an entire family to sleep for twenty-four or seventy-two hours without the taste of cannabis being detected." Assuming the intoxicant action and the odour of Indian hemp to be due to a volatile constituent likely to be driven off by the boiling process, the use of oil as a solvent might serve to separate the most important active principle, and another might be separated by distillation. Hitherto most of the processes adopted appear to have yielded products incapable of causing the characteristic action of the drug. It may be pointed out, by the way, that the Bengal drug, in rounded or rolled pieces, is much richer in resin, and three or four times more powerful than the ordinary drug.

Determination of the Alkalinity of Blood, by R. von Limbeck, Vienna. The author determines the alkalinity of blood and serum by means of the well-known reaction of albuminoid substances with free acids and alkali. The albumin in the blood itself serves as indicator. For examination defibrinated blood or pure serum is used. The latter is obtained either by spontaneous coagulation of blood or by submitting blood which has been defibrinated to the action of a centrifrugal machine with admission of air. About 200 Cm. of distilled water is brought to boiling point, treated with 5 C.c. decinormal HCl solution, and then 5 C.c. of clear blood serum (pressed out by spontaneous coagulation) is stirred in. The excess of acid is now titrated with decinormal NaOH solution until a thick cloudy precipitate occurs, which does not re-dissolve on stirring. The difference between the acid and alkali gives the acid contents of 5 C.c. of serum less the volume of albumin contained in the same. In titrating blood, the author proceeds in a similar manner, using 10 C.c. decinormal HCl for 5 C.c. of blood, and stirs continually to prevent lumps forming (*Apoth. Zeitg.*, No. 41, 1895, p. 354).

THE JABORANDI LEAVES OF COMMERCE.*

BY E. M. HOLMES.

It was suggested to me that a paper on this subject would prove of interest, the drug being now scarce, and as a necessary consequence the varieties that enter into commerce becoming more numerous than ever. I propose, therefore, to trace the history of jaborandi since its introduction into medicine in this country (*Ph. J.* [3], iv., p. 850). The name jaborandi appears to be applied in various countries in South America to a number of plants belonging to the Rutaceæ and Piperaceæ. It is therefore not surprising to find that plants of both these natural orders have been imported under the name of jaborandi. All of these plants possess remarkable sialogogue properties, and, like pellitory root, they produce, when chewed, a tingling sensation on the tongue, followed by a profuse flow of saliva and excessive perspiration. On this account they are employed by the natives as diaphoretics and sudorifics in fevers and colds, and as an antidote to snake and other poisons.

1. *Pernambuco Jaborandi.*— The official jaborandi was first brought to Paris from Pernambuco by Dr. Coutinho, a Brazilian physician, and was identified by Professor Baillon in 1874, as the leaflets of *Pilocarpus pennatifolius*, a plant indigenous to the province of San Paulo, described twenty-two years before by Lemaire (*Jardin Fleuriste*, iii., tab. 253), but of which the fruit was then unknown. On comparing the leaves of commerce with those of *Pilocarpus pennatifolius* grown at Kew, I observed certain differences which led me to suggest that the former were probably derived from a different species, more nearly allied to *P. selloanus* (*Ph. J.* [3], v., p. 781).

The fruit of *P. pennatifolius*, as well as the flowers of commercial jaborandi, being unknown, the only evidence upon the point that could be offered was necessarily derived from the leaves and stems. I pointed out in 1875 (*Ph. J.* [3], pp. 581–583) that the leaflets of the commercial jaborandi were more coriaceous than those of *Pilocarpus pennatifolius*, less tapering at the base, and had the lateral veins more prominent on the upper surface; the leaflet also turned brownish and not greyish when kept for some months. At my request Mr. M. H. Stiles (*Ph. J.* [3], vii., p. 629-631) in 1877, kindly compared the microscopical structure of an authentic piece of the stem of *Pilocarpus pennatifolius* with that of the commercial drug, and he observed a difference in structure which confirmed my supposition that the drug was not afforded by *P. pennatifolius*. Subsequently, in 1879, Dr. Poehl, of St. Petersburg, came to the same conclusion from an examination of the histological structure of the leaf and suggested the name *Pilocarpus officinalis*, but without giving any description of the plant.

In 1875 there were two forms of the plant in commerce, which differed only in the fact that one had glabrous and the other hairy twigs and leaves. Professor Planchon, however, found that *P. pennatifolius*, as grown in Paris, varied in the same manner. It may, therefore, be concluded that there are two forms of the same plant occurring in the same province, just as there are two similar forms of *Silene inflata*, etc., in this country.

From 1875 to 1890, in spite of every effort to induce merchants, botanists, and travellers to procure a specimen of the plant in flower, I was unable to obtain one. In 1890, however, I was fortunate enough to see in the Botanic Garden at Cambridge a jaborandi plant which presented the same kind of leaf as the commercial drug, both as regards the shape, number of leaflets, and prominent veins on the upper surface. On inquiry, the curator, Mr. Lynch, informed me that it had been obtained from the Edinburgh Botanic Gardens, and on making further inquiries at Edinburgh, I learned from Dr. W. Craig, who was interested in the new drug, that it was grown from seeds obtained from Bahia by Dr. J. L. Paterson, and presented to the gardens in January, 1882. When the plant flowered at Cambridge in April, 1892, Mr. Lynch kindly presented to the Herbarium of the Society a flowering branchlet, which proved to be quite distinct in character from that of *P. pennatifolius* (*Ph. J.* [3], xxii., p. 875) in the yellowish flowers deeply suffused with rosy pink across the middle of the petals, in the slender rachis, and in the leaflets being usually in four pairs.

Mr. Lynch had seen the *Pilocarpus pennatifolius* in flower in Mr. Thomas Hanbury's garden near Ventimiglia, and was, therefore able to give, from a horticulturist's point of view, the differences between the two plants. The *P. pennatifolius* is a fine shrub between 5 and 6 feet high or more, and bears long erect or slightly curved racemes of dark purple flowers, the leaves being of a deep green colour, usually with two or sometimes three pairs of leaflets, and there is a yellowish tinge over the young stems. The plant cultivated at Cambridge flowered when about 2 feet high, and bore a similar but more slender spike of flowers of a yellowish tint, suffused with rose. The habit of the plant was more compact, with usually four pairs of leaflets, which were more coriaceous and less tapering towards the base, so as to be oblong-elliptical rather than obovate-lanceolate, and the young stems presented a reddish tint. The midrib of the leaves and the under surface of the leaflets when young was covered with fine short hairs. The flowers, together with the pedicels, soon fell off the rachis. This may account for the fact that rarely more than one or two fruits are found on the rachis in the jaborandi of commerce.

Having then at last obtained complete material I described the plant as a new species under the name of *Pilocarpus jaborandi* two years ago (*Ph. J.* [3], xxiii., p. 1008). It must be admitted nevertheless that the chain of evidence is not absolutely complete, since I have not seen the fruit of the Cambridge plant. Moreover, the seed came from Bahia, which is south of Pernambuco, and the leaves of the commercial jaborandi, especially of the young shoots, are much larger than those of the Cambridge plant. A few months since, however, I was fortunate enough to find some fruits exactly like those of the original jaborandi, in a bale of the genuine drug, and these contained living seed which Mr. Lynch has already successfully germinated, so that if he succeeds in flowering the seedlings the proof will then be complete. By way of distinguishing the original jaborandi from the other commercial varieties, I have ventured to call it Pernambuco jaborandi, and it will be mentioned throughout this paper under this designation.

To return to the history of the drug in English commerce.

2. *Piper Jaborandi.*—In 1875, a year after the introduction of the Pernambuco jaborandi, the leaves and roots of a species of Piper were imported into this country from Brazil under the name of jaborandi. It is possible that this may have been in consequence of the publication in the 'Revista Pharmaceutica' (1875), by Dr. Domingo Parodi, of an account of a jaborandi which he referred to *Piper jaborandi*, Vell., and from which he stated that he obtained an alkaloid having a weak affinity for acids, to which he gave the name of jaborandine* (*Ph. J.*[3], v., p. 731, fig. on p. 732).

* Paper read before the Chemists' Assistants' Association on Thursday, November 28.

* A similar alkaloid was obtained by Monsieur Hardy, in 1877, from a *Piper* which was imported from Rio Janeiro, and was referred to *P. reticulatum*, and still later another by Professor Dunstan from *Piper ovatum*, from Trinidad, which he named piperovatine. How far these principles may be related to one another and to pellitorine has yet to be determined (*Ph. J.* [3], xxv., p. 550).

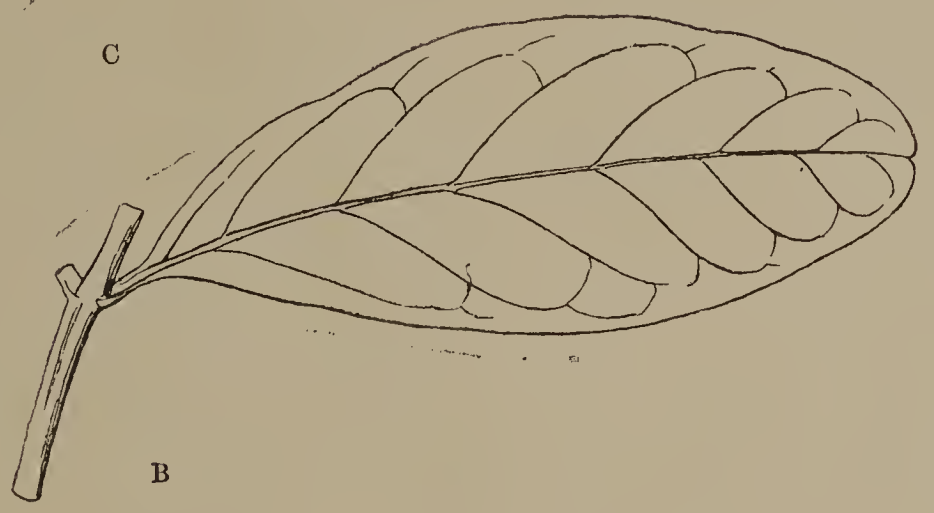
C

C_1

D

D_1

D_2



B

B_1

A

A_2

A_1

A. Leaflet of *Pilocarpus pennatifolius*, after Lemaire. A_1. Flowers of Ditto, after Lemaire. A_2. Fruit of Ditto from Mr. T. Hanbury's garden. B. Leaflet of *P. selloanus*. B_1. Flowers of Ditto, both after Engler. C. Leaf of *P. microphyllus*. C_1. Leaflet of Ditto. D and D_1. Leaves of *P. spicatus* (?). D_2. Fruit of Ditto. [All natural size.]

The leaves of these species of *Piper* cannot well be confounded with those of any known species of *Pilocarpus*. The leaves are thin, papery, greyish, tapering equally to both ends, and have not the large oil cells characteristic of the *Rutaceæ*. Besides those which have been already mentioned, viz., *Piper jaborandi*, Vell., and *Piper reticulatum*, Linn., three others are said by Peckolt to be used under the name of jaborandi. These are *Piper citrifolium*, Lam., *P. nodulosum*, Link.(=*P. unguicalatum*, Ruiz et Pavon), and *Artanthemollicoma*, Miq.(=*Piper mollicomum*, Kunth.),('National Dispensatory,' 1886, p. 1159). The leaves are generally mixed in commerce with portions of stem, which exhibit the curious enlarged nodes characteristic of pepper stems, and the equally remarkable stem structure. There is, therefore, no difficulty in distinguishing between the plants of the two genera. With respect to the physiological action of one of the species (*P. reticulatum*), it would appear to act in a different manner from Pernambuco jaborandi in some respects, having a poisonous action on the motor system allied to that of curari (*Ph. J.* [3], v., p. 732). These false kinds of jaborandi of the *Piper* genus therefore possess but little interest from a pharmaceutical point of view, although they are no doubt worthy of further chemical and physiological investigation.

3. *Paraguay Jaborandi*.—The leaves of the Pernambuco jaborandi had not been long in commerce when a plentiful supply of jaborandi leaves from Rio Janeiro, and probably also from Buenos Ayres, entered the London markets, but it was soon discovered that these leaves yielded much less alkaloid than the Pernambuco kind. The late Mr. John Williams first directed my attention to this fact, and sent me a sample of the leaves, which were believed to have been collected in Paraguay. On examination the leaflets were found rather thinner than those from Pernambuco, and the leaves had only two or three, never four, pair of leaflets. The following differences were also noticeable:—The leaflets tapered more to the base, so that the widest portion was above the middle, the lateral veins were not prominent, and the upper surface was greyish-green. In these features it seemed to correspond well with the leaf of *P. pennatifolius*, Lem., which is found in Paraguay and Matto Grosso, and has been collected in Paraguay, according to several botanists. The fruits found in the commercial drug also closely corresponded in size and shape with those grown in Mr. Thos. Hanbury's garden (see p. 521, figs. A, A_1, A_2). Further confirmation of their identity might be found in the fact that the leaves of Mr. Hanbury's plant of *P. pennatifolius* yielded, according to information given to me by the late Professor Flückiger, only a small percentage of pilocarpine. There is little doubt, therefore, that the leaves of *P. pennatifolius* have been exported from Paraguay and the neighbouring provinces by way of Rio Janeiro and Buenos Ayres (*Ph. J.* [3], xi., p. 896). For this kind of jaborandi I propose the designation Paraguay jaborandi, since it seems to be chiefly collected in that province.

(*To be continued.*)

WHAT IS A "CHEMIST?"

The following interesting article has been published in the *Scottish Gazette*, a paper circulating widely among law agents (*Anglicè*, solicitors) in Scotland:—"By the Pharmacy Act, 1868, Section 1, it was made unlawful for any person to sell, or dispense, or compound poisons, or to assume, or use the title 'chemist,' or 'druggist,' or 'pharmacist,' or any similar designation in any part of Great Britain, unless such person shall be a pharmaceutical chemist, or a chemist and druggist within the meaning of the Act, and duly registered in conformity with its terms. For every such violation the offender is liable to a penalty of £5. At the instance of the Council of the Pharmaceutical Society of Great Britain, a brace of actions have just been raised by the Registrar under the Pharmacy Acts against two 'chemists' in Scotland. In the first case the 'chemist' was charged with keeping open shop for the retailing, dispensing, or compounding of poisons, he not being a duly registered pharmaceutical chemist or a chemist and druggist within the meaning of the Act, and also with taking and using the name and title of chemist in the printed advertisement and price-list issued by him to the public. As a matter of fact, he was designed in his advertising circulars as a 'scientific instrument maker and technical chemist.'

"On behalf of the Registrar it was contended that when the public wish to buy poisons they go to the shop over which they see the word chemist. If they had gone to this particular shop they could have purchased poisons from a person who, however qualified as a chemist, did not possess the qualifications prescribed by the Act, and did not keep a register of poisons sold as prescribed by Section 17. This was exactly what the Act was designed to prevent. In reply, the chemist contended that he did not call himself a druggist or pharmacist, nor did he act as such. He was a scientific instrument maker, and was entitled to use the word 'chemist' with the qualifying adjective 'technical.' It was exceedingly improbable that anyone would go to a scientific instrument maker to get poisons for criminal purposes.

"The Court considered that the public, for whose safety and protection the Act was passed, were more likely than not to have regard to the title 'chemist' without paying any attention to or perhaps understanding the qualification of 'technical.' It had been decided in England that the prefixing of a qualifying adjective to the title 'chemist' or 'druggist' by persons who did not possess the Statutory qualification or right to assume the title of 'chemist or druggist' was a contravention of the Statute in such cases, for instance, as 'botanical chemist,' 'shipping druggist,' etc. The Court did not question the soundness of the English decisions, and considered that it was not desirable that an Imperial Statute should be interpreted differently in different parts of the Kingdom. It was held that the case was clearly struck at by the Act, and it was, therefore, decided against the chemist.

"The other case was of a somewhat similar character. A dealer in photographic appliances, who was not registered under the Pharmacy Act, sold by retail, through his assistant, who was also without legal qualification, a quantity of a chemical which was regarded by the Pharmacy Act as a poison and so scheduled. He also exhibited as a sign over his shop the words 'photographic chemist,' which term he also used in his business advertisements. Owing to the situation of the defender's business premises, it so happened that the word 'chemist' appeared over the front of the shop while the word 'photographic' was at the corner of the building abutting the side street. The word 'chemist,' therefore, might be seen without the word 'photographic' being noticed. There was no allegation, however, that the chemist intended to mislead anyone as to the nature of his business; the word 'photographic' was intended to qualify, and did qualify, the word 'chemist.' Among the poisons sold by the chemist for use by photographers was a substance included in the schedule under the Pharmacy Act. In this case the chemist pleaded that his instructions were that poisons should only be sold wholesale, and wholesale sales were excluded from the operations of the Act; and, further, that his assistants were instructed to sell only to chemists or to 'persons engaged in photographing.' The Registrar's position was that anyone, by representing that he wanted poisons for photographic purposes, could obtain poisons included in the schedule without the restrictions provided by the Act. The Court in this case followed their decision in the previous case, and held the sections of the Act had been contravened."

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SPURIOUS DRUGS AND CHEMISTS.

A Birmingham paper, in commenting upon some prosecutions instituted by the Corporation of that city under the Food and Drugs Act, in which the defendants were convicted and fined (see report on p. 528), speaks of them as being important and salutary, inasmuch as "they reveal the existence of a certain amount of laxity in conducting a delicate and responsible business and —what is more serious—a persistent laxity, for two of the defendants had been previously convicted." The business thus referred to was the supply of medicinal preparations, and three persons—described as druggists—were convicted and fined for the offence of supplying tincture of aloes and tincture of iodine which were not of proper quality. The writer of the article states that "a very general impression exists that the supply of such commodities is not managed with the care and exactness which should be observed," and he adds that in consequence of this suspicion "medical men are in some cases driven to make up their own prescriptions for the simple reason that they cannot trust them to be closely followed." The imputation thus conveyed would be a serious one if it applied to the persons who are legally recognised as purveyors of drugs and medicinal preparations, for it is very properly explained that while the purchaser of ordinary articles of food is protected in a certain measure by common knowledge and experience and the use of his faculties, the buyer of drugs must rely on the honesty and accuracy of the person who supplies them.

These remarks have a very apparent plausibility, and to some extent they are reasonable; but the most important circumstance connected with the cases of prosecution to which they refer is that the defendants in those cases were not legally qualified chemists, except one, the charge against whom was withdrawn. Moreover, this fact appears to have been entirely overlooked by the writer of the article. In the same paper also the report of the trials at the Birmingham police court is headed "Chemists and the Pharmacopœia," although none of the persons actually charged with offences under the Food and Drugs Act were, in reality, registered chemists and druggists. Here, as in many other instances of conviction under the Food and Drugs Act, a false impression is conveyed by newspaper reports drawn up on the not unnatural assumption that persons selling drugs or medicinal preparations must necessarily be qualified chemists. In the reports of the Local Government Board, the statistical returns as to drug adulteration are equally misleading, and these circumstances go far to justify the legal restriction of the title chemist and druggist to persons who are registered in accordance with the Pharmacy Act.

But in order that such an appropriate restriction may be upheld and recognised by the public, it is essential that chemists should, in their own interest, be careful to abstain from transactions which might obscure the exceptional position in which they stand as the only legal vendors of scheduled poisons. For instance, it is undesirable that they should enter into arrangements, such as that referred to in the case reported in last week's Journal (p. 510), by which unregistered persons endeavour to evade the law. The plea that it was done inconsiderately, however well founded, is no excuse, and breach of the law cannot be justified by the argument that the provisions of the Pharmacy Act are not particularly well known, except to chemists, for since they relate especially to retail trade, it is the business of every one so engaged to be acquainted with them. Even the defendant's advocate could not avoid the conclusion that the prosecution for the sale of weed and vermin killers was intended only as a warning to seedsmen and florists, though he very inconsistently ignored the public duty of the Pharmaceutical Society, and assumed that it was acting chiefly in the interests of chemists. Another instance of a similar opinion being held is afforded by the case reported this week (p. 530)

MISUSE OF THE TERM "CHEMIST."

Registered chemists have too long and too often suffered in reputation for the misdeeds of unscrupulous individuals having no right whatever to be regarded as belonging to the same class. It would be well for them to take united action in their respective districts with a view to educating the public as well as their neighbours and the press to discriminate between legally qualified practitioners and pretenders. It is satisfactory to note in connection with the Birmingham cases under the Sale of Food and Drugs Act, referred to above, that Mr. Charles Thompson, of Birmingham, and Mr. G. F. Winfield, of Solihull, have lost no time in publishing letters in local papers pointing out that the defendants were not qualified chemists and druggists, and that the Pharmaceutical Society has had to institute numerous proceedings in the district against a similar class of persons to the defendants, for infringements of the Pharmacy Act. If every reference in newspapers to unqualified persons as chemists or druggists were at once succeeded by a disclaimer from the leading local pharmacists, a good effect could not fail to be produced in time.

THE ANTI-CUTTING AGITATION.

Several communications on the subject of "anti-cutting" in the drug trade appear in the present number of the Journal, and, doubtless, it may be anticipated that they will be succeeded by others dealing with the same absorbing topic. The long familiar arguments and counter-arguments will be once more marshalled in due order, and at the end of the discussion everyone who has taken part in it will, in all probability, retain his opinions unaltered. At the same time the air will be cleared, as by a thunderstorm, and those who advocate schemes of reform—quixotic or otherwise—will

find that the same insuperable difficulties that beset their predeeessors eontinue to clog more recent efforts. Moreover, difficult as it may appear to cite fresh arguments, such may be forthcoming. The space occupied by the eorrespondenee is therefore gladly afforded, and every faeility will be given to ensure a free and fair diseussion of the incidence, effects, and possible removal of what is undoubtedly a serious evil on the trade side of modern pharmacy.

Without venturing upon any expression of opinion regarding the merits or demerits of schemes now before the trade, it may yet be permitted to point out that, in regard to the reduced prices now current for various articles sold by chemists and druggists, the difficulty is one created in great measure by chemists and druggists themselves in past years. They have virtually made the trade in many proprietary articles, having been seduced for the time being by the abnormally large profits afforded by their sale—a sale aeeompanied by no trouble, and involving no application of science or art, or even of a modicum of intelligence. The demand for the articles being once created, others took advantage of it not so much to share the proceeds of an easy and lucrative business, as to attraet customers by under-selling, and the result has been generally disastrous to chemists and druggists who had come to depend to any extent upon that braneh of trade. The worst sufferers, of course, have been the immediate successors of those who reaped the original pecuniary benefit—once more the fathers have eaten the grapes and the children's teeth are set on edge.

Regarding the future, though it is difficult to speak with any approach to certainty, there are indications that this latest stage of the evolution of the modern pharmacist may, in truth, have better results than are generally prophesied. There is good reason to believe that the proprietary article problem will be solved, and that before long, by the manufacturers, who are being moved to action in self-defence. To this extent, indeed, the chemist and druggist has been of late proving his own salvation, in so far as he has studiously and persistently refrained from recommending proprietaries, and carefully kept such artieles in the background, instead of allowing them to constitute one of the most prominent features of the pharmaey. At present, therefore, just as publishers are viewing with inereasing favour the sale of books at fixed net prices, so it may be confidently expected that manufacturers of proprietary articles will find it to their interest to combine to maintain a fixed retail price. Over and above this, however, chemists and druggists are gradually finding that it is possible to earry on business without any dependence upon such artificial aids to success. The professional spirit unwisely ridieuled by some correspondents is manifesting itself as an outcome of the very struggle which seems to many to prove its non-existenee, and it may be that in a little while the chronic grumbler and scoffer will perceive the desirability of joining with his more far-seeing fellows in expressing thanks that he is above doing certain things that other men do.

SCHOOL OF PHARMACY STUDENTS' ASSOCIATION.

As recorded elsewhere (see p. 526) the above organisation has attained its majority, having held on its course for one and twenty years. During that time it has had the advantage of being under the presidential care of Professor Attfield, who now, in view of increased official duties, has elected to retire in favour of Professor Green, by whom its counsels will doubtless continue to be well and zealously directed, and its continuous prosperity ensured. Such an Association is of no slight assistance to a student at the outset of his career. There he will gain a kind of knowledge which no other method of instruction offers. In the pharmacy, the lecture-room, and the laboratory he learns the science and art essential to his calling, both in theory and practice ; but the Association is pre-eminently his own department, in which he learns how to arrange his thoughts in connected and intelligible order ; how to write papers on subjects which may interest others, and the compilation of which may be profitable to himself ; and how to draw up a creditable report relative to ehemical or botanical progress. All this is good work, and, indeed, imperative, for practice alone can give facility in this direction, and for this practice, natural ability proves no substitute. Moreover, a Students' Assoeiation should aim distinctly and sedulously at the cultivation of the art of speaking, for which reason a well sustained discussion is of paramount importance. One person only, at a time, can read a paper ; all, or most, can join in expressing an opinion on its merits ; perhaps, in eriticising doubtful points, or contributing further information. Thus confidence is gained, and true self-possession, the value of which qualities can hardly be over-estimated. We wish the Association a full measure of success, feeling confident that its prestige will not suffer now that it has entered upon its manhood.

THE SALE OF POISONS.

Though the 16th Section of the Pharmacy Act states very definitely that "nothing hereinbefore contained shall extend to or interfere with the business of a legally qualified apotheeary," a query addressed to the *British Medical Journal* appears to show that the extent to which this exemption applies is not fully understood. An M.R.C.S., L.S.A., keeping a retail shop managed by an assistant who holds the assistant certificate of Apothecaries' Hall, asks whether that assistant can legally sell poisons ? The reply is that the legality of such a sale is thought to be doubtful. There should not, however be any room for doubt, sinee a person holding the assistant' certificate is not a "legally qualified apothecary," and does not come within the exemption.

THE SALE OF STRYCHNINE FOR PHENACETINE.

A case of eonsiderable importance to the whole drug trade came on for hearing at the Birmingham Assizes, on Wednesday last, before Mr. Justice Day and a special jury. Elizabeth Harrop proeeeded against Wyleys, Limited, and James Brown, chemist, Hockley Hill, Birmingham, the action being to recover damages for the negligent poisoning of plaintiff's husband, and a further claim was made against Brown for damage to the estate of the deceased by selling him other than that which he contracted for. It will be remembered that the deceased, Charles Harrop, ealled at Mr. Brown's shop and asked for ten grains of phenaeetine powder (*vide* report of inquest on page 21 of *Pharmaceutical Journal* for July 6). The powder supplied to him contained stryehnine, and he died shortly after taking it. The evidenee showed that the mixed powder had been supplied to Mr. Brown by Messrs. Wyleys, Limited, the bottle in whieh it was sent out having been filled by an assistant not registered under the Pharmaey Act. Both defendants denied negligence, and the ease was accordingly gone into at length, but had not been concluded at the time of going to press. The detailed report must therefore be deferred until next week.

ANNOTATIONS.

British Pharmaceutical Conference.—It has been definitely decided that the British Pharmaceutical Conference shall commence its sessions in Liverpool, on Tuesday, July 28, 1896.

Edinburgh Chemists' Ball.—The Edinburgh Chemists' Annual Ball has been fixed to take place in the Freemasons' Hall, George Street, on Wednesday, February 5, 1896. The carrying out of this annual event is now in the hands of a committee of the Edinburgh District Chemists' Trade Association.

The Discovery of Argon.—Surely no discovery in pure science was ever so practically recognised as that of argon. It is now reported that the French Academy of Science has awarded the Lecomte Prize of 50,000 francs to Professor Ramsay and to Lord Rayleigh, for their researches leading to the discovery of argon. The prize was founded as a reward for the author or authors of a new and important discovery in chemistry, physics, mathematics, or medical science.

Manchester Pharmaceutical Association.—The third annual ball and musical promenade will be held at the Hulme Town Hall, Manchester, on Wednesday, January 22, 1896. M.C., Mr. T. B. Blyton. Music by Messrs. Forsyth Bros.' band. Double tickets (inclusive of light refreshments), 12*s.* 6*d.* each; single tickets, gentlemen, 8*s.* 6*d.*; ladies, 5*s.* each, to be obtained of the Hon. Secretary, Mr. A. Blackburn, 7, Exchange Street, Manchester, or any of the Committee.

Midland Chemists' Assistants' Association.—The officers of the above Association have been elected as follows:—President, T. C. Clarke; Vice-Presidents, H. S. Lawton and R. M. Williams; Hon. Treasurer, H. Jessop; Hon. Secretaries: Literary, H. M. Bindloss, 17, Bull Street; Financial, J. Selby, 17, Bull Street. Other members of Committee:—P. A. Arblaster, T. Barclay, jun.; H. Boucher, R. L. Davies, J. H. France, W. E. Meggeson, W. Peters. The session will be opened in earnest with a musical and social gathering on January 1, 1896.

The Sale of Quinine in Italy.—A Bill has been drawn up by the Italian Finance Minister, with the view of better regulating the sale of quinine in Italy, and rendering a supply of the drug available wherever it may be required, the latter purpose being served by allowing it to be sold at shops where articles of a privileged character, such as tobacco and salt, are sold. It is proposed that the sulphate and hydrochlorate of quinine shall be sold in circular tablets enclosed in capsules, at the fixed price of fifty centimes for three grammes of sulphate, or two grammes of hydrochlorate.

Garden Scholarships.—At the Missouri Botanical Garden, St. Louis, Mo., which is under the directorship of Dr. William Trelease, classes are conducted in floriculture, vegetable gardening, fruit culture, forestry, landscape gardening, economic entomology and mycology, vegetable physiology, general botany, the botany of decorative and hardy wood plants, fruits, vegetables, weeds, etc. Six scholarships for garden pupils are available and may be held for a period of four years, lodgings being provided for scholars convenient to the Garden, and a salary of from $200·00 to $300·00 per annum paid fortnightly. Paying pupils are also admitted for instruction, and the Garden seems likely to prove of great practical value in training expert gardeners.

Biography of Pereira.—We understand that the new volume of the 'Dictionary of National Biography,' to be published by Messrs. Smith, Elder and Co., on December 23, will contain a memoir of Jonathan Pereira, the pharmacologist.

Novel Advertising.—The *Newark Herald* for Saturday last is distinguished by a column innocent of printing ink, save for a brief paragraph at the top, which informs readers that Mr. John H. Smith, pharmaceutical chemist, Bridge Street, Newark, contracted with the proprietors for the column to advertise the low prices of his pure drugs, but "though he has to pay for it, at the last moment he has decided not to fill it, as by doing so his competitors would get to know his low prices." Apparently, no inconvenience is anticipated from this suppression of prices, for, in a postscript it is remarked that "the public already know them."

The Active Principle of the Thyroid Gland.—Dr. Sigmund Fränkel, of Vienna, has isolated from thyroid extract a very hygroscopic alkaloidal substance—thyreo-antitoxin, $C_6H_{11}N_3O_5$. This is odourless, soluble in water and in alcohol, and its taste recalls that of extract of beef. The aqueous solution has a neutral or slightly alkaline reaction. The properties of this substance are being investigated clinically, and no definite results are yet forthcoming. Dr. Fränkel is of opinion, however, that he has obtained the active principle of the thyroid gland, and that it is of definite chemical composition. He finds that its administration is not attended with the risk of ptomaine poisoning which sometimes occurs when an extract of the gland is used.

The Discovery of Snake Poison Antitoxin.—Professor E. Ray Lankester, in a letter to *Nature*, claims that the credit of the discovery of the antitoxin of snake poison belongs to Dr. Calmette, rather than to Professor T. R. Fraser. It appears that Dr. Calmette published a full description of his researches in the *Annales de l'Institut Pasteur* for May, 1894, demonstrating that animals can be rendered capable of resisting the effects of snake poisons injected into them in graduated doses, and also that the serum of rabbits so immunised contains a powerful antitoxin, which can be used successfully as an antidote to snake poison. Another paper by the same investigator appeared in the *Annales* for April last, when further information on the subject was given, whereas Professor Fraser's paper (see *Ph. J.*, June 8, 1895, p. 1137) was not read before the Royal Society of Edinburgh until two months later. It is noteworthy, however, that Professor Fraser has never laid any claim to priority in the matter.

Illegibly Signed Prescriptions.—A Paris *pharmacien* has been condemned to pay a fine of 500 francs by the Tribunal Correctional of Paris, for dispensing a prescription bearing an illegible signature. In France, medical practitioners are required by law to sign their prescriptions with their surname in full, and pharmacists are forbidden to dispense them unless they are so signed. The signatures are, as may well be imagined, frequently illegible, and a layman took advantage of this peculiarity in the present instance, signing the prescription himself in such a manner that it was impossible to decipher it. The desired mixture was duly prepared, and the *pharmacien* has to meet the cost, the Court holding that a pharmacist is bound to satisfy himself that the prescription really emanates from a diplomaed medical man, and that in the event of being unable to decipher the name, he must ascertain it from the patient, and confirm it by reference to a medical directory.

PROCEEDINGS OF SOCIETIES.

School of Pharmacy Students' Association.—The opening meeting of the session was held on Thursday, December 5, the President, Professor Attfield, F.R.S., occupying the chair.

The minutes of the previous meeting were read and confirmed, Mr. E. J. Eastes acting temporarily as Honorary Secretary in consequence of the resignation of Mr. F. W. Short.

The President, in tendering his resignation of the presidency, delivered an address, which he entitled—

"*The Coming of Age of the School of Pharmacy Students' Association.*"

In the course of the address he gave a review of the history of the Association from data compiled by Mr. E. J. Eastes, of which the following is a *résumé* :—

At a meeting of the Council of the Pharmaceutical Society, held January 6, 1875, a memorial was read from a number of students stating that they had formed themselves into an association for promoting general and pharmaceutical education, and asking the permission of the Council to hold their meetings in the Society's house. After some discussion, the Council gave its approval and sanction to the proposition.

The President of the Association was Professor Attfield, the Vice-Presidents, Mr. Shapley and Dr. Senier ; the Secretary and Treasurer, Mr. John Morris Broad.

During the session 1878-9, on the motion of Dr. Senier, it was resolved that certain members be appointed to make reports on pharmacy and the allied branches of knowledge, and the following committee of Reporters on Science was thereupon appointed :—

Pharmacy	J. G. Sangster.
Botany	F. W. Branson.
Materia Medica	R. H. Parker.
Inorganic Chemistry	C. H. Hutchinson.
Organic ,,	H. Allen.
Analytical ,,	W. R. Dunstan.
Chemical Physics	A. Senier.

Such a committee has been a permanent feature of the Association ever since.

In December, 1879, the following letter was sent to all members of the Association :—

"The following subjects have been suggested as illustrating the kind of pharmaceutical papers suitable for reading before the Association. It is hoped that if you have interested yourself in any of these or allied subjects, or may be willing to do so, you will communicate to me the title of the paper or note you intend reading, and the probable date of such communication.

The Preparation of Suppositories.
Plaster Spreading.
Phosphate Syrups.
The Deposits Occurring in Tinctures.
Scale Compounds.
Notes on Dispensing Queries.
Suggestions for the Improvement of Pharmacopœial Formulæ and Modes of Preparation.

The Committee will also, as usual, be glad to receive promises of papers of a chemical, physical, botanical, or educational character."

At the commencement of the session, in November, 1883, two changes were made. An assistant-secretary, in the person of Mr. F. W. Short, was appointed to assist the Secretary, Mr. W. R. Dunstan, in the management of the Association, and the annual opening address, which had previously for nine years been always delivered by the President, Professor Attfield, was given by Mr. Joseph Ince. In the succeeding years the opening addresses were given by the undermentioned :—

1884.—Mr. R. W. Giles.
1885.—Professor Redwood.
1886.—Mr. S. R. Atkins.
1887.—Mr. G. F. Schacht.
1888.—Professor Dunstan.
1889.—Professor J. R. Green.
1890.—Mr. N. H. Martin.
1891.—Mr. Michael Carteighe.
1892.—Mr. H. G. Greenish.
1893.—Mr. F. Ransom.
1894.—Mr. R. Hampson.

During the same session, 1883-4, application was made by the lady students of the School for admission to the Association. As there was no power under the then existing rules to admit them, a special general meeting was called, and the rules of the Association were revised throughout. Six ladies thereupon joined the Association.

During the session 1890-91 an amendment was made in the rules of the Association providing for the admission of life members. The life membership fee was fixed at 10*s.* 6*d.* There are now twelve life members on the list.

At a meeting held March 21, 1892, a scheme was drawn up for organising botanical excursions on Saturday afternoons. Several such excursions took place during the ensuing months. Similar arrangements have been made every session since.

As the fund of the Association accumulated, it was utilised in making grants to defray the cost of material for members preparing papers which involved costly experiments.

The following table shows the support the Association has received during the last twenty-one years.

Session.	No. of Members.	Meetings.	Papers and addresses.	Average attendance.	Secretary.
1874-5	58	13	11	18	J. M. Broad.
1875-6	79	19	25	18	Dr. A. Senier.
1876-7	101	19	23	25	J. H. Hugill.
1877-8	92	15	23	24	H. G. Greenish.
1878-9	91	17	25	20	H. Allen.
1879-80	56	16	29	17	W. R. Dunstan.
1880-1	52	15	20	15	,,
1881-2	52	15	24	18	,,
1882-3	62	14	26	21	,,
1883-4	83	16	29	19	,,
1884-5	81	16	24	16	F. W. Short.
1885-6	63	14	24	16	,,
1886-7	71	14	24	16	,,
1887-8	70	15	27	20	,,
1888-9	66	13	27	22	,,
1889-90	70	13	23	17	,,
1890-1	74 (including 3 life)	12	21	21	,,
1891-2	77 ,, 7 ,,	13	21	22	,,
1892-3	78 ,, 8 ,,	14	26	24	,,
1893-4	69 ,, 9 ,,	14	27	20	,,
1894-5	62 ,, 10 ,,	14	20	15	,,

At the conclusion of the address, the votes for the election of officers were taken, Messrs. Payne and Lean acting as scrutineers. Mr. Payne reported that for the office of Vice-President, Mr. E. J. Eastes and Mr. H. A. D. Jowett had been nominated, and they were therefore duly elected ; Mr. E. Goulding and Mr. T. Tickle were elected Secretaries.

For the election of an Executive Committee of four, there were ten candidates, of whom the following four stood at the head of the poll :—Mr. E. A. Umney with 24 votes ; Mr. G. Sinter, 22 ; Mr. F. U. Stamp, 18 ; Mr. E. C. Spurge, 17.

The Chairman declared these four elected, and then proposed that Professor J. R. Green, F.R.S., be elected President. Mr. F. W. Short seconded the motion, which was put to the meeting and carried unanimously.

Professor Green then took the chair, and, after a short address, the meeting proceeded to the business of electing a Treasurer, for which office Professor Attfield was unanimously chosen.

A vote of thanks to the retiring President, proposed by Professor Green and seconded by Mr. Joseph Ince, was then carried with acclamation, after which the meeting adjourned.

Manchester Pharmaceutical Association.—At a meeting held on Wednesday, November 11, the President, Mr. G. S. Woolley, took the chair, and Mr. Charles Turner gave a lecture on some of the methods of reproduction to be found in the vegetable kingdom, the Cryptogamia receiving special attention.

The subject was fully illustrated by a large number of lantern slides, and microscopic preparations shown under about a dozen microscopes provided for the purpose, the instruments belonging to the Association doing good work in this respect.

In opening the subject the structural differences between the fertilised and the unfertilised oosphere was pointed out.

The various stages in the development of *Ulothrix* were shown, and the larger growth produced by the zygospore formed by th union of the two gametes, compared with that seen when the

grew without conjugation, was noted as illustrating the advantage attending the former method.

An interesting slide photographed from a specimen of *Spirogyra*, which was exhibited under one of the microscopes, showed a special feature from the fact that in several instances two cells of the androphyte had attempted to conjugate with one cell of the gynophyte. In these cases the union of the cell-contents took place with one male element only; the other cell, though affecting a union with the cell-wall, did not actually transmit the cell-contents. The inference to be drawn is that, as a protuberance is formed on each of the male cells and two on the female, a substance having the power of stimulating the growth of the cell-wall is produced by one or both filaments.

It was noted that cross fertilisation is frequently the rule in cryptogamic plants, as well as in the flowering plants, *Vaucheria* being taken as an illustration; the species of this plant, which are monœcious, are almost invariably proterandrous, and many species are dicœcious, a large species common in the marsh "drains" of Lincolnshire well showing this. Again, the gametophytes of Equisetum arrive at maturity at very different periods, the male taking about five weeks, and the female three months to develop, hence, possibly, the elaborate structure of the antherozoids of these plants. Among the objects exhibited were the gemmæ of mosses, and microscope slides showing the two nuclei in the pollen of *Lilium candidum*.

The meeting was open to students, and several attended with their microscopes to aid in showing the various objects of interest. A cordial vote of thanks was unanimously awarded to Mr. Turner at he close of his lecture.

Aberdeen Assistants' and Apprentices' Association.—At the fortnightly meeting of the above Association, held on Friday, December 13, a paper was read by Mr. Peter Boa, of Edinburgh, upon "Over-Concentration in Pharmacy." The chair was occupied by Mr. John Johnston, and the Senior Association was also represented by Messrs. Clark, Ritchie, and Shepherd. Mr. Boa, after a brief introduction by the Chairman, stated that a primary condition of his coming was to invite a free discussion on the points he intended to raise, and he hoped members would not scruple to criticise his remarks. Concentration, he said, was much in fashion just now, instanced in liquids, foods, and drugs. Some few remained by intrinsic merit. Some were merely a means of bringing game to the designer and manufacturer, and kept in only by advertisement and continuous and persistent pushing. Even then the hold maintained was slight, their use depending largely on convenience, efficiency being often a minor consideration. Selective power, he took it, was a factor with which they had to reckon, and illustrations were made by reference to typical national beverages.

Selection, he said, had settled the question already, and the principle was not affected or violated by exception. If the popular verdict were considered, it would be concluded that it could never be satisfied with the concentrated system only. Notwithstanding all the beef juices and extracts, people still made their own beef-tea. The only way in which the concentrated article could remain, was that the disuse of method in preparing the other was apt to generate deterioration in the article self produced, and the ultimate preference for the concentrated form became ensured. From this he drew a parallel between medicine and disease, food and health. The more concentrated the medicine the more easily was it got over, a consideration of no mean value to the consumer, and while it was open to doubt whether a dose of black draught was strictly comparable in action to a capsule of similar strength, by using cathartic acid and dried magnes. sulph., lying as it did beyond the pharmacist's province, yet he could not help saying that pharmacy was largely to blame for the introduction of the concentrated forms so much in vogue. One had led to another, the results of rival makers, till, by further and continual modification of the drug, the latter became indistinguishable. Concentrated forms in the shape of infusions, etc., were primarily introduced for doctors who dispensed their own medicines, and from them had passed on to the pharmacist. If the drug had to be diluted, why not do so from the beginning. Cheapness was not always a factor, and infusion of quassia was mentioned as a case in point. The danger from atrophy had to be faced, and while much was talked of the science and art of pharmacy, he could not trace much skill in adding 1–8. At the same time he showed that pharmacists had, as a body, repudiated those preparations which seemed to have official sanction, as in vin. ipecac. and tinct. nucis vom., both of which (even though the latter was standardised) were viewed with disfavour. After all, the powder state was the best for activity. It was significant that specialists differed materially over the concentration of fluid extracts, and the different methods of producing them. The selection of menstrua was one which demanded investigation.

Lastly, it was shown that this tendency to over-concentration was not confined to the manufactory, but extended to the medical man as well. They saw frequent and glaring examples of it in ordinary practice. The reason for such, he thought, lay more in the deficient system of training in the medical schools, and, seeing that the tendency was strongly favourable to committing the teaching of pharmacy proper to pharmacists, it behoved them, as a body, to be prepared for the opportunity when it came. The custom of prescribing patent medicines in concentrated form was, on the whole, to be deprecated. In conclusion, Mr. Boa touched on the question of extracts 1 in 1, the certain deposit indicating loss of strength, and he thought 1 in 2 was strong enough to be compatible with efficacy. He invited free discussion on the several points raised.

The Chairman remarked that Mr. Boa had opened up a wide field for discussion on a subject most pertinent to the trade. With reference to the prescribing of strong drugs in the form described, he desired a return to the older form of prescription. Mr. Forbes, President of the Junior Association, agreed in the main with Mr. Boa's argument. Referring to the concentrated infusions, he thought many chemists prepared them themselves. Mr. D. M. Macdonald had imagined from the title that Mr. Boa intended dealing with the subject in reference to men and education, and observed that the policy presently adopted in virtue of the new regulations was having the same result as Mr. Boa deprecated regarding commodities. He had appreciated the paper and agreed with Mr. Boa in connection with vin. ipecac., as the marc was found to be actively emetic, proving incomplete exhaustion. Mr. J. Clark discussed the paper generally, and Mr. Boa then summarised the various points in the discussion. Mr. Boa was, on the motion of the Chairman, cordially thanked for visiting the Association and expressed his intention of coming back again. On the motion of Mr. Ritchie, Mr. Johnston was then thanked for his occupancy of the chair, and the meeting then terminated.

Edinburgh Chemists', Assistants', and Apprentices' Association.—The second meeting of the eighteenth session was held in the Pharmaceutical Society's House, 36, York Place, Edinburgh, on Friday, December 13, at 9.15 p.m., Mr. J. Mackintosh Cameron, President, in the chair.

The minutes of the last meeting having been read and approved, the following papers were read:—

"*Notes on a Sample of Victorian Opium,*"
by William Duncan.

I lately received from a former pupil settled in Victoria a sample of opium grown and manufactured in that colony. Opium cultivation was started some years ago in Australia, but as an industry it is not a paying business in Victoria, the grower finding it more profitable to place the poppy capsules on the market rather than go to the expense of collecting and manufacturing opium. The sample is a flattish, roundish lump, weighing exactly four ounces. It resembles Smyrna opium very closely, being wrapped in poppy leaf, but destitute of rumex fruits. Externally it is of a brownish black colour, but internally of a light reddish brown, lighter than the average Turkey opium. It is impossible to distinguish it from the latter by the smell. Its chief peculiarity is its extreme brittleness, breaking with bright shining fracture not unlike Barbadoes aloes. It could be reduced to powder without previous drying. This condition is probably due to the age and prolonged exposure of the sample. Tested by the Pharmacopœial process, it yielded 12·7 per cent. of morphine, thus comparing favourably with Turkey opium.

The next communication was on—

"*Gastrolobium bilobum: the Poison Weed of Western Australia,*"
by William Duncan.

A specimen of this plant, believed to be one of the most virulent of the poison weeds, was recently given to me for experimental purposes. The genus *Gastrolobium* appears to be peculiar to Western Australia. In certain districts it is very abundant, and causes the death of large numbers of cattle which browse upon the leaves. The following particulars are supplied by a gentleman who has frequently witnessed its poisonous effects on various animals:—Sheep and cattle begin to show symptoms of poisoning as soon as they chew the cud, and they die quickly. Horses, after eating the leaves, begin to swell at the head and

neck, and die in about two or three days. Pigeons and other birds feed and grow fat on the seeds, and their flesh may be eaten with impunity, but dogs have been frequently poisoned by eating the bones of such birds. The symptoms resemble those of strychnine poisoning or hydrophobia. Repeated attempts to isolate the poisonous principle have hitherto been without success. In the 'Treasury of Botany' it is stated that the stomach of the animal assumes a brownish colour, and becomes very tender. The raw flesh poisons cats, and the blood poisons dogs, but the cooked flesh can be eaten and is eaten with impunity by the natives. This agrees with the information supplied to me, and my informant mentions that he once had a greyhound poisoned by eating a raw bird. These facts lead me to suggest that the poisonous constituent is of the nature of an albumose found only in the fresh leaves, becoming inert when dried and destroyed by heat as in cooking. I have hitherto failed to isolate any definite principle, but, as I have now obtained seeds, something may be learned from an examination of the fresh plant.

The next communication was on—

"*Dispensing Queries*," *by William Duncan.*

In the following prescription the whole of the menthol, on addition of the spirituous tincture, collected and formed a cake on the top of the liquid :—

℞ Tinct. iodi	℥v.
Menthol	℥iss.
Glycerini	ʒi.
Aquam. ad.	℥iv.

A suitable mixture was obtained by dissolving the iodine and potassium iodide in the water, then reducing the menthol to powder and rubbing it up with the glycerin, and adding the rectified spirit of the tincture last.

In the case of the following prescription the lithium carbonate and potassium bicarbonate crystallised out on standing :—

℞ Tinct. strophanthi	♏v.
Lithii carb.	grs. ii.
Potass. bicarb.	grs. xv.
Sp. ammon. aromat	ʒi.
Aquam. ad.	℥ss.

The crystallisation was due to the large quantity of alcohol present, and could only be avoided by increasing the quantity of water.

In the following instance complaint was made that the mixture became muddy from separation of a crystalline precipitate :—

℞ Quin. sulph.	ʒi.
Glycerini	℥iv.

Add acid. hydrom. *q.s.* to dissolve the quinine.

If acid. hydrobrom. dil., B.P., is used the solution is quite clear. The muddiness was found to be due to the use of acid. hydrobrom., made by Fothergill's process from potassium bromide and tartaric acid, with consequent separation of quinine tartrate.

The following lotion, on standing, soon deposited crystals :—

℞ Boroglyceride	℥i.
Glycerini	℥i.
Lot. hydrarg. perchlor. (⅛ gr. to ʒi.)	℥vi.

The crystals consisted of boric acid, formed by hydration of the boro-glyceride. This could not be avoided, and the mixture was, therefore, incompatible.

In the next prescription there was separation of a flocculent precipitate, and the question to be answered was whether, and if so when, the precipitate should be filtered out. Mr. Duncan said if it was to be filtered it should be done before addition of the liquor strychninæ, to avoid possible loss of alkaloid. He thought it was always permissible to filter such mixtures for the sake of appearance, provided there was no loss thereby of active ingredients.

Mr. George Coull, B.Sc., then exhibited and explained a series of interesting diagrams illustrating, among other things, the manufacture of boric and nitric acids, Dumas' and Boussingault's method of determining the gravimetric composition of air, Dumas' and Stas' method of determining the composition of carbon dioxide, Dumas' synthesis of water, Moissan's isolation of fluorine, Pictet's and Cailletet's apparatus for liquefaction of gases, Andrews' isothermals of carbon dioxide, showing the relation between the gaseous and liquid states, and Lothar Meyer's curve, showing the periodicity of the atomic volumes of the elements when plotted against their atomic weights.

The discussion which followed was taken part in by Messrs. Cameron, Coull, Duncan, Hill, McEwan, and Sinclair, and on the motion of the Chairman a cordial vote of thanks was awarded to Messrs. Coull and Duncan.

Liverpool Pharmaceutical Students' Society.—At the usual fortnightly meeting held in the University College, on the 12th, Mr. F. Walker brought to the notice of the members a mixture he had had to dispense containing salol, ʒiss.; benzonaphthol, ʒiss.; syrup, ʒi.; and water to ℥viii. As it was impossible to make a very presentable mixture without the use of mucilage, he used as small an amount as he could, viz., ʒiss. The result was satisfactory as regards the mixture, but the customer brought it back, and complained that it was not so thick as some she had had dispensed elsewhere. It would be as well, Mr. Walker thought, if in such cases the first dispenser were to note on the prescription the amount of mucilage he used, for the guidance of others. The President agreed with Mr. Walker that any additions to, or alterations of, such prescriptions should be indicated by dispensers. He personally should have felt inclined to use at least an ounce of mucilage.

A specimen of legumes of the Mezquit Bean from Peru, of a cream colour, about 4 inches long and 1/3 inch broad, the beans of which had a sweetish taste, and seemed very like ordinary "haricots blancs," was shown by Mr. G. V. C. Last, who asked if any member could tell him to what uses the beans were put; however, the requisite information was not forthcoming. They were probably the legumes of *Prosopis pubescens*, used in Arizona for feeding cattle, where they go by the name of Mosquit, or Screw Beans. A gum called mesquite gum from another *Prosopis*—the *P. dulcis*—growing in South America, is sometimes employed as an ingredient of jujube pastes.

A paper by Miss E. M. Woods, a "Sylvan Sketch," which was well illustrated by means of herbarium specimens of the leaves and fruit of various indigenous trees, was listened to with pleasure by the members, and at its conclusion an interesting discussion took place, most of the members participating.

ENGLISH NEWS.

Proceedings Under the Sale of Food and Drugs Act at Birmingham.—The Birmingham magistrates were occupied for a considerable time on Friday, December 13, investigating several summonses issued at the instigation of the Health Committee, under the Sale of Food and Drugs Act. In the first case, John Atkins, 78, Stafford Street, chemist, was summoned for supplying tincture of aloes in excess of the Pharmacopœia strength.—The inspector under the Act deposed to purchasing a quantity of tincture of aloes at defendant's shop. Defendant knew witness was an officer, and immediately he had given him the tincture he said he had made a mistake and given him compound instead of simple tincture of aloes. —In cross-examination witness admitted that defendant said the compound cost twice as much as the tincture.—The city analyst (Dr. A. Hill) said that the sample he analysed had 40 per cent. more ingredients in solution than the Pharmacopœia ordered, and the spirit was very much stronger than it should have been. The effect of taking the mixture might, or might not, be dangerous. The principle, however, was one of grave importance, because the same thing occurring in other drugs might be attended with fatal results. Defendant said that the tincture he supplied was practically in accordance with the London Pharmacopœia of 1851, and was official up to the time of the formula of the B.P.—It transpired that the inspector had entered the article supplied to him as compound tincture, and on this the Bench held that the case must break down. The assistant town clerk thereupon withdrew the summons, which was the only one against a registered chemist.

Messrs. James and Henry Mayou, 217, Great Lister Street, were summoned for supplying tincture of iodine which, on analysis, proved to contain 150 per cent. of iodine, and 50 per cent. of potassium iodide in excess of the quantities ordered by the B.P., and also 10 per cent. of foreign matter, viz., glycerin.—For the defence it was contended that the iodine was sold as a liniment for outward application.—Dr. Hill said that it was only half the strength that liniment should be.—A fine of £1 and costs was imposed.—Aquila Baldwin, Great Lister Street, surgeon, was summoned for supplying tincture of aloes which was otherwise than in accordance with the formula of the B.P.—Dr. Hill deposed that the sample purchased from defendant's shop by the inspector contained 40 per cent. of solid ingredients, and 50 per cent. of spirit

in excess of the formula.—Defendant said that the preparation was sold as "tinct. aloes co.," and was in accordance with the London Pharmacopœia. It was more efficacious and expensive than the simple tincture.—Dr. Hill said that the production in question was not recognised officially, either in pharmacy or medicine.—Defendant's assistant said that he understood the inspector to ask for "tinct. aloes co."—A fine of £1 and costs was inflicted.—Edward Morgan, 318, Nechells Park Road, was fined £1 and costs for supplying tincture of iodine 90 per cent. in excess of the strength laid down in the B.P.

Sunderland Chemists' Association.—The annual dinner of the above Association was held at the Grand Hotel on Wednesday, December 11, when the following were present:—Councillor J. Harrison, J.P. (President), J. Mitchinson (Vice-President), the Mayor of Sunderland, Major Peacock, Councillors Turnbull and Ranken, Messrs. Leadbitter, R. H. Bell, G. P. Fairman, C. Ranken, T. Nasbet, C. Hodgson, T. Walton, M. J. Todd, T. B. Nicholson, A. D. Birse, W. Hudson, E. R. Cherrett, Ed. Harrison, H. J. Turnbull, jun., A. W. Golightly, R. Robinson, R. White, T. B. Harrison, F. Pumphrey, Wm. Bartram, F. Ranken, G. Morgan, A. G. Bell, J. Tomline, E. Dobinson, R. Harrison, Prosser, R. Turnbull, and Cook. After dinner the loyal toasts were given and honoured. The remainder of the evening was spent in a most enjoyable manner. The following took part in songs, etc.:—R. White, A. D. Birse, H. J. Turnbull, jun., F. Ranken, A. G. Bell, and Cummings.

The Huddersfield Poisoning Case.—At the Yorkshire Autumn Assizes, held at Leeds on December 12, before Mr. Justice Grantham, Annie Robinson, aged 38, of 82, Leeds Road, Huddersfield, was indicted for feloniously administering white precipitate to her husband, Rowland Robinson, with intent to murder him. According to the medical evidence, the white precipitate had been administered in Benger's Food and in milk.—Mr. George Jarmain, the borough analyst of Huddersfield, stated in his evidence that the excreta of Rowland Robinson contained 3·08 grains of metallic mercury, which was equal to 3·87 grains of white precipitate. On September 28 he received three bottles, containing milk, prepared food, and vomit. He first analysed the milk, and found a deposit of white precipitate, and on analysing the food and the vomit, he found the first to contain white precipitate, and the latter a small quantity of mercury.—The accused was found guilty and sentenced to twenty years' penal servitude.

Poisoning by Oxalate of Potassium.—On December 13, Mr. R. R. Rodd, County Coroner, held an inquiry at the Hyde Park Hotel, Plymouth, respecting the death of Miss Edith Archer, of 28, Westleigh Avenue, Compton Giffard, who committed suicide on December 11 by taking oxalate of potassium. Dr. E. P. A. Marriette, who made the post-mortem examination, attributed death to irritant poisoning, and stated that his opinion was that the deceased was of unsound mind. The jury returned a verdict in accordance with his evidence. Dr. Marriette expressed the opinion that oxalate of potassium, which is almost as virulent a poison as oxalic acid itself, should be included as a scheduled poison under the Act of Parliament.

IRISH NEWS.

Pharmaceutical Society of Ireland.—The monthly meeting of the Council was held on the 4th instant, when the President, Mr. W. J. Wells, took the chair. A letter from Mr. Hodgson announced that he would continue to be a member of the Council. A letter from the Director-General of the Medical Department of the Royal Navy stated, in reference to the application of the Society, that its licentiates should be eligible for appointments in the Navy, that new regulations had not yet been issued, but that the question of qualification of future candidates was under consideration.

A letter from the Clerk of the Irish Privy Council, Mr. Dougherty, stated, in reference to the proceedings before the Privy Council, to have the name of R. C. Marshall removed from the Register, that it was not the place of the Lord Lieutenant or of the Privy Council to lay down rules for the special guidance of the Society, and that they should act on their own judgment and discretion in such matters. A subsequent letter formally intimated that His Excellency declined to make any order in the case of Mr. Marshall.

The President said he thought the Privy Council had misunderstood what the Council of the Society wanted. One of the learned judges stated at the hearing at the Castle that some regulations were requisite as to the mode of procedure under the Clause sought to be put in operation against Mr. Marshall.

A letter from Mr. James K. Miskelly, chemist and druggist, complained of a person having called at his shop and made persistent attempts to get him to make up a prescription notwithstanding that he was several times told that Mr. Miskelly was not licensed to do so. The President said that neither the Council nor the said Committee had ever authorised any persons to visit the shops of chemists and druggists and try to coerce them to break the law. It was only after the Council had had some evidence before them that a particular individual was breaking the law, that they sent their inspector to his shop to get a prescription made up. He could say that the person who visited Mr. Miskelly's shop was in no way connected with the Council, nor was he sent there by any of their friends in Belfast. The probability was that he pressed to have the prescription made up because he had it made up on other occasions at similar houses.

The President, in asking the Council pursuant to notice to take into consideration the examination for Registered Druggists, with a view to making it more stringent and complete, said that the existing curriculum did not oblige the candidates to be acquainted with the properties of dangerous drugs, the doses in which they could safely be administered, and other important details. Other members of the Council concurred with the President, and it was resolved to refer the subject to the House and General Purposes Committee, with instructions to consult the Examiners before reporting to the Council.

Mr. Hayes reported that he had attended the Conference held at the Institute of Chartered Accountants on October 30, in reference to the amendment of the Companies Acts, and had suggested a clause for introduction into the last Act. After some discussion, a resolution was passed approving of Mr. Hayes' action, and of the first part of the clause he suggested, but directing that the word "directorate" should be struck out of the latter part of it, and the word "company" substituted.

Mr. Kelly complained that situations which ought to be held by pharmaceutical chemists were now very generally given to medical practitioners. The attention of the Medical Council and also of the Colleges of Physicians and Surgeons should be called to the matter. Mr. Bernard quoted a paragraph which had appeared in the Dublin *Evening Telegraph* stating that a diver named William Stevens, who had to go into Toxteth Workhouse was employed in the dispensing department there, and "made such good use of his opportunities that he had passed the examination of the Dublin Apothecaries' Hall, and had got an appointment as dispenser for Woolwich Union at a salary of £90 a year, with free house." The Apothecaries' Hall authorities should be asked if they had that gentleman's name on their register. The President said there was no objection to that.

Other business was disposed of, and the Council adjourned.

Pharmaceutical Society of Ireland.—The Preliminary examination will take place on Monday, the 6th proximo, and the Pharmaceutical Licence examination, on Wednesday, the 8th prox., and following days. Applications should be lodged with the Registrar by Monday, the 23rd inst., in the case of the former, and by Tuesday, the 24th inst., in the case of the latter.

Adulterated Linseed Meal.—At the Belfast Summons Court, on December 10, before Messrs. F. G. Hodder, R.M., E. W. Pim, J.P., and J. J. M'Donnell, J.P., John B. Robinson, chemist, Duncairn Street, was summoned by David M'Master, inspector of food and drugs, for having sold adulterated linseed meal. Mr. A. J. Lewis prosecuted, and Mr. D. M'Gonigal defended. It was stated for the prosecution that the linseed meal which the complainant had bought from the defendant contained 25 per cent. of farinaceous matter.—A fine of 20*s.* and costs was imposed.

The Royal Dublin Society.—At a General Meeting of this Society, a few days ago, a strong protest was made by one of the members against the present practice of a duality of appointments. One gentleman was both chemist and registrar. The time had come, he thought, when they should separate these offices; frequently he had gone to the Registrar's office and found him absent.

Cleeland v. The Pharmaceutical Society of Ireland.—The arguments in this case are expected to come on for hearing in the Court of Queen's Bench, Dublin, shortly.

WELSH NEWS.

Swansea Public Analyst.—This post has not yet been filled up, although a meeting of the Corporation sub-committee was held last week for the purpose. The Town Clerk has obtained information from other towns as to the salaries paid to borough analysts, and the conditions under which they are engaged. It is expected that the appointment will be made at an early date.

A Terrible Death.—An operative named Thomas Thomas, employed at Messrs. Bevan's Chemical Works, Llanelly, met with a terrible death last week. Whilst repairing a pipe, he fell into a tank of vitriol below and sustained such injuries that he died directly afterwards. At the inquest the jury returned a verdict of "Accidental death."

Drugs for Swansea Hospital.—Some discussion has recently taken place at Swansea on the contract for drugs at the local hospital. This year it has been given to a member of the Committee, and the contention is put forward that the competition should be an open one.

Suffocated by Acid Fumes.—On Monday afternoon, Richard James, aged 45, a labourer, was found at the Briton Ferry Chemical Works, where he was employed. It is supposed that he was overcome by gas whilst ascending the ladder of one of the acid chambers, which he was charging, and fell to the ground.

PROCEEDINGS UNDER THE PHARMACY ACT.

The Sale of Ant-Destroyer in Glasgow.

At Glasgow, on Monday last, Thomas Bryce Buchanan Kerr, assistant to Messrs. Alexander Cross and Sons, seed merchants and chemical manufacturers, 19, Hope Street, was charged with an offence within the meaning of the 1st and 15th Sections of the Pharmacy Act of 1868, in so far as on October 15, not being a duly registered pharmaceutical chemist, or chemist and druggist within the meaning of the Act, he sold by retail a quantity of arsenic which, at the time, formed an ingredient in a bottle of "Ballikinrain Ant-Destroyer," whereby he became liable in a penalty of £5. Mr. T. B. Morison, advocate, instructed by Messrs. Martin and Barrie, writers, prosecuted, while Mr. William Borland, writer, appeared for the defence. The respondent pleaded guilty.

Mr. Borland said the prosecution was under a Statute which was entitled the Pharmacy Act of 1868. The accused was a salesman in the employment of a firm of seedsmen, and the article that he was charged with having sold was called an ant-destroyer. It was used for eradicating ants, cockroaches, beetles, etc., and was sold in a sealed bottle, ready for use. These bottles being on the premises ready for sale, all the accused did was to sell one of them sealed and labelled, as the one was he now held in his hand. He had no hand in the preparation of it, and he had no knowledge of the contents of it, except that he knew it was a poison; and he knew it was a poison because it was so labelled. What he submitted was that, while he was not going to argue that it was not an offence under the Statute—he did not know if he could argue that in face of the plea which had been tendered and decided—he submitted that the Statute read by any unsophisticated person would not be understood to apply to a case of this kind.

The Sheriff: Do you refer to me as an unsophisticated person?

Mr. Borland said the accused was an unsophisticated person, and that as he had never been charged before, and never been warned in any way, and this being his first offence, he ought to be dismissed with an admonition. He then referred to the scope of Section 15, which dealt with provisions necessary for the protection of the Pharmaceutical Society, but why he could not say. The Statute said, "From and after 31st December, 1868, any person who shall sell or keep open a shop for the retailing, dispensing, or compounding of poisons." He submitted that all these offences pointed at the same description of person. That was to say, it was the person who was in the habit of dealing in poison in the way of retailing, dispensing or compounding. Then it went on, or "who shall take or exhibit the name or title of chemist or druggist, or chemist, or druggist, not being a duly registered pharmaceutical chemist or chemist and druggist, or who shall take, use, or exhibit the name of, or title of pharmaceutical chemist, pharmacist or pharmaceutist" and so on, was liable to be prosecuted at the instance of the Pharmaceutical Society. He said any unsophisticated person reading that would understand it to mean that people who were popularly known as druggists were to have certain qualifications, and they were not to evade the law requiring them to have those qualifications by calling themselves pharmacists, chemists, pharmaceutists or anything of that kind. Every clause and sentence of that part of the Act contemplated the class of people to which the accused did not belong. He was not going to argue that if the words of the Statute were scrutinised they would not be found to include the accused or any person else who happened to sell poisons. People were not warned away from this Act by its being called the Pharmacy Act of 1868. Excepting people who were acting as pharmacists in some form or another, ordinary inhabitants of this country were not tempted to read the Statute. In point of fact, it had never previously been applied to such things as insect destroyers and the like of that, so far as he ever heard—at all events, not in Scotland—and it looked to him very much as if that was an attempt to deprive any other retail trader of the opportunity of selling a sealed bottle like that, by requiring that those sealed bottles should be sold by persons holding a certain qualification. It was an instance of a class of Statutes that was becoming too common nowadays, granting privileges to a Corporation that used them exclusively for its own aggrandisement, and not for the benefit of the public. Under this Statute the Society had the exclusive right of admitting or not admitting a person to sell in this way, and the members, of course, took very good care to use those privileges for the benefit of themselves and those who were already in the trade. The Section under which defendant was prosecuted dealt solely with the selling of poisons; and those, as in that case, being exhibited to the buyer as poison, the buyer was as completely protected as if it had been sold by anybody else, be his qualification what it might. The only object in insisting that a pharmaceutical chemist was to sell these poisons was that the seller might know that it was a poison and warn the purchaser. There was no public interest whatever concerned in that prosecution. There was no patrimonial interest of some chemist and druggist in Glasgow who had not had the opportunity of selling that particular bottle, which he thought he ought to have been able to sell instead of its being sold by a seedsman. It was not a prosecution that should be received by the court with any great favour, and being a new departure, so to speak, if any penalty was to be imposed at all, it should be a nominal penalty, but he submitted it should be a dismissal with an admonition. There was no end to the prosecutions that might take place under this Act. He expected Messrs. Wylie and Lockhead would be summoned some of these days for selling wall-paper with poison on it.

Mr. Morison said the case was a very serious one, and he moved for the full penalty. His friend had entirely mistaken the purposes of these prosecutions, and he had entirely misapprehended the whole of the provisions of the Pharmacy Act. He was wrong about the title of the Act, for one thing, because the title of the Act was, "An Act to regulate the sale of poisons, and alter and amend the Pharmacy Act, 1852." So that any person, however unsophisticated he might be, would know that every person who sold poisons was required by the Act to be a duly registered pharmaceutical chemist within the meaning of the Act, or would know that there was an Act in existence supposed, at least, to regulate the sale of poisons. His friend went on to say that the purpose of the Act was to confer certain privileges upon the Pharmaceutical Society, and not that of protecting the public. The preamble expressly bore that the Act was passed for the purpose for which he contended. The Society was entirely disinterested in the matter; it had nothing to gain by it. It was absurd for his friend to say that the Statute was for the benefit of the Society. It had been instigated in many cases by the Privy Council, and in other cases urged by the British Medical Association, to institute these prosecutions, and he might add that they were carried on at a very great cost to the Society. Coming to that particular case his friend said there had been no prosecutions in that country. With one exception his friend was correct, but these prosecutions had their origin in the case of Graham and the Caledonian Railway Company. The question was as to the

liability of the railway company, who carried a certain poison which got out of the bags and saturated some sugar, with the result that when the sugar was sold a hundred persons were poisoned, and two of them died.

Mr. Borland: That was ten years ago.

Mr. Morison: The case took place in 1892, so that my friend possibly does not know that particular case. The Court assoilzied both the company and the grocer, holding that there was no fault on their part. The manufacturer of the vermin killer, however, had to pay £210 to the people who were poisoned. The Society was then asked to prosecute, and as showing the profitableness of these kind of articles I might mention that the two fines of £5 and the expenses of the defence were paid by the manufacturer of the vermin killer. Again in June, 1891——

Mr. Borland: Statements like that should not be made, because I dispute every one of them. There has been no evidence led here about those cases, and it is most unfair that such statements should be made.

Mr. Morison: It is simply part of the narrative.

Mr. Borland: I dispute your statements.

Mr. Morison: You may, but you know nothing about it.

Mr. Borland: And that is my reason for disputing it.

Mr. Morison: Then there was a case at Hastings in June, 1891——

The Sheriff: I don't think you need concern yourself about vindicating the action of the Society. The accused has pleaded guilty.

Mr. Morison: It is just to meet the observations of my friend. But I will come to the ant-killer in question, and what I have to say is that there was sufficient arsenic in this bottle to kill about a hundred people.

Mr. Borland: I entirely dispute that.

The Sheriff: We have not any evidence of that either.

Mr. Borland: My information is that it takes a month to kill ants.

Mr. Morison explained how the ant-destroyer was used. It was, he said, spread upon trees, bushes, and shrubs which were infested by ants. In this particular case the bottle was sold without any of the provisions of the Pharmacy Act being observed. A chemist could not sell white arsenic in that form without contravening the terms of the Arsenic Act of 1851.

Mr. Borland: We are not prosecuted under the Arsenic Act.

Mr. Morison: I merely wish to point out that no chemist would sell such an article as that. Including the bottle the whole cost of it was 7*d.*, whereas it is sold at half-a-crown.

Mr. Borland: I object to such a statement as that being made, and I appeal to your Lordship. I quite understand the object my friend has in view. It is being published in the newspapers, and may hurt my client's business. I dispute the accuracy of what is being said.

The Sheriff: I must say I think the only thing we have to do with here is the bottle in question. We have nothing to do with the original cost.

Mr. Morison: I think it has. My friend went into a large number of things, and I dispute most of the things he said.

The Sheriff: The only thing I propose to direct my attention to is whether the accused in the situation and circumstances in which he is may be held to have wilfully or inadvertently contravened this Section of the Act.

Mr. Morison: I think it is most important that the real cost of the article should be stated, and how it was sold explained.

Mr. Borland: Do you insinuate that the accused pockets the profits?

Mr. Morison: I do not.

The Sheriff: What has the profit and manner of sale got to do with it?

Mr. Morison: A great deal, as showing how this kind of business is being carried on.

The Sheriff: He is the mere salesman. He hands the bottle over the counter—a bottle marked 2*s.* 6*d.* What has he got to do with the profit accruing from it?

Mr. Morison replied that they could only prosecute the assistant. The facts of the case showed that the accused had committed an offence, which might have resulted in most serious consequences, without any check of any kind being put upon the sale. The fact that this arsenic was spread over bushes, possibly at a farm near the town, and that a child passing would get as much on its fingers as could poison it, showed that the sale of this article should be stopped altogether, and therefore he asked that the full penalty of five pounds be imposed.

Mr. Borland: I claim the right to reply to my friend. Reference has been made to the Caledonian Railway case. It has nothing to do with the case at all. The Caledonian Railway was carrying a quantity of poison, and this Act expressly exempts from the operations of the Statute all wholesale transactions. You may carry poison by the ton, sell poison by the ton, and buy it by the ton, and you are not within the scope of the Act at all. I refer to Section 16, which expressly exempts the business of wholesale dealers in supplying poisons in the ordinary course of wholesale dealings. We are not here dealing with a case of that description at all. It is said that these prosecutions are entirely in the interest of the public. I ask your attention to the view that the chemists themselves take of these prosecutions. In the *Pharmaceutical Journal* Supplement of December 7 there is a letter quoted from the *Leeds Mercury*, and signed by "A Qualified Chemist," in which it is said that poisons are being sold by unqualified men, and also "patent" medicines, which contain poisons. The letter says it is a great hardship to the chemist, and if only the Society had the interest of the trade at heart, as it professes to have, it would summon these law-breakers before the magistrates, which is the only way to stop the practice. I say it is the old story over again of our craft being in danger. This prosecution is precisely on these lines. It is not that there was some warning the accused should have given and omitted to give, but that not being a pharmaceutical chemist he was not entitled to sell it, and, having done so, he is being prosecuted for infringing a monopoly of the pharmaceutical chemist.

Mr. Morison: I have pointed out that chemists could not sell that article.

The Sheriff said: The accused is here charged under Section 15 of the Pharmacy Act of 1868 with selling by retail a poison within the meaning of the Act, to wit, a quantity of arsenic forming an ingredient in a substance called "Ballikinrain Ant-Destroyer." It is not disputed that the accused is merely an employé, and it is not suggested, so far as motive or deliberate intention is concerned, that anything is imputed to him personally. The position rather seems to be that, as one of the employés of the seedsmen who retail this commodity, he handed across the counter a bottle of this stuff and received in exchange the price of it. Now I do not think, however interesting a discussion may be as to whether this prosecution is in the trade interest of the pharmaceutical chemist or in the larger interest of the general public, that affects the question here, or that it is necessary for me to offer any opinion upon that point. The simple question is—has the accused done or failed to do something which brings him within the scope of the Pharmacy Act of 1868? He has admitted that he sold this bottle (producing it), which bears on the face of it in large letters the word "poison," and on the top of it also bears in conspicuous letters the word "poison." There are also in italics this direction: "It is a poisonous compound. Keep it out of the reach of dogs. Cork the bottle, and lock up when not in use." So far as the people who buy the commodity are concerned, there can be hardly any doubt that they are well warned. In regard to the accused's failure to observe the stipulations in regard to poisons contained in the Statute, I am inclined to take the view that in this case the accused is a victim of the "letter which killeth." I do not think he had any idea whatever of committing any offence against the Act, and as this appears to be a new development of the application of the Act to the sale of poisons, as the accused is merely a servant, and as the object of the prosecution will probably be served by the publicity it will receive, I think the justice of the case will be met by dismissing the accused with an admonition.

Mr. Morison: I move for expenses.

The Sheriff: I don't think in the circumstances there should be any expenses in this case. Whatever other people may think, I do not sympathise with these prosecutions against employés.

OBITUARY.

Quibell.—On November 1, J. Layne Quibell, Chemist and Druggist, Lincoln. (Aged 36.)

Withers.—On November 18, Frederick Withers, Chemist and Druggist, Southampton. (Aged 68.)

Bass.—On November 27, James Bass, Pharmaceutical Chemist, Highgate. (Aged 55.) Mr. Bass was a Life Member of the Pharmaceutical Society of Great Britain.

Morris.—On December 4, Edward Morris, Chemist and Druggist, Tenbury. (Aged 71.)

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

All Articles, Letters, Notices, and Reports intended for publication in the Journal, Books for Review, and communications respecting Editorial matters generally, must be Addressed "Editor, 17, Bloomsbury Square, London," and not in any case to individuals supposed to be connected with the Editorial Staff. Communications for the Current Week's Journal should reach the Office not later than Wednesday, but news can be Received by Telegraph until 4 p.m. on Thursday.

Any Instructions from Members, Associates, and Students of the Pharmaceutical Society, with reference to the transmission of the Journal, should be sent to the Secretary.—Mr. Richard Bremridge,—17, Bloomsbury Square, London.

Correspondents who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

LETTERS.

Pharmacy as a Profession.

Mr. A. H. Hinde, of 31, High Street, Lowestoft, replies to the letter of "Professionalism," printed last week (p. 502), as follows:—"It will not do for an ordinary provincial chemist to be too fond of professionalism. It is all very well for the superior scientists who, perhaps, have a sinecure position or business, to preach to us of a lesser degree, but without 'never thinking of anything but the almighty dollar,' the way to get an honest living and pay 20*s.* in the pound is becoming increasingly difficult. I believe, most sincerely in doing everything to raise the position of pharmacy, but, at the same time, I should be sorry to condemn those who are doing their best to reduce the excessive 'cutting' of articles which the public have not yet quite given up going to the chemist's for. Pharmacy as a profession is all very well where it can be followed, but at present the trade of a chemist and druggist is not extinct. If the oft-repeated appeals in the Journal to all chemists and druggists and pharmaceutical chemists to join the Pharmaceutical Society were only listened to and acted upon, then, perhaps, the profession of pharmacy would be a real one, but till then the trade aspect will be ever with us. If only the many grumblers at the Pharmaceutical Society were but to cease their grumbling and act, by joining the Society, what a difference it would make when the next Pharmacy Bill comes before the Legislature for consideration. Then perhaps we, as a body, should be listened to—but now, well, disunion is doing its worst for us."

Mr. A. T. Jeeves, 88, St. George's Road, Brighton, says:—"So long as pharmacists keep open shop for the sale of 'patent' medicines, perfumery, and general sundries, and rely, as a very large percentage of them do, chiefly upon the sale of these articles for a livelihood, so long let us reserve such a Utopian subject as 'professional pharmacy' for exhibition and discussion until a more convenient season, the advent of which, in a more or less distant future, I see absolutely no sign of whatever. Such being the case, to look upon and speak of any scheme, brought forward with the intention of benefiting the chemist's financial position as unworthy of consideration, appears to me to partake very much of that pride which is antecedent to the proverbial fall. Dispensing is, of course, the highest branch of the trade, though even the largest dispensing establishments would show comparatively small returns if they relied upon an income derived from that source alone. Your anonymous correspondent—'Professionalism'—is, I take it, a Major man, very wise and learned, no doubt, in the higher branches of professional pharmacy, but not a little ignorant and foolish in his views and opinions of his humbler brethren of the 'minimum qualification.' The fact of the matter is that the present enforced pharmaceutical education is a long way ahead of what is needed for the faithful and skilful execution of our duties, and naturally tends to give the man who has gone through the mill an exaggerated idea of the importance and status of his calling. When he dons his apron and finds out that such unprofessional items as birdlime and 'cippity' powder are not mere abstractions but very concrete facts, even in first-class businesses, he pulls in his horns and admits, sadly, perhaps, at first, that the practice of pharmacy, is after all, only a high-class and honourable trade."

"Honi Soit Qui Mal y Pense" writes as follows: "Present-day pharmacy is not a profession, and, I venture to say, never will be as long as we have men connected with it like 'Professionalism,' who will not give their united and concerted support to a scheme which is intended to raise the pseudo-profession of pharmacy to a higher status. Surely this anti-cutting scheme is not 'directly opposed to pharmacy' when in less than a week 600 chemists throughout the British Isles expressed themselves in favour of it! And are the bulk of these after the almighty dollar? I say No. They are striving to pay 20*s.* in the pound and earn a reasonable living, where now they have a difficulty to make both ends meet. We all know there are men in our craft who have high scientific attainments who descend to the status of lowering 'the best traditions of professional pharmacy,' as well as the class of recruits your correspondent refers to. Those who have a flourishing business and an independent income can afford to look calmly on, but why not stretch out a hand and help your fellow-creatures who are less fortunate in their struggle with grocers, stores, and companies? I think if 'Professionalism' re-considers this question he will arrive at a different conclusion, if not, to cite a metaphor, he will be 'cutting his own throat.'"

ANSWERS.

A. H. Hoit.—A simple violet powder such as is generally used may be prepared by mixing starch powder, 14 ozs., and powdered orris, 2 ozs. The latter should have been previously triturated with oil of lemon or bergamot, 10 drops, with or without the addition of oil of lavender, 5 drops, and oil of cloves, 2 or 3 drops. A more satisfactory preparation consists of equal parts of finely powdered boric acid and wheat starch, perfumed with tincture of orris (1 to 8 s.v.r.) and otto of rose.

S. Phillips.—You will find Mr. Dott's paper on a convenient method of obtaining a constant stream of oxygen from manganese and hydrogen peroxides in the *Pharmaceutical Journal* for February 25, 1893, page 702.

F. Manfall.—Please read what is printed at the head of this page with regard to the transmission of the Journal.

"J. R."—Are you not confounding terms? According to Sachs (1887), the nucleus consisted of a watery proteinaceous substance—nucleoplasm—and a second substance in granules or filaments called nuclein. According to modern views, however, the semi-fluid, clear ground substance—the nucleo-hyaloplasm—is a substance termed "paralinin," the fibrillar network consists of "linin," and the granules distributed in the network consist of "chromatin." The nucleoli consist of a substance termed "pyrenin." The term "pronucleus" is employed in Vines' 'Physiology of Plants' (1886), the "male pronucleus" being the generative nucleus, and the "female pronucleus" the oosphere. You should avoid the use of obsolete terms and consequent confusion by studying the most recent books, such as Vines' 'Students' Text-Book of Botany' (Sonnenschein).

"Bidie."—Refer to "Exchange" conditions on last page of Supplement, and terms for advertisements in advertising pages.

"Dent de Lion."—Your letter arrived open, with name and address missing. Please supply these in accordance with our rule.

Geo. Curtis.—The Dutch preparation, *Geest v. Lepelblad*, appears to be spirit of horseradish.

"Faustus."—With a heat much below redness silver nitrate is decomposed into silver nitrite and oxygen. A red heat decomposes it into metallic silver, nitrogen peroxide, oxygen, and nitrogen. Your equation is therefore incorrect.

QUERY.

"A Country Chemist" writes:—"Can any of your able correspondents give me a good recipe for emulsio morrhuæ c. calc. phosph., that will not be too thick, but keep together?"

Communications, Letters, etc., have been received from Messrs. Allen, Austen, Bennett, Bindloss, Bramwell, Brawn, Brown, Burge, Carter, Coates, Curtis, Davies, Davis, Dixon, Forret, Foster, Hays, Hill, Hinde, Hodges, Hooper, Hornby, Hughes, Ince, Jackson, Jeeves, Johnson, Johnston, Macdonald, Mangall, Maisch, Melhuish, Mitchell, Naylor, Nicholson, Palmer, Phillips, Reynolds, Rodgers, Russell, Seeley, Smith, Stroud, Sutton, Thompson, Tovey, Umney, White, Williams, Woodhouse.

[Several Reports and Letters are unavoidably held over until next week.]

"THE MONTH."

Action of Friedländer's Pneumococcus on Sugars.

In 1891, P. F. Frankland, A. Stanley, and W. Frew (*Journ. Chem. Soc.*, lix., 253) concluded that the pneumococcus of Friedländer, as obtained by them from the Hygienic Institute of Berlin, is capable of inducing fermentation in solutions of glucose, saccharose, lactose, maltose, raffinose, dextrin, and mannite, but is without action on solutions of glycerin or of dulcite. The principal products in the case of glucose and mannite were found to be ethylic alcohol and acetic acid, with a small proportion of formic acid, and traces of another, probably succinic, acid. L. Grimbert has recently experimented with what was presumably the same pneumococcus, cultivated at the Pasteur Institute, Paris, but finds that it energetically attacks glycerin and dulcite, in addition to causing fermentation in the case of glucose, galactose, arabinose, mannite, saccharose, lactose, maltose, dextrin, and potatoes. The products of the fermentation—ethylic alcohol, acetic acid, lævogyrate lactic acid, and succinic acid—varied with the nature of the sugar used, but whilst glucose, galactose, arabinose, glycerin, and mannite gave lactic acid to the exclusion of succinic acid, saccharose, lactose, and maltose gave both acids, and dulcite, dextrin, and potatoes yielded succinic without lactic acid. Acetic acid in a pure state was obtained in every case: ethylic alcohol was absent in the case of arabinose and potatoes, it was produced in traces only from glucose, saccharose, and maltose, and was mixed with a higher alcohol when dextrin was fermented. It would appear, therefore, that there are two varieties of Friedländer's pneumococcus, morphologically alike, but differing widely in their fermentative power (*Journ. de Pharm.* [6], ii., 529).

Origin of Atmospheric Oxygen.

T. L. Phipson, who has communicated several papers on the origin of atmospheric oxygen to the *Chemical News*, now summarises the results of his speculations on the subject, in a communication to the Paris Academy of Sciences. It will be remembered that he is of opinion that the earth's atmosphere originally consisted of nitrogen only, and that the carbon dioxide in the air, water, and earth was subsequently furnished by the action of volcanoes. In this atmosphere of nitrogen, carbon dioxide, and water the primitive plants thrived, being essentially anaerobic, and free oxygen was the product of their activity in decomposing the carbon dioxide. The conclusions finally arrived at by the author of this theory are: (1) that in the earliest periods, as at present, nitrogen constituted the major portion of the earth's atmosphere; (2) that the presence of free oxygen in the atmosphere is entirely due to the action of vegetation; (3) that existing plants, like their primitive progenitors, are essentially anaerobic; (4) that the proportion of free oxygen in the air has been gradually augmented in the course of ages, the anaerobic organisms meanwhile adapting themselves at first to a more or less aerobic state of existence, as in the case of fungi, ferments, bacteria, etc., and later completely aerobic (animal) forms have appeared; (5) that even now the lowest unicellular algæ give out, weight for weight, more oxygen than the superior plants; and (6) that, in proportion as the relative quantity of oxygen in the air has been augmented in the course of ages, the cerebro-spinal nervous system, the highest characteristic of animal life, has become more and more developed, this fact being clearly demonstrated by the results of palæontological researches (*Comp. rend.*, cxxi., 719).

Cholesterins of Cryptogams.

E. Gérard has formerly shown (see *Ph. J.* [3], xxv., 1195) that the cholesterins extracted from certain families of vegetable Cryptogams closely resemble the ergosterin of Tanret. He now shows that those occurring in beer yeast, in *Mucor mucedo*, and in *Lobaria pulmonacea* are similar in their nature, giving all the reactions of ergosterin. They differ from animal cholesterin in giving a red coloration with sulphuric acid and a green precipitate when water is subsequently added, the coloration in the case of animal cholesterin being yellowish and the precipitate white. Ergosterin and its allies, when dissolved in carbon tetrachloride, are also coloured blood-red on being treated with sulphuric acid (s. g. 1·76), the tetrachloride separating of a green colour. Under similar conditions, the solution of animal cholesterin is coloured yellow or, in the presence of water, milk-white, and the tetrachloride separates uncoloured (*Comp. rend.*, cxxi., 723).

Tubular Prismatic Crystals.

L. F. Kebler has been able to obtain crystals of monobromated camphor of an unusual nature. The monobromated camphor was dissolved in an equal weight of hot benzin, one-fourth as much animal charcoal added, and the mixture boiled on a water bath for about fifteen minutes. The flask was then removed, vigorously rotated so that the charcoal accumulated in a cone, and allowed to cool and rest all night. The prismatic crystals formed belonged to the monoclinic system, and radiated in all directions from the cone of charcoal. They varied in length from 2·5 to 4·2 Cm., in width from 3 to 4·6 Mm., and in thickness from 1·5 to 3·1 Mm. Whilst they were drying on filter-paper it was observed that the crystals were tubular in structure, the mother-liquor gradually retreating from the hollows. The cross sections of the crystals and their orifices were rhombs and their free ends were usually terminated by single planes, inclined about 45°. This is believed to be the first recorded instance of the formation of geometrical, tubular crystals (*Amer. Journ. Pharm.*, lxvi., 602).

Sensitiveness of Picrated Gelatin.

W. K. Burton has recently been using photographic plates coated with films of gelatin containing ammonium picrate. The solution used was made by adding ammonia to a 1 per cent. solution of picric acid at 65° F., till the solution had a perceptibly ammoniacal smell. It was then diluted with water to half its original strength, and to each ounce 20 grains of hard gelatin was added, and dissolved by the application of heat. The prepared plates, used as colour screens in ortho-chromatic work, gave better results than any other single colour screen. They also proved useful as a medium for lanterns to give light for working films not over-sensitive. Exposed to sunlight the plates darkened from a pale lemon yellow to a deep yellow, and it was even found possible to make prints from negatives with them, though a long exposure was necessary. On soaking such an exposed plate in cold water, the unchanged picrate washes out, and the colour of the changed picrate lightens, the image being seen in relief. The picrated gelatin affected by light is also insoluble in boiling water. Films containing picric acid in place of ammonium picrate seemed just about as sensitive as the latter. Since about a hundred and

fifty hours' exposure to bright sunshine was required to obtain a satisfactory print, no wonderful results are likely to follow this discovery. The picrated gelatin serves, however, as an excellent medium for the illumination of dark rooms, the exposed picrate being found considerably safer in that respect than the best red stained glass available. A picrated screen may be readily prepared by fixing an unexposed gelatino-bromide plate in hypo solution, washing it, and then staining by immersion for a few minutes in a solution of potassium picrate. When dry, the film should be varnished, as the surface is thus perceptibly improved (*Photo. Journal*, xx., 66).

Sodium in Aluminium.

H. Moissan shows that the contradictory results obtained by different investigators when dealing with aluminium, have been due to the admixture with the metal of foreign substances. The presence of nitrogen or of carbon may modify its properties considerably, and sodium, which has recently been found in aluminium by Moissan, also causes notable differences. The presence of sodium is due to the mixture of cryolite with the alumina treated by electrolysis, and as much as 0·1 to 0·3 per cent. has been detected. Cold water acts upon aluminium containing sodium, the oxide being formed, and in a few days the liquid shows a distinctly alkaline reaction with litmus paper. The alkali formed combines with the metal to form an aluminate, and the latter, in turn, is decomposed by the action of water, alumina being deposited and soda set free to act afresh upon the metal, so that the longer the process is allowed to continue the more the action is intensified. When absolutely pure aluminium is employed, water has no effect the same Dilute alcoholic liquids affect the impure metal in upon it. way as water. It is observed in conclusion that, owing to the tendency of aluminium to form an electric couple with any other metal, it should invariably be employed alone or oxidation will inevitably result (*Comp. rend.*, cxxi., 794).

Alcohol and Mercurous Iodide.

M. François finds that boiling alcohol decomposes mercurous iodide into mercury and mercuric iodide, the decomposition being arrested when 100 Gm. of the liquid contains about 0·220 Gm. of mercuric iodide in solution. The action is reversible to a certain extent, the saturated alcoholic solution of mercuric iodide attacking mercury to form the mercurous compound. It would appear that 1000 Gm. of boiling alcohol will decompose about 3·15 Gm. of mercurous iodide, and that when alcohol is used to wash the latter it eliminates mercury whilst carrying off mercuric iodide in solution. Exact results cannot, therefore, be obtained if alcohol be employed in the quantitative separation of the two iodides (*Comp. rend.*, cxxi., 888).

Trimethylene Glycol in Glycerin.

A. A. Noyes and W. H. Watkins have found trimethylene glycol present in a sample of glycerin submitted to them for examination. Freund has shown that this glycol is one of the principal fermentation products of glycerin, and it was doubtless produced by fermentation in this instance. Refuse house fat formed a considerable part of the soap stock employed, and the glycol had apparently been produced in the fat by spontaneous saponification and subsequent fermentation of the glycerin formed. This glycol has also been found in considerable quantity in the "tank liquor" separating from fat before saponification. As an impurity in glycerin used for making nitro-glycerin, trimethylene glycol might be a source of danger, since it reacts with nitric acid with explosive violence. Its presence is indicated by a low specific gravity, accompanied by a high oxidation equivalent, as shown by the bichromate titration. The boiling point of trimethylene glycol is 214°, and its specific gravity at $\frac{18°}{0°}$, is 1·0526. The isomeric propylene glycol boils at 188°-189°, and has a specific gravity, at $\frac{19°·4}{0°}$, of 1·0403 (*Amer. Journ. Pharm.*, lxvi., 633).

Separation of Argon.

C. Limb observes that the best method of separating argon from atmospheric nitrogen is to absorb the latter by means of lithium, but that the expense involved is too great. He suggests, therefore, that barium fluoride or barium and sodium double fluoride should be gently heated with sodium to liberate the barium which also absorbs nitrogen energetically. This should be done in an iron tube through which air, deprived of moisture, carbon dioxide, and oxygen is passed. Experiments are to be conducted to test the feasibility of this process. If the argon should not be absorbed along with the nitrogen, it will be capable of production at a moderate cost (*Comp. rend.*, cxxi., 887).

Preparation of Large Crystals.

R. van Melckebeke prepares large crystals by a method of systematic culture. He first obtains very regular detached small crystals by immersing linen threads in a saturated solution of the substance, which is then allowed to cool very slowly. The small crystals formed on the threads are examined with a lens and all imperfect ones removed. The threads are then again immersed in a saturated solution of the salt, the vessel being covered with a bell-glass which also encloses a dish containing sulphuric acid. When the edges of the crystals measure four or five millimetres, another saturated solution of the salt is prepared at a temperature much above that of the surrounding atmosphere, filtered, and allowed to stand all night, some small crystalline particles being added so as to avoid over-saturation. The volume of this solution should be proportionate to the size of crystal desired; thus, for a crystal of one kilogramme, three litres of solution should be prepared. The next day the solution is decanted into a confectioner's glass jar, and towards evening the crystals are immersed in it. A convenient apparatus for this purpose is made like a scale pan. Two circular pieces of glass are supported by means of three copper wires, which are joined at the top where a hook is formed, and wire triangles, midway and at the bottom, support the two plates. The apparatus is first moistened with the solution, the selected crystals are then placed on the glass plates, and the whole is then immersed and left until next morning, when the crystals are removed and carefully dried with a fine linen cloth. The strength of the solution must next be made up by dissolving in a small quantity of it the equivalent of the salt deposited during the night. The amount to be added will vary with the temperature and the size of the crystals, and must be found by experiment. If the solution be over-saturated there will be an excessive deposit upon the crystals and plates, and if too weak the crystals will be eroded. When the re-saturated solution is again of the temperature of the surrounding air, the crystals should be once more immersed over night, and the whole process must be repeated daily until the crystals

are large enough. To ensure the transparency of the crystals they may be moistened with alcohol before immersion in the solution, the surface layers of air being thus removed. A perfect octahedron of potash alum, weighing two kilogrammes and the edge measuring thirteen and a half centimetres, was obtained by this process in about seven months (*Annales de pharm.*, i., 486).

Snake Antitoxin. C. Phisalix and G. Bertrand demonstrated some time ago that the blood of vipers and snakes contains toxic principles analogous to those in their venom, and suggested that the animals owed their immunity against the poisonous effects of the latter to the fact of being accustomed to its presence. Later experiments, however, lead them to the conclusion that the immunity is rather due to the existence of antitoxic principles in the blood, which result in a sort of auto-vaccination. The injection of warmed blood-serum from a viper into a guinea-pig immunised it completely against the effects of viper venom subsequently administered. The serum is said to possess a very energetic antitoxic power, 0·25 C.c. sufficing to protect a guinea-pig against a fatal dose of the venom. The effect is fleeting, however, and disappears in a few days. It is pointed out that the existence of antitoxic principles in the blood of venomous snakes once more demonstrates that in proportion as the cells of an organism secrete a toxin, an antagonistic reaction results in the formation of a specific antitoxin (*Comp. rend.*, cxxi., 745)

Soluble Ferments and Alcohol. A. Dastre shows that soluble ferments are not entirely insoluble in alcohol. The digestive ferments and those of blood, taken in the dry state, are totally insoluble in strong alcohol, but it is otherwise when the alcohol is mixed with water. Trypsin was found to be very soluble in alcoholic liquors of the strength of 10 to 25 per cent., but less so in 50 per cent. and stronger solutions. The amylolytic ferment is even more soluble, dissolving in 65 per cent. alcohol. The ferments of blood are only slightly soluble, and not at all in solutions containing more than 4 or 5 per cent. of alcohol. The scale of solubility is given as follows:—Diastasic and proteolytic ferments of the blood, emulsin, ptyalin, trypsin, pepsin, ferment of gaulterin, amylolytic ferment of the pancreas, and myrosin. Though the ferments specially studied and referred to above may exercise their specific activity in alcoholic media, the presence of the latter is not favourable to such action (*Comp. rend.*, cxxi., 899).

Penicillium Cupricum. This fungus, which has been detected thriving even in strong solutions of cupric sulphate, has now been determined by M. J. de Seynes to be nothing but a form of *Penicillium glaucum*, assuming the ordinary appearance of this fungus when transferred into a different medium. In a 9·5 per cent. solution of cupric sulphate the production of the rose-red hyphæ is greatly retarded, while that of the conids undergoes no diminution (*Bulletin de la Société Botanique de France*, 1895, p. 556).

Localisation of Anagyrine and Cytisine. M. P. Guérin has studied the occurrence of these alkaloids respectively in *Anagyris fœtida* and in several species of *Cytisus*, especially the laburnum. In both cases he finds them to be located chiefly in the epidermal cells, and in the outer cortical layers; they are present in the largest quantity in the cortex of the root and in the seed. In the latter organ the alkaloid is located in the epiderm and parenchyme of the cotyledons, never in the integument. In *Cytisus laburnum*, cytisine occurs also in the petals. Similar results with regard to anagyrine were obtained from *Baptisia* and *Thermopsis*, two genera allied to *Anagyris* (*Bulletin de la Société Botanique de France*, 1895, p. 428).

Active Principles of Senecio. M. L. Lutz has found in several other species of *Senecio* the two alkaloids senecionine and senecine (see *Ph. J.* [3], xxv., 1195), which have already been detected in minute quantities in the groundsel. They occur in all cases in the underground parts only, to the entire exclusion of the aerial organs; they were found in the largest quantities in *Senecio crucæfolius* and *S. palustris*, to a smaller extent in *S. jacobæa* and *S. cineraria*. The tissues in which they are chiefly present are the pith, the liber, and the cortical parenchyme (*Bulletin de la Société Botanique de France*, 1895, p. 486.)

Pectase in Plants. G. Bertram and A. Mallèvre have demonstrated in former papers that the pectic fermentation consists in the transformation of pectin into calcium pectate by the agency of the soluble ferment, pectase. They now state that they have obtained the ferment from forty different species of chlorophyll-bearing plants, including five Cryptogams. The method of extraction adopted in the case of lucerne and clover was to express the juice from fresh, fully-grown plants, add chloroform to prevent the development of micro-organisms, and keep flasks filled with the sterilised juice in the dark for twelve to twenty-four hours. Coagulation took place and filtration was then easily effected. Strong alcohol (2 volumes) was then added to the filtered liquid, and the white precipitate obtained allowed to macerate in water for twelve hours. The resulting solution yielded the pectase in a pure state when added to a large bulk of alcohol. From each litre of filtered juice was obtained 5 to 8 Gm. of pectase, as a white, non-hygroscopic powder, which was very soluble in water and possessed in a high degree the power of inducing the pectic fermentation (*Comp. rend.*, xxi., 726).

Physiology of Trichophyton. According to L. Roberts, an examination of several varieties of fungus that occur in ringworm and allied diseases shows that their distinguishing feature is their ability to digest horny tissues, probably by means of a ferment. This "keratolytic" group of fungi, as he terms it, includes *Favus*, the various species of *Trichophyton*, some species of *Aspergillus*, and probably others not yet identified. There are at least two natural distinctions observable in the purely trichophytic fungi, viz., a kind that digests both the cuticle and the cortical substance of the hair simultaneously, and one that digests the cortical substance, leaving the cuticle unaffected, or attacking it only at a later period (*Journal de la Pathologie et Bactériologie*, 1895, through *Journal of the Chemical Society*, 1895, Abstracts, p. 457).

Root-Tubercles on Ailanthus. E. Andreæ has discovered numerous tubercles upon the roots of *Ailanthus glandulosa*. They were outgrowths of irregular shape, varying from 5 to 40 Mm. in diameter, and had a scabrous, almost warty, surface. Most frequently they were grown together in clumps of three or more. Andreæ considers them to be nearly identical with the tubercles on *Cratægus prunifolia*, described by Brunchorst. The development of the tubercles was especially frequent

whenever the roots struck sterile layers of sand, and were thus at once deprived of their usual nourishment. Presumably, therefore, the cause of their formation may be found in purely external conditions. An old tubercle is said to show distinctly the original structure of the root, though the deformation is often so great that longitudinal and transverse sections are almost alike (*Bot. Gazette*, xx.. 496).

Gummosis in Acacia. M. L. Lutz has studied the process of gummosis in several of the species of acacia which yield gum arabic. It commences in the cambium, the cell-walls of which display an acid in place of their previous alkaline reaction, and spreads from there in both directions, outwardly and inwardly. When the medullary rays have become completely impregnated with gum, certain spots near the pith exhibit a swelling of the cell-wall, and this marks the first exudation of gum, which flows out into the cell-cavities of the fibres, and of the xylem-vessels. From here it spreads to the parenchyme, which becomes transformed into a gummy mass. In other genera, which yield other kinds of gum, the processes are similar. The reaction used for determining the presence of gum was the red coloration produced by cassella-red, prepared by dissolving 0·25 part neutral cassella-red in 20 parts of 90 per cent. alcohol, and 30 parts distilled water (*Bulletin de la Société Botanique de France*, 1895, p. 467).

velopment of Galls. M. Küstenmacher, in considering the formation of galls in general, states that vegetable tissues become developed, which enclose the animal embryos or fungus spores; or the existing tissues become utilised for the same purpose. A nutritive layer is then developed from those tissues, from the inner epidermis of which roundish sacs or long papillose hairs are in turn developed, or the cells may possess pores through which the nutritive materials can pass and become utilised by the larva. The results of experiments disprove the idea that vegetable galls might be produced artificially, and that either the puncture or the irritation it causes to the plant initiates the development of the gall. In every case the factor which produces the gall is the larva of an insect or a fungus spore, and the development of the gall can at any time be checked by killing the larva or spore (*Bot. Gazette*, xx., 497).

Distribution of Stomates. According to M. L. Petit the distribution of stomates on the two surfaces of a leaf is intimately connected with the structure of the mesophyll. When the mesophyll of the two surfaces of the leaf presents a similar structure, as in different kinds of pink, the number of stomates on the two sides is the same. As the mesophyll of the upper surface increases in closeness, the number of stomates diminishes, falling to zero when the mesophyll is very compact, while that of the lower surface is full of lacunæ, as in *Pelargonium citriodorum*. The cells of the upper epiderm are then distinctly longer in the vertical direction than those of the under epiderm (*Bulletin de la Société Botanique de France*, 1895, p. 533).

Silicon and Aluminium in Plants. According to M. Camusat, aluminium is taken up by plants in the form of sodium and potassium aluminates which result from the decomposition in the soil of argillaceous substances in the presence of organic acids, thus causing the separation of silica and the formation of silicates of the alkalies and alkaline earths, which are also in part absorbed by the plant (*Bulletin de la Société d'hist. naturelle d'Autun*, 1895).

Effect of the Electric Light on Vegetation. As the result of a series of experiments carried out by M. G. Bonnier, he states that a continuous electric light promotes the formation of chlorophyll in plants, and induces, at the same time, a simpler anatomical structure of the leaves. The distribution of chlorophyll in the tissues is more general under a continuous electric light than in ordinary daylight; chlorophyll corpuscles make their appearance in the cortex as far as the endoderm, and even in the medullary rays and the pith. The palisade-tissue of the leaf is reduced in amount or disappears entirely, and the epidermal cell-walls become thinner. The bark is less developed, and the various tissues of the stem are less differentiated. When the electric light is discontinuous, say twelve hours out of the twenty-four, the effect on vegetation is intermediate between that of normal light and that of a continuous electric light. When alpine plants are cultivated under a continuous electric light, they exhibit characters identical with those of arctic plants which are exposed, during the summer, to almost continuous daylight (*Revue Générale de Botanique*, 1895).

Effect of Electricity on Plants. According to the results obtained by Professor A. Aloi both atmospheric and terrestrial electricity exercise a favourable influence on the germination of seeds and on the growth of plants, as is shown by their quicker germination, and by their yielding a greater weight of produce in the same time. Professor Aloi anticipates that the application of electricity will be one of the most important new appliances in the agriculture of the future (*Bulletino de la Società Botanica Italiana*, 1895, p. 188).

Useful Plants of the Dutch East Indies. In the second part of Dr. Greshoff's excellent work on the medicinal and economical plants of the Dutch East Indies, the following plants are illustrated:—*Rhinacanthus communis*, Nees; *Cassia alata*, Linn.; *Kheinhovia hospita*, Linn.; *Bixa orellana*, Linn.; *Antiaris toxicaria*, Lesch.; *Cerbera odollam*, Gaertn.; *Moringa pterygosperma*, Gaertn.; *Plumiera acutifolia*, Poir; *Brucea sumatrana*, Roxb.; and *Sarcolobus narcoticus*, Span. The life-size illustrations and the references concerning the uses and chemistry of the plants will be found useful even to those who cannot read the Dutch language, but are interested in economic plants.

New Variety of Ergot. There has recently been received in the London market an importation of a few cwts. of ergot, which was grown in the Canary Islands and exported from Las Palmas. It is believed to be the first that has reached this country from those islands. In appearance it is more slender than the Russian ergot, and somewhat longer as a rule. It has been examined by J. C. Umney (see p. 546), who finds that it yields a larger amount of extractive than the Russian and Belgian varieties, and is quite equal to an average sample of fine Spanish ergot. A specimen of the drug has been presented to the Museum of the Pharmaceutical Society by Mr. Umney.

Formalin as a Preservative. J. Hornell has experimented with formalin as a preservative medium for marine animals, and finds that for histological details simple immersion in a strong solution gives

fair results, though better are obtainable by prior fixation, neither method, however, being so satisfactory as the ordinary plan of fixing and grading into spirit. The addition of three per cent. of formalin to aqueous staining fluids used in microscopical work, was found to obviate any risk of the maceration of objects placed therein, and a three per cent. solution replaces pure water with advantage in washing out ordinary fixatives. Loss of natural colour in preserved objects proceeds much more slowly in formalin than in spirit, but in time the result is the same in both cases. For the majority of purposes, however, formalin is superior to spirit in the results obtained, and it is of course much less expensive (*Natural Science*, vii., 416).

Preparation of Aromatic Waters. F. Lascar expresses a preference for the old process of preparing aromatic waters by triturating the oils with magnesium carbonate, as compared with those in which absorbent cotton and calcium phosphate respectively are employed. The objection that a very minute quantity of the carbonate enters into solution, he considers of minor importance, as he has never found the traces dissolved interfere with the utility of the waters. Besides, only in the case of water used for a collyrium could such interference possibly occur. The use of paper pulp to comminute the oils is regarded as a practical one, preferable to the employment of talc or starch, which have been recommended by some. It is suggested that essential oils intended for use in preparing aromatic waters should always be diluted with a small proportion of alcohol, and kept in dark bottles. Tepid water (110° F.) should be used rather than hot in preparing rose, bitter almond, and cherry laurel waters. The water should be shaken with the oil, in a bottle capable of holding twice the volume of liquid used, then set aside and subsequently filtered. For preparing anise, fennel, peppermint, spearmint, and cinnamon waters, place strips of filter paper in a suitable mortar, and saturate them with the oil, which should be kept diluted with from 30 to 50 per cent. of alcohol; then add a little water that has been boiled for ten minutes and allowed to cool to 120° F. Next, triturate the strips until the paper is reduced to pulp, add the remainder of the water, filter, and preserve the filtrate in well-stoppered bottles. For camphor water triturate the camphor with sufficient alcohol until it is reduced to fine powder, then add a little water, mix, and pour boiling water over the camphor. Cover the mortar with a piece of glass, set aside for a few hours, and filter. In every instance proper sterilisation of the water and filters used materially aids in obtaining stable products (*Druggists' Circular*, xxxix., 256).

Stock Bottles for Aromatic Waters. In another paper on the same subject Gove S. Taylor expresses the opinion that camphor water, B.P., comes very near to being a perfect medicated water. If more camphor were exposed to the solvent action of water, perfection would be attained he thinks. The process he recommends for preparing aromatic waters generally consists in saturation by violent agitation, separation of the free oil, filtration as needed for the shop bottle, and constant presence of free oil in the stock bottle. For all oils heavier than distilled water, add four drachms of the oil to four pints of distilled water, shake until thoroughly saturated, and allow the undissolved oil to remain in the bottle. When any portion of the water is removed, fill up with distilled water and shake the bottle as before, being careful always to have an excess of oil present. In the case of oils lighter than water, take a wide-mouthed bottle of one gallon capacity, and fitted with a cork perforated with two holes, through which pass glass tubes. One of these should project half-an-inch on each side of the cork. The other, of slightly larger diameter, should reach almost to the bottom of the bottle, and project far enough to serve as a spout, the end being bent at an angle of about 45°. The water can thus be poured off without disturbing the excess of oil floating on top. Three drachms of oil and six pints of water should be placed in the bottle, which is then shaken as in the former case. Cold distilled water is said to be preferable to either hot or tepid water (*Druggists' Circular*, xxxix., 279).

Medicated Gelatin Bougies. M. J. Schröder prepares bougies with gelatin, as follows:—Gelatin, 5 Gm., is macerated in water, 25 Gm., for a quarter of an hour. Glycerin, 5 Gm., is then added, and the mixture heated until solution is complete, when the liquid is strained and again heated until it is reduced to 25 Gm. If the medicament is soluble in water, it is dissolved in as little as possible, the solution added to the melted mass, and the whole heated till again reduced to 25 Gm. If, however, more than 5 per cent. of the medicament be added, further evaporation of the mass should be avoided. Readily decomposable compounds should be dissolved in a known quantity of water, and that quantity evaporated from the mass before the addition takes place. Bougies containing silver nitrate can thus be obtained both transparent and colourless. When insoluble compounds are to be added, the gelatin mass should be prepared with water only, and the medicament mixed with the glycerin before mixing. Special precautions to be observed when adding alum, tannin, or ferric chloride to the gelatin mass are described by the author, but in such cases it would seem preferable to resort to the use of some other basis. A similar method of preparing the gelatin mass has been found satisfactory for preparing capsules (*Nederlandsch Tijdschrift voor Pharmacie*, etc., 1895, 358).

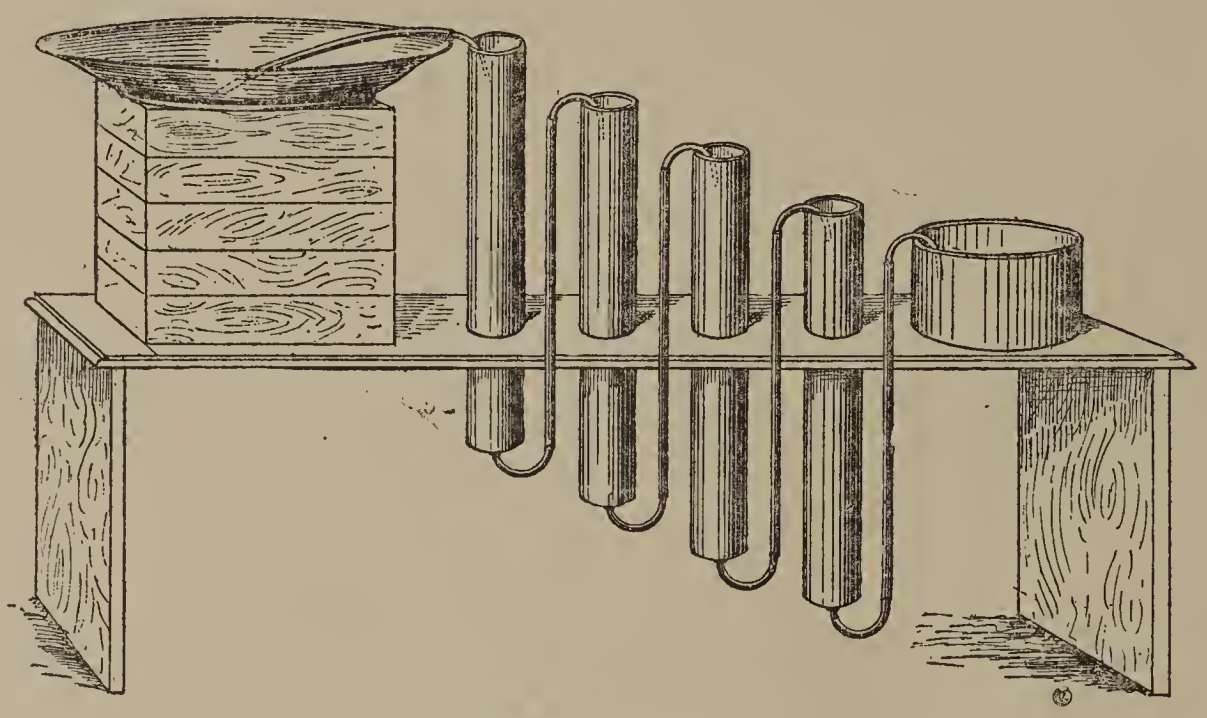
Agar-Agar in Glycerin Suppositories. F. G. Ryan has experimented with Lomuller's formula for glycerin suppositories (see *Ph. J.* [3], xxv., 1092), in which the use of agar-agar is recommended in place of gelatin, and compares the product with suppositories made with sodium stearate (see also p. 547). Lomuller's formula is as follows:—Agar-agar, 10 parts; distilled water, 200 parts; glycerin, 200 parts. The agar-agar is dissolved in the water by the aid of heat, constantly stirring, the glycerin then added, and the mixture strained while hot. The suppositories obtained contained 50 per cent. of glycerin, were easily removed from the moulds, and not affected by exposure to the same extent as those containing sodium stearate. They were very elastic, however, and not sufficiently firm to be easily introduced into the rectum. The following formula gave more satisfactory results, and yielded suppositories containing 75 per cent. of glycerin:—Agar-agar, 5 Gm.; distilled water, 45 C.c.; glycerin, 150 Gm. The agar-agar was first soaked in cold water, the glycerin then added, and the whole heated on a water bath until solution was effected, then strained while hot. A larger proportion of glycerin than 75 per cent. tended to separate from the mass on cooling, and at best the product of this method is not considered likely to replace those now in use (*Amer. Journ. Pharm.*, lxvii., 599).

A CONVENIENT ARRANGEMENT FOR CONTINUOUS PERCOLATION.*

BY J. A. FORRET.

Such preparations as fluid extracts and concentrated infusions are now very generally prepared by continuous percolation. When a portion of the drug has been macerated, it is transferred to percolators and exhausted by passing water slowly through the percolators. The fluid which is displaced from the first percolator is transferred to the second, and so on, and the second portion of the drug is macerated in that which passes through the last of the series. The second portion is percolated in the same way, that which passes through the last percolator being used to macerate the third portion. Without some arrangement whereby the fluid may traverse the entire series automatically, the process requires constant attention. When the percolators are placed in line with each other vertically, and the percolate is allowed to drop from one to another, there is no convenient means of adjusting the flow so as to guard against one or more of the percolators passing the percolate more rapidly than they are supplied with the liquid.

The drawing indicates an arrangement by which percolation may be effected through a series of percolators with very little attention. The percolators cannot overflow; nor can the percolate fall below the surface of the marc. With the first portion of drug, the basin, of course, contains water which is supplied to the first percolator by a syphon. The fluid from the last percolator drops into a vessel containing the second portion of drug. When the contents of the first percolator are exhausted, the basin may be lowered by removing one or more of the blocks, the syphon transferred to the second percolator, and so on.



Forret's Arrangement for Continuous Percolation.

When a sufficiency of percolate has pressed through the last percolator to soak the next portion of the drug, the remainder, if any, is passed through the first percolator containing that portion, and exhaustion completed by water.

The support is a stout wooden box laid on its side; on the top are circular holes to receive the percolators, which are fixed at the required height by small wooden wedges.

The percolators I have in use are the tins in which platinotype paper is sent out; they are 21 inches long, with a diameter of 3 inches. The bottom is pierced, and a short length of metal tube soldered into the hole. A piece of rubber tubing of suitable length is attached to the metal tube, and the other end of the rubber tubing carries a piece of bent glass tubing, by which it hangs from the top of the percolator next in the series.

To prevent choking, a perforated circular piece of tin, saucer shaped, is placed in the bottom of the percolator with its concave side downwards, and above this a layer of tow or other suitable material.

* Paper read at an Evening Meeting of the Pharmaceutical Society of Great Britain (North British Branch).

SIMPLE CALCULATIONS FOR ANALYSIS OF CERTAIN MIXTURES.*

BY J. A. FORRET.

For the indirect determination of potassium and sodium existing as mixed chlorides, Sutton ('Volumetric Analysis,' page 126) gives a formula by which the proportions of the respective chlorides may be determined; the weight of the mixture, and the total chlorine being the required factors. The formula is:—the total chlorine is multiplied by the factor 2·103; from the product is deducted the weight of the mixed salts; the remainder multiplied by 3·6288 gives the weight of the sodium chloride in the mixture. Sutton says that the method is not to be relied upon unless the salts are present in about equal quantities, or at least not less than one part of the one to two parts of the other. When the mixture contains a small percentage of one salt, *e.g.*, potassium with sodium as an adulteration, the formula referred to is not available.

The following method of calculation is applicable for determining the composition of such mixtures in whatever proportions the salts are present. It is purely arithmetical and does not involve the use of factors which the student cannot find for himself. Some time ago a student of medicine brought me a problem, which he assured me could be solved by arithmetic. It was on these lines: 10 litres of a gas (A) weigh 10 grammes, and ten litres of another gas (B) weigh 6 grammes, and 10 litres of a mixture of the two gases weigh 8 5 grammes; in what proportion are the two gases mixed?

The rationale of the method I adopted is as follows:—10 litres of the mixture in which the gases are present in equal volumes weighs 8 grammes, and in whatever proportion the gases are mixed the weight of 10 litres lies between 6 grammes and 10 grammes, the extreme limit being represented by 8 ± 2. The weight of the mixture being greater than 8, must be accounted for by the presence of more than 5000 C.c. of the heavy gas, and a corresponding quantity less than 5000 C.c. of the light gas; and conversely, when the weight of 10 litres of the mixture is less than 8 grammes, the volume of the light gas exceeds that of the heavy. In the case before us, the weight is 8·5, and as 0·5 is $\frac{1}{4}$ of 2, the volume of A in the mixture is

* Paper read at an Evening Meeting of the Pharmaceutical Society of Great Britain (North British Branch).

5000 C.c.+$\frac{1}{4}$ (5000 C.c.), and the volume of B is 5000 C.c.—$\frac{1}{4}$ (5000 C.c.) thus:—

C.c.	Grammes.	C.c.	C.c.	Grammes.
5000 A	= 5.	$1\frac{1}{4}$(5000 A)	= 6250	= 6·25.
5000 B	= 3.	$\frac{5}{4}$(5000 B)	= 3750	= 2·25.
10,000	= 8.		10,000	= 8·85.

The formulæ being:—

$$A = 5000 + \frac{5000 \times 0{\cdot}5}{2}$$

In the case of mixed chlorides, equal weights of the salts and their chlorine values take the place of the volumes of gases and their weights respectively.

In a mixture of chloride and iodide, chloride and bromide, or iodide and bromide, the values of the acidulous radicals are expressed in terms of standard silver nitrate solution. Such mixtures may contain one base or two.

Similarly, in a mixture of two alkalies or two acids, the alkalinity or acidity is expressed in terms of standard acid or alkali.

Until the "Preliminary" examination includes elementary algebra, a method for the solution of such problems by pure arithmetic may be of some use to the average student of pharmacy.

EUCALYPTUS OINTMENT.*

BY PETER BOA.

Several criticisms of this ointment have recently appeared in the journals. Mr. A. C. Abraham (*Ph. J.*, Nov. 2, 1895, p. 371) remarks that eucalyptus ointment is "very unsatisfactory." One might be pardoned for saying the same of his criticism, for he neither indicates in what way the ointment is unsatisfactory nor suggests a means of improving it. The writer of an article on "Ointments" (*Ph. J.*, Nov. 23, 1895, p. 434) says: "This would be a better preparation in many respects if the eucalyptus oil were simply triturated with lard or simple ointment. To continually stir essential oils or other volatile ingredients with melted fats or paraffins is a most outlandish and unscientific proceeding. . . . The defects of the formula for its preparation are quite enough to account for its very limited employment during ten years of existence." I am not disposed to agree with this writer that the defects of the formula for its preparation are altogether, if at all, to blame for its limited use. So far as I can ascertain from those who have given it a trial, it is owing to its strength in eucalyptus that its use is so limited. I apprehend this ointment to be intended as an antiseptic dressing. In reality, it is an excellent rubefacient, and may with advantage be rubbed on the chest when an application of this nature is indicated. Eucalyptus oil is frequently used in ointments by prescription, but I cannot recall an instance in which it was ordered in the proportion in which it occurs in the official ointment. This is not the only official ointment containing volatile ingredients, which is prepared by an analogous process, and although I am quite in agreement with the last-mentioned writer as to to the method being unscientific, yet I am not aware that such ointment fails on that account to give satisfaction.

In regard to the medical properties of eucalyptus oil, I quote from the 'Extra Pharmacopœia,' 8th edition: "The oil is useful mixed with an equal quantity of olive oil as a rubefacient for rheumatism"; "a powerful antiseptic, more than three times as strong as carbolic acid in preventing development of bacteria." And from Scoresby Jackson's 'Materia Medica,' 5th edition: "Used externally as an antiseptic dressing in the form of ointment . . . . . in sensitive individuals it causes a good deal of irritation."

In reference to the first of these quotations I may remind you that the ointment contains 1 of oil in 5, which is from the point of view of irritation not far removed from 1 in 2, a strength which yields a useful rubefacient. The third quotation confirms the suspicion that it is not far enough removed to prevent over stimulation when occurring in a dressing for a wound. The second quotation leads one to wonder why it was considered necessary to make the strength 1 in 5. Carbolic acid ointment is 1 in 19. If eucalyptus oil be three times stronger than carbolic acid as an antiseptic, the proportionate strength of the ointment should be 1 in 57.

In my own experience a soft paraffin with about 1 in 15 of eucalyptus oil is much used, and apparently liked, as an antiseptic dressing in obstetric practice and for rubbing on the skin of scarlet fever patients in the desquamatory stage. Eucalyptus ointment of the Pharmacopœia, when prepared from hard paraffin melting at 126° F., and soft paraffin melting at 103° F., has a melting point about 106° F. When 1 part of eucalyptus oil is added to 14 of soft paraffin melting at 103° F., the mixture has a melting point about 102° F., only 4° below that of the official ointment.

In my opinion eucalyptus ointment should be made from such soft paraffin with eucalyptus oil in the proportion of about 1 in 15. The method of preparation is simple. Use just enough heat to liquefy the soft paraffin, add the eucalyptus oil, stir gently till mixed, then pour into bottles or pots as circumstances require, and allow to cool. Eucalyptus oil being soluble in paraffins, stirring beyond what is required for mixing is not necessary, but, as the writer already quoted has said, "is outlandish and unscientific."

I am not sure but that trituration with a cold basis might as a process be designated by the same adjectives. In view of the probable uses of the ointment I consider a paraffin basis the most suitable for it.

* Paper read at an Evening Meeting of the Pharmaceutical Society of Great Britain (North British Branch).

THE JABORANDI LEAVES OF COMMERCE.

BY E. M. HOLMES.

(*Concluded from p.* 522.)

3. *Paraguay Jaborandi* (*contd.*)—In 1877, Professor Baillon examined specimens of all the jaborandi sold in Paris during the two previous years (*Ph. J.* [3], viii., p. 892). He recognised the leaflets of *Piper jaborandi*, *Pilocarpus pennatifolius*, and *P. selloanus*, Engl. He compared the leaves obtained at the Pharmacie Centrale with the type specimen of *P. selloanus* in the Berlin Herbarium, and considered the identity absolute. Moreover, M. Balansa had seen this species collected at Asuncion in Paraguay for exportation to Europe. This species seems to come very near to *P. pennatifolius*, the chief difference being that the pedicels of the flowers are half as long again (15 mm.), and that the leaflets are always glabrous. But the fruits that I have met with in the Paraguay jaborandi leaves of commerce never have pedicels so long (see p. 521, figs. B, B_1).

The Paraguay jaborandi of commerce is, however, not uniform in character. There are thin leaves tapering to the base, with the veins on the upper surface not prominent, and there are others less tapering at the base, with veins slightly prominent. The former seem to agree with a specimen in the Kew Herbarium collected by Morong in Paraguay (No. 635), and with one collected by Balansa in the same province, and which is stated by him to be a shrub 2 or 3 metres in height. These may belong to *P. pennatifolius*. The other variety agrees closely with a specimen collected by Gibert at Asunçion, in Paraguay, and is stated to be a large tree, "Arbre

d'assez grande taille." Both of these plants have purple flowers and small fruits, with pedicels of about the same length, but the rachis of the tree jaborandi is much stouter, and the bractlets on the pedicels are generally below the middle. Its leaves approach in shape more nearly to the oblong-oval form of the Pernambuco jaborandi, from which they differ in their less coriaceous consistence and less prominent veins and greyish-green colour.

There appear also to be two species that have been cultivated at Kew (and probably elsewhere) under the name of *P. pennatifolius*. One of these flowered in November, 1891, and is figured in the *Botanical Magazine*, t. 7235.

This has a stout rachis to the inflorescence (3 mm. in diameter), and purple pedicels at right angles to it. The other plant has a more slender rachis (2 mm.) and purple flowers, but the pedicels are erecto-patent and not purple, and the flowers were produced in June, 1888. It is evident, therefore, that the several species found in Paraguay and bearing purple flowers, require a more careful examination at the hands of a local botanist than they have hitherto received.

In 1881 a false jaborandi of a bright green colour was examined histologically by Dr. A. Ischird, but was not identified except as belonging to the Rutaceæ (*Ph. J.* [3], xii., p. 83).

4. *Maranham or Small Jaborandi.*— In 1893, Mr. T. Wardleworth described another kind of jaborandi which had been imported into Liverpool. This differed from all the known kinds in having leaves as small as those of *Zanthoxylum alatum*, and not unlike in shape and size to those of *Pistachia lentiscus*. The large oil cells, however, readily distinguish them from the latter, and the microscopic structure was shown by Professor Greenish to be unquestionably rutaceous and nearly allied to *Zanthoxylum*. The leaves were sent to Kew to be identified, and Dr. Stapf was fortunate enough to discover amongst them the inflorescence bearing flower-buds. The unbranched character of the inflorescence, which was a spike, and the valvate petals at once indicated that it must be a *Pilocarpus*, and not a *Zanthoxylon*, which has branched inflorescence and imbricate petals. It proved to be a new species and identical with a specimen sent some years ago to Kew from Rio Janeiro, labelled "*Zanthoxylum*." To this plant Dr. Stapf gave the appropriate specific name of *microphyllus*, as it has the smallest leaves of any known *Pilocarpus*. These leaflets yielded to Mr. Conroy an alkaloid possessing all the chemical properties of pilocarpine, and it is, I understand, more easily extracted from them than from *P. jaborandi*. Mons. A. Petit, of Paris, informs me that it yielded him about ·5 per cent. of nitrate of pilocarpine, those of *P. jaborandi* affording, on an average, ·6 to ·7 per cent. of the same salt. This kind might be called Maranham, or small jaborandi (see *ante*, p. 521, figs. C, C_1).

5. *Ceará Jaborandi* (*Pilocarpus trachylophus*).—In the early part of 1894 I received specimens of a new variety of jaborandi which had found its way to London, but which differed from any previously seen in the dark brownish-green tint of the upper surface of the leaves and the yellowish tint of the under surface, which was covered with short curved hairs. Messrs. W. J. Bragg and Co., of Liverpool, were kind enough to forward me a large sample of the leaves, amongst which I found a few fruits attached to part of the rachis. The fruits differed from any known species in the warty character of the ridges at the back of the carpels, and in having a very short pedicel; at the same time, the leaves had only two pairs of leaflets. These characters seemed to me sufficient to found a new species upon, and I therefore described it, so far as was possible in the absence of flowers, under the name of *Pilocarpus trachylophus*, in allusion to the peculiarity of the carpels, and have called it Ceará jaborandi (*Ph. J.* [3], xxiv., p. 1065). For pharmaceutical purposes the leaves may be recognised by their being smaller than those of *P. pennatifolius*, by their recurved margin, smooth, dark brownish-green upper surface and pale yellowish under surface, covered with short curved hairs. The upper surface has the lateral veins prominent like those of Pernambuco jaborandi, but the colour is very different to the buff colour of the dried leaves of or the dull green of the fresh leaves of the genuine drug. The leaves yielded to Dr. Paul and Mr. Cownley only ·02 of crystalline nitrate, but they found that when extracted by caustic lime and alcohol the yield was lessened to ·012, indicating that the alkaloid was not pilocarpine which does not appear to be affected by lime (*Ph. J.* [3], xxiv., p. 1066). Monsieur Petit also only obtained ·01 of crystalline nitrate.

The distinctive commercial names that I have applied to different kinds of jaborandi must not be taken to indicate that the leaves come only from those provinces. At present we do not know exactly where the plants are collected, but only the ports from which they are shipped. Thus the original, or Pernambuco jaborandi, was brought by Dr. Coutinho from that province, but seeds were obtained by Dr. Paterson from Bahia. The leaves of *P. jaborandi*, *P. trachylophus*, and *P. microphyllus* have all been imported from Maranham and Ceará and we know also that *P. microphyllus* has been sent from Rio Janeiro to Kew. There is, moreover, evidence to show that *P. pennatifolius* extends from Sao Paulo to Paraguay. At present, therefore, our knowledge of the distribution of the Brazilian species is very imperfect, as well as our botanical knowledge of the number of species and the characters of their fruits. Possibly some further light might be derived from a microscopical examination of the leaves of the known species, by which, if more of them came into commerce, they might be detected. The difficulty hitherto, however, has been that the leaves imported have belonged to undescribed species.

6. *Aracati Jaborandi*, *P. spicatus* (?)—It will be observed that the majority of the pinnate-leaved species have already been imported, but hitherto none of the simple-leaved species. Recently, however, I have received a sample of leaves which evidently belong to this group. The leaves are about the size and very like in shape to the leaves of *Laurus nobilis*. The upper surface is polished, and the veins scarcely visible. On the under surface they are more visible, but are very slender. The texture of the leaf is papery, but rather rigid, brittle, of a dark rather brownish-green above, and of a rather paler hue beneath. The purely lanceolate outline of the leaf, and the short twisted petiole readily distinguishes it, whilst the pieces of twig attached to the leaves show that it is a simple-leaved species. So far as I am able to state, judging from the imperfect material I have received, it comes very near to *P. spicatus*, A. St. Hil. Messrs. W. J. Bragg and Co., of Liverpool, have kindly forwarded a large sample of the leaves and one or two imperfect fruits, from which I am able to say that the plant does not correspond with any known species, although it evidently comes very near to *P. spicatus*. It differs chiefly in the firmer consistence of the leaves, their smaller size, veins less prominent above and in the longer pedicel of the fruit (see *ante*, p. 521, figs. D, D_1, D_2). They have been sometimes mixed in commerce, since their appearance twelve months ago, with the leaves of *P. microphyllus* and *P. tracylophus*.

The leaves have been examined by Mons. Petit, who was unable to find pilocarpine in them, although he found a small quantity of another alkaloid. The other species of this group which have leaves approaching those of official jaborandi in size are *P. subcoriaceus*, *P. pauciflorus*, and *P. longiracemosus*. We have as yet no knowledge that any of this group possess the physiological properties of jaborandi.

Species of the Genus Pilocarpus.

In view of the possibility of other species of the genus entering into commerce, it may be as well to give an outline of the known species of the genus *Pilocarpus*. The genus belongs to the tribe Zanthoxyleæ of the natural order Rutaceæ, and differs from the allied genus *Zanthoxylum* in the unbranched inflorescence and valvate æstivation of the petals. In *Zanthoxylon* the infloresence consists of panicled cymes and the æstivation is imbricate. The plants of the genus are distributed throughout tropical America, from Mexico and the W. Indies in the north, to Paraguay and Sao Paolo in the south, extending eastward to New Granada and Matto Grosso. The species are imperfectly known, since the fruits have not in all cases been described. The leaves in some of the species are simple, and either crowded together at the top of the branchlets (like those of *Daphne laureola* in this country), or in whorls of five to seven. In others the leaves are compound and imparipinnate with from one to six pairs of leaflets. In size and outline the leaves vary very much in the same plant, but the texture and veining is fairly characteristic, as well as the length of the pedicels, taken together with the size of the mature fruit.

Up to the year 1885, from which the 'Index Kewensis' dates, sixteen species were known. Since then two other species have been published, viz., *P. microphyllus*, Stapf, and *P. trachylophus* Holmes. These may be grouped as follows :—

Leaves simple—

- *P. spicatus*, A. St. Hil., Sao Paulo
- *P. subcoriaceus*, Engl., Sao Paulo

} Flowers subsessile.

- *P. longiracemosus*, Engl., Bahia
- *P. pauciflorus*, A. St. Hil., Sao Paulo
- *P. latifolius*, A. St. Hil., French Guiana
- *P. guianensis*, Van Hall, Guiana
- *P. humboldtii*, Spreng., Mexico

} Flowers stalked, leaves crowded at apices of branchlets.

- *P. racemosus*, Vahl, W. Indies
- *P. riedelianus*, Engl., Brazil
- *P. giganteus*, Engl., Brazil

} Leaves large, thin, 5–7 whorled.

*Leaves Compound Imparipinnate.**

- *P. goudotianus*, Tul., New Granada
- *P. heterophyllus*, Griseb., Cuba

} Leaves, 1 jugate.

- *P. trachylophus*, Holm., N. Brazil, 2 jugate.
- *P. pennatifolius*, Lemaire, S. Brazil
- *P. selloanus*, Eng., S. Brazil
- *P. jaborandi*, Holm., N. Brazil
- *P. microphyllus*, Stapf, Brazil

} 3 jugate.

- *P. grandiflorus*, Engl., Brazil, 5–6 jugate.
- *P. macrocarpus*, Engl., Brazil.

The Active Principles of Jaborandi Leaves.

Pilocarpine.—In 1875 Messrs. Hardy (*Ph. J.* [3], vi., p. 887) in France, and Gerrard (*Ph. J.* [3], v., p. 865) in England, working independently of each other, discovered the alkaloid pilocarpine, and ascertained that the peculiar properties of the leaves were due to its presence. No evidence has since been forthcoming to show that any other alkaloid is present in the leaves, although several others have been found in the mother liquors after the separation of pilocarpine. The leaves, however, yielded to the above-mentioned authors a volatile oil, an acrid resin, tannin, and a volatile acid forming voluminous crystals (*Ph. J.* [3], vi., pp. 24, 228). Poehl obtained formic acid from the leaves ('Unters. der Blatt. v. Pilocarpus officinalis,' 1880, pp. 27, 28).

Pilocarpine, $C_{11}H_{16}N_2O_2$, when pure, forms a viscous liquid like thick syrup. It is very soluble in water and alcohol, and only slightly soluble in cold ether or chloroform, but more so on heating these solvents. It forms compounds with alkaline hydroxides, which are decomposed by carbonic acid. According to Byasson it is soluble in ammoniacal water, and it is capable, like nicotine of being carried over in distillation by the vapour of water in presence of ammonia (*Ph. J.* [3], v., p. 827). Several salts have been prepared, which are insoluble in ether, except the acetate (*Ph. J.* [3], vii., p. 255). The nitrate and hydrochlorate are chiefly used in medicine. Unfortunately, a characteristic test for pilocarpine is still wanting (*Ph. J.* [3], xvi., p. 106). In 1885 Merck pointed out that the formula of pilocarpine is consistent with its being a substitution product of pilocarpidine, $C_{10}H_{14}N_2O_2$, and in 1887 Messrs. Hardy and Calmels actually succeeded in synthesising it from pilocarpidine by the introduction of a methyl group (*Ph. J.* [3], xvi., p. 106 ; xviii., p. 89). According to Petit, pilocarpine deviates a ray of polarised light to the right +127°, in a chloroformic solution, +103° in an alcoholic solution; the hydrochlorate +83°, and the nitrate +76°, in an aqueous solution (Poehl, *l.c.*, p. 43).

An interesting statement has recently been made by Dr. J. van de Moer, which seems to establish a relation between cytisine, an active principle occurring in several poisonous Leguminosæ, and pilocarpine (*Ph. J.* [4], i., p. 208). He finds that a solution of pilocarpine hydrochlorate in chlorine water, exposed to sunlight for six hours, contains cytisine, and he hopes shortly to obtain pilocarpine from cytisine.

Jaborine.—Hardy pointed out in 1875 that a second alkaloid was present in the liquor from which pilocarpine was prepared, but it was not until curious discrepancies were found to occur in the action of pilocarpine that this statement received much attention (*Ph. J.* [3], vi., p. 24).

In 1880, Harnack and Meyer directed attention to the fact that whilst pilocarpine was analogous to nicotine in its effects, a second alkaloid was present in many commercial specimens of pilocarpine, and that it corresponded in its physiological action with atropine. To this alkaloid they gave the name of jaborine (*Ph. J.* [3], xi. p. 551-2). It is easily produced by heating pilocarpine, and is formed when acid solutions of pilocarpine are concentrated (*Ph. J.* [3], xvii, p. 550). The authors could not detect jaborine in the fluid extract of jaborandi, and therefore consider that it is formed during the process of extraction of pilocarpine.

Jaborine is soluble in ether, in alcohol, and in solution of jaboric acid, but is insoluble in water. When pure it is a colourless amorphous mass, soon becoming solid and brittle. Its chloro-platinate is more soluble than that of pilocarpine. It is believed to be a condensation product of pilocarpine (*Ph. J.* [3], xvii., p. 550). From the solution of its hydrochlorate it is thrown down by potash as a curdy precipitate readily agglomerating in warm water. When boiled with aqueous solution of potash it is converted into pilocarpidine. Solutions of jaborine have a greenish fluorescence.

By Schmiedeberg jaborine is considered identical with an alkaloid obtained together with muscarine from the fly agaric, *Amanita muscaria* (*Ph. J.* [3], xvi., p. 106, and *Journ. Chem. Soc.* Abstr., 1880. pp. 898, 9).

Pilocarpidine, $C_{10}H_{14}N_2O_2$.—In 1885 Merck published his discovery of two new alkaloids obtained in the extraction of pilocarpine. These he named pilocarpidine and jaboridine, since they resemble respectively pilocarpine and jaborine in physiological action.

Pilocarpidine is formed when aqueous solutions of pilocarpine or its salts are boiled in contact with air, or it can be prepared by the action of nitric or hydrochloric acid on pilocarpine (*Comptes rendus*, cii., pp. 1117–1119).

It is distinguished from pilocarpine by its aqueous solution not giving a precipitate with chloride of gold, but corresponds with that alkaloid in most other respects. Its formula differs from that of nicotine, $C_{10}H_{14}N_2$, by O_2, and it is regarded as dihydroxyl nicotine

* *P. selloanus* is figured in 'Marb. Fl. Bras.,' vol. xii., as paripinnate.

(*Ph. J.* [3], xvi., p. 106). Pilocarpidine has been synthesised from β-pyridine-α lactic acid (*Ph. J.* [3], xviii., p. 89).

Jaboridine, $C_{10}H_{12}N_2O_3$, appears to be derived from pilocarpidine by oxidation, one atom of oxygen being substituted for two of hydrogen. When pure it is a syrupy liquid, but its nitrate forms fine prisms (*Journ. Chem. Soc.* Abstr., 1886, p. 85, *Chem. Centr.*, 1885, pp. 628, 629).

Jaboric Acid, $C_{19}H_{25}N_3O_5$.—This substance resembles jaborine in appearance, but differs in being very soluble in water. It is not removed from its aqueous solution by ether. It forms gummy salts with the alkalies, which are not decomposed by carbonic anhydride. It is separated from pilocarpidine by precipitating with excess of silver nitrate, which gives a curdy precipitate. Hot concentrated potash or boiling hydrochloric acid converts jaboric acid into pilocarpidine, and β-pyridin-α lactic acid.

Jabonine, $C_9H_{14}N_2$.—According to Hardy and Calmels, this base is formed when pilocarpidine, or an alkaline (potash or baryta) compound of pilocarpine is distilled. It is the alkaloid which was supposed to be coniine by Poehl, Harnack, and Meyer (*Comptes rendus*, ciii., p. 279).

Active Principles of Other Jaborandis.

Pilocarpus microphyllus.—Mr. Conroy first examined these leaves and found the leaflets to yield 0·76 per cent. of an alkaloid possessing all the chemical properties of pilocarpine. The stalks afforded only 0·37 per cent. Messrs. Paul and Cownley have obtained as much as ·84 of nitrate from some samples of the same species, but the salt appears to them to consist of two different alkaloids, one having a higher melting point, and being less soluble than the other.

Pilocarpus spicatus?—Unfortunately these leaves are almost always found in commerce mixed with those of *P. trachylophus* and *P. microphyllus*, and therefore, although they have yielded ·10 per cent. of pilocarpine nitrate to Messrs. Paul and Cownley, and to Monsieur A. Petit, it is at present doubtful whether this is yielded by the other leaves mixed with it or by those of *P. spicatus?*

Pilocarpus trachylophus.—In 1894, Messrs. Paul and Cownley obtained from the leaves of this species ·02 per cent. of a crystalline nitrate by the B.P. process, but when extracted by the lime and alcohol process the alkaloid appeared to suffer partial decomposition, inasmuch as only 0·12 per cent. could be obtained from the same sample of leaves. As pilocarpine is not decomposed under similar circumstances, the authors think that the nitrate may be that of another alkaloid. Monsieur A. Petit obtained ·02 per cent. from the same species, and is also inclined to think the alkaloid is not identical with pilocarpine.

It may be of interest to mention here the relative percentage of alkaloids in the foregoing varieties:—

Jaborandi.	Per cent.	
Pernambuco (*P. jaborandi*),	·5 to ·8	pilocarpine nitrate.
Paraguay (*P. pennatifolius*, etc.),	·18 „ ·19, ·38	„ „
Maranham (*P. microphyllus*)	·16 „ ·19	„ „
„ „	up to ·8	alkaloidal nitrate.
Ceará (*P. trachylophus*)	·02	new alkaloid (?)
Aracata (*P. spicatus* ?)	uncertain.	

It will be obvious, therefore, that our knowledge of the chemical constituents of the last three species of *Pilocarpus* is far from complete.

Essence of Valerian, according to Oliviéro (*L'union pharm*, xxxvi., 385 and 433), contains a left-handed terpene, camphene, and citrene; formic, acetic, butyric, and valerianic acids; a lævo-rotary borneol, terpilenol, and sesquiterpene, $C_{30}H_{24}$; an alcohol, $C_{30}H_{24}O_2$, and another alcohol.

OIL OF PINUS SYLVESTRIS.

BY JOHN C. UMNEY.

In a paper read before the British Pharmaceutical Conference at Bournemouth (*Ph. J.* [4], i., p. 161), I described the principal chemical and physical characters of a specimen of an oil distilled from the young leaves and cones of *Pinus sylvestris* collected at Sevenoaks under a supervision kindly undertaken by Mr. E. M. Holmes.

In that communication I confirmed my previous statement (*Ph. J.* [3], xxv., p. 1041), viz., that the true oil of *Pinus sylvestris* is not met with in commerce.

The oil upon which my observations were then made differed only in one respect from that distilled for experiment in the laboratory of Schimmel and Co., which was described by Bertram and Walbaum; whilst the oil which distilled in June was lævo-rotatory (−19), that distilled by Schimmel and Co. from leaves collected in December was dextro-rotatory (+10).

In order to determine how far the rotation of this variety of pine oil was influenced by the season of the year and consequent age of the leaves, I distilled a further quantity during the present month (December), and found that although the oil differs slightly from that distilled in June, it comes within the limits I stated in my former note, and is decidedly lævo-rotatory, although not to such an extent as the oil distilled in June.

The yield of this recent distillation was much less than on the former occasion (June), inasmuch as 2 cwt. of leaves yielded only $4\frac{3}{4}$ ozs. of oil (0·133 per cent.).

The odour and taste of the oils distilled in June and December are practically identical.

The sp. gr. is ·889 at 15° C., and the optical rotation −7·75 in a tube of 100 M.m., whilst that distilled in June had a sp. gr. of ·885 at 15° C., and an optical rotation of −19°.

Fifty grammes of the oil was fractionated from a glycerin bath, and yielded the following percentages boiling between—

157 to 167° C.	13	per cent.
167 to 177° C.	24	„
177 to 187° C.	9	„
187 to 197° C.	6	„
197 to 240° C.	7	„
240 to 252° C.	4	„
Residue	37	„
	100	

These fractions do not differ materially from those previously obtained, that boiling below 167° C. being lævo-rotatory, although only to the extent of −4, whilst the fraction from 177 to 187° C. is, as before, dextro-rotatory.

The proportion of ester, calculated as bornyl acetate, determined by the saponification process, was 2·9 per cent., the sample distilled in June having been found to be 3·5 per cent.

It appears certain, therefore, that although the season of the year and, consequently, the age of the leaves from which the oil is distilled, cause some variation in the product, some other reason must be looked for to account for the difference in the oils distilled by Schimmel and Co. and myself. It is possible that the other alternative suggested in my previous paper, viz., climate and soil, may account for the difference. The influence of these latter upon oils of turpentine distilled in various parts of the world strongly supports this hypothesis. The foregoing shows also most forcibly how imperative it is that the actual species of pine should be determined without doubt; upon this I was most fortunate in having the valued co-operation of Mr. E. M. Holmes.

Summarising, then, I should state that the characters suggested in my previous communication may be confirmed, viz., limit of optical rotation, specific gravity, and percentages distilling below 170° C. and above 185° C. respectively.

It may be well to state that the cost of an oil distilled in London from material collected at Sevenoaks is from fifteen to twenty times greater than that of the so-called oil of *Pinus sylvestris* of trade (free from turpentine). That this latter oil is distilled from *Abies excelsa* and other varieties, and not from the true Scotch fir, *Pinus sylvestris*, I have no doubt whatever.

Test for Copper.—Traces of copper may be detected by mixing a drop of the solution containing it with 1 C.c. of concentrated hydrobromic acid; a colour varying from bluish violet to purple is produced according to the amount of copper present. The test is said to detect as little as ·0001 gramme of copper in a litre of water (*Rev. de chim. anal.*, and *Pharm. Weekblad*, 1892, No. 2).

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MEDICAL OPINIONS ON THE BRITISH PHARMACOPŒIA.

In carrying out the work of Pharmacopœia revision periodically rendered necessary by changes of medical practice, no less than by the advances made in chemistry and other sciences bearing upon it, much attention must naturally be given to the requirements of the medical profession. A discussion of the subject from that point of view took place in the Section of Pharmacology and Therapeutics at the meeting of the British Medical Association in London some months ago, and a report of it which has now been published in the *British Medical Journal* contains some expressions of opinion that cannot fail to be of interest to readers of this Journal. The discussion was opened by Dr. D. T. Leech, of the Victoria University, Manchester. After premising that the Pharmacopœia is, in its legal relations, concerned chiefly with the protection of the public and the guidance of pharmacists, and that, consequently, the effect of any change upon the interests of the public and of pharmacists has to be considered as well as the requirements of the medical profession for whose use the Pharmacopœia is specially issued, Dr. Leech proceeded to give a general statement of the points to be considered, though as a member of the General Medical Council he abstained from putting forward any definite opinions of his own. The subject was dealt with under four heads, viz., the nature and extent of the list of remedies; the mode of preparation of compounds; weights and measures, and lastly, the amount and extent of accessory information which should be given.

In regard to the first point and to the question how far the present list of official drugs and compounds is satisfactory, Dr. Leech drew attention to the fact that while many of the drugs and preparations now official are seldom, if ever, used by the majority of practitioners, many others which are not in the Pharmacopœia are used more or less. The questions as to exclusion and introduction may therefore be expected to give rise to considerable differences of opinion. On the one hand a wholesale exclusion of articles which are little used has been urged, partly on the ground that those articles must be of small value, and partly also with the object of reducing the size of the Pharmacopœia; but it must not be hastily assumed that drugs and compounds which have not maintained their popularity are therefore without utility, entitling them to a place in the Pharmacopœia. On the other hand it may be held that the retention of useless articles would injure the Pharmacopœia in an educational sense, since it should be the basis of a student's work in materia medica and of his subsequent therapeutic work. Moreover, the omission of a drug would in no way prevent its use. Among the preparations which might be conveniently excluded are those for which formulæ are given relating to methods of administering medicine, such as the poultices, inhalations, and enemata. Preparations consisting of one active ingredient and one vehicle might also be excluded, since the amount of active ingredient has frequently to be modified to suit particular cases, as, for example, in solution of cocaine hydrochloride. In considering the introduction of new remedies, it was suggested that the object of ensuring purity and uniformity of composition must be borne in mind, especially in relation to articles whose preparation is not made known, while definite proof of the efficacy of new remedies should be an indispensable condition of their introduction into the Pharmacopœia.

In connection with alterations in the mode of preparation of compounds rendered necessary as a consequence of pharmaceutical progress, it was pointed out that many of the methods of administering medicine which were formerly adopted cannot now be followed, and that in this respect the Pharmacopœia must keep pace with the times. The improvement of methods of administration must be effected by pharmacists, but utility must not be sacrificed to matters of less importance, and each change in the form of a compound would require consideration from a therapeutical point of view. While it would be impossible to put into the Pharmacopœia the many forms of administration devised by the ingenuity of large firms of manufacturing chemists, the question arises whether they can be left entirely without mention. In regard to tests for purity, the possible advantage of indicating the nature of the impurities to be detected would require to be considered.

In regard to weights and measures, Dr. Leech pointed out that while the British Pharmacopœia is now the only one in which the metric system has not been adopted, the prospect of an impending change in this respect may be regarded as certain, since the Committee appointed to investigate the subject has reported so strongly in favour of the system.

The question as to the nature and amount of accessory information relating to the list of medicines and compounds was referred to as one which most closely concerns the medical profession. The statement of doses in the British Pharmacopœia is a deviation from the practice of other countries, and the difficulty of remembering doses has raised a further question as to the desirability of simplifying this matter by altering the strength of some preparations so that the various extracts, tinctures, etc., should not have the varying dosage they now have.

As to additional information bearing upon the methods of administration of various preparations, their pharmacological action and therapeutic effects, it was shown that the power given to the General Medical Council would admit of the description of each drug being thus supplemented. But if the Pharmacopœia were to be a guide to the administration of medicines, it should be complete in that respect: but it would then contain details foreign to a pharmacopœia, and matter calculated to destroy its definite character. Though

a pharmacopœia containing positive and incontestible statements on pharmacology and therapeutics would have a vastly enhanced value, the production of such a work can only be looked for in the remote future.

According to Dr. Leech's ideal, however, the Pharmacopœia of the future should rather contain a list of drugs and preparations concerning the utility of which there would be a general consensus of opinion, with chemical tests for determining the strength and purity of every article contained in it; it would then be the initial text-book of every student, the basis of all examinations, and an equally sound basis of future work, from which excursions might be made into the more doubtful region of new remedies, but to which all medical men would return as the reliable groundwork for their therapeutic practice.

Dr. McAllister considers that one of the most important principles to be observed in the improvement of the Pharmacopœia is the adjustment of its essential formulæ so that they could be easily and accurately remembered. If tinctures, for example, cannot be all made of one strength, it might, he thinks, be possible to classify them in groups, so that the doses of tinctures in the several groups might range from 5 or 10 minims to 30 minims and 2 drachms. Dr. McAllister would extend the application of this principle of classification and gradation to the different preparations of particular drugs. He is also of opinion that the standardisation of extracts, tinctures, etc., should conform to some easily remembered sequence of gradation. By avoiding duplication of preparations, as in the case of strong and dilute solutions, he suggested that greater simplicity might be secured that would be useful not only in preventing mistakes but also in reducing the size of the Pharmacopœia. Dr. Bradbury considers that the bulk of the Pharmacopœia should not be increased, and that space might be found for various additions by eliminating matter which is now superfluous, but he thinks that purely pharmaceutical processes, such as the preparation of infusions, decoctions, etc., should be retained. Uniformity of dose he holds to be more important than uniformity of preparation, though the pharmacological knowledge of drugs is at present too incomplete to render that possible.

Dr. Talfourd Jones spoke specially in reference to suppositories; he thinks several of the formulæ might be omitted, and suggests that in the administration of morphine in that form the strength of the preparation should be decided by the prescriber, giving medical reasons for that view.

Professor Charteris thinks the Pharmacopœia requires to be more accurate in regard to tests for purity and dosage. Professor Carter, of Liverpool, objects to the suggestion that galenical preparations should be supplanted by definite active principles, as that plan would exclude valuable and trusted remedies, such as digitalis, opium, jaborandi, etc., which contain distinct but physiologically antagonistic active principles. Professor Tirard regards the suggestions and statistical information obtained from medical men as distinctly indicating a desire that the Pharmacopœia should be made more useful by diminishing its size. Dr. Neville Wood advocates the adoption of a third or medium dose in addition to the maximum and minimum doses now given, as a means of simplifying dosage, but he makes an exception of opium, the dose of which must be varied according to circumstances. He suggested the plan in the interest of general practitioners who use the Pharmacopœia largely but have no direct voice in its compilation.

The chief points on which the speakers agreed were the necessity of limiting the size of the Pharmacopœia, of exercising caution in the introduction of new remedies, and the desirability of adopting the metric system of weights and measures, at least as an alternative system. In other respects the views expressed were distinctly divergent, although it may be inferred that in all instances the objects aimed at were simplicity and uniformity.

OBJECTIONS TO THE CELL-THEORY.

Mr. Adam Sedgwick some time ago published a paper in the *Quarterly Journal of Microscopical Science*, in which he called attention to the apparent inadequacy of the cell-theory, and recent criticism of his position in the matter has induced him to state it more fully in the same publication. He holds with Sachs and others, that the phenomenon of cell-formation is not of primary significance, but "merely one of the numerous expressions of the formative forces which reside in all matter." The cell-theory asserts that the Metazoa are aggregations or colonies of individuals called cells, and derived from a single primitive individual—the ovum—by successive cell-divisions; that the meaning of this mode of origin is given by the evolution theory; and that the development of the higher animals is a recapitulation of the development of the race. Sedgwick's work, however, has led him to doubt the validity of this view of the Metazoon body, and he is inclined to attribute a number of errors in descriptions of embryonic processes to the dominating influence of the cell-theory in its modern form. A theory which leads to obvious errors must, he thinks, be wrong, but he has not yet arrived at conclusions which enable him to formulate any satisfactory alternative hypothesis with regard to the meaning of the predominance of the structure called cellular.

In reference to this matter it is pointed out in *Natural Science* that, in the older botanical text-books, the plant unit is the "cell"—a cellulose chamber enclosing protoplasm and cell-sap—an aggregation of such cells forming a tissue. According to modern ideas, however, the unit is a mass of protoplasm in which is embedded a nucleus. This unit or "energid" is the starting point of every plant. It may grow and divide repeatedly without the separation of the resulting daughter units by partition walls, a large number of nuclei being embedded in a general mass of protoplasm contained within a common membrane, as in *Vaucheria* and *Mucor*. In *Cladophora*, again, incomplete septation is illustrated, and where the completely septate form prevails, the protoplasmic units, though separated, are probably not isolated by the cell-walls. The cell has come to be regarded, then, as a mere enclosure of the protoplasm, necessitated by increase in size, differentiation, and need for support. Modern attention is being more and more concentrated upon the nucleus. Thus, whereas Weismann originally spoke of "germ-cells," he now speaks of "germ-plasma," meaning by that nuclear matter; and the continuity of the germ-plasm means for him the continuity of nuclear matter, rather than the existence of a chain of cell-division, of which the successive generations are pendants. Indeed, recent work generally seems to support Mr. Sedgwick "in attaching little importance to the frequent division of protoplasm into areas round nuclei, but increasing importance to the presence in so-called multi-cellular organisms of localised foci which multiply by division."

ANNOTATIONS.

Glasgow and West of Scotland Pharmaceutical Association.—We are asked to announce that tickets for the conversazione and dance on February 13 can now be obtained from the Secretary, Mr. J. Anderson Russell, 212, New City Road, Glasgow.

The Effects of Boiling Milk.—In a recent number of the *British Medical Journal*, Dr. J. L. Kerr points out that milk is greatly altered as a food by the process of boiling. It consists normally of a multitude of fat corpuscles and nucleated cells of the nature of white blood corpuscles, suspended in serum. On standing, the fat corpuscles rise to the surface to form the cream, and in a few days the more solid particles in the milk also show a tendency to separate from the serum. A difference in taste is then perceptible although the milk yet remains sweet, the change in taste and appearance being due to the death of the white blood corpuscle-like bodies in the milk. On boiling milk all the living cells are at once killed, and the albuminoid constituents are coagulated. A process of digestion is therefore rendered necessary before assimilation of any of the constituents of the milk can take place in the human system; whereas the living cells in fresh milk appear to be at once absorbed on ingestion, entering the blood stream and being utilised in building up tissues; the fresh serum albumin is also understood to be absorbed by osmosis, whilst the casein is digested by the gastric juice and absorbed as peptone. The loss of utility consequent on the necessity of digesting all the constituents of boiled milk, instead of allowing the cells of fresh milk to enter into the circulation as living protoplasm and so build up the tissues direct, is most appreciable in the case of infants, for when boiled milk is used, the process of absorption is delayed, and a larger quantity of milk is required for the same amount of growth.

The Keeping Power of Photographic Dry Plates.—Emulsions made by the ammonia process do not keep so well as those made by the boiled emulsion process, according to H. W. Vogel (*American Annual of Photography*). He also asserts that the keeping power of an emulsion depends largely on the quality of the gelatin used, and that access of air de-sensitises or fogs plates. Fresh plates should therefore be used and kept until wanted in an air-tight case. To test the gelatin, Vogel mixes a 10 per cent. solution of it with an equal volume of a solution of ammonio-nitrate of silver of similar strength. The more yellow or brown the colour of the mixture becomes, the more liable to go wrong will be an emulsion made with the gelatin.

Cultivation of the Castor-Oil Plant in Georgia.—Experiments in cultivating the castor oil plant in South Georgia, U.S.A., are described by D. F. Davenport in the *American Journal of Pharmacy* for December. It is said to yield abundantly, and a specimen of seed from Sumter Country was described by the seed-crusher as the finest he had ever seen. With regard to soil, it is stated that almost any soil that will produce wheat or Indian corn will answer for the castor bean, and that the crop has a wonderful fertilising effect upon poor land, surpassing clover in that respect. A number of useful suggestions will be found in the paper by those interested in the production of castor beans.

Index to the Journal.—With the present number of the Journal the first volume of the new series is concluded. The index to the volume is in a forward state of preparation, and will probably be published with the Journal for January 11, 1896.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

EVENING MEETING IN EDINBURGH.

Friday, December 20, 1895.

Mr. J. Laidlaw Ewing in the Chair.

The second evening meeting in Edinburgh of the present session was held in the Society's Hall, 36, York Place, on Friday, December 20, at 8.30.

The minutes of last meeting having been read and approved, apologies for absence were intimated from Messrs. Lunan, Nesbit, and Stephenson.

The first communication read was a "Note on Unguentum Eucalypti, by Mr. Peter Boa. This will be found at page 539. In the discussion which followed,

The Chairman said they were indebted to Mr. Boa for this practical note. He had not had much experience of eucalyptus ointment, but he thought it was not satisfactory.

Mr. Henry said he observed that Martindale found this ointment was not once prescribed in a series of 25,000 prescriptions, and it seemed as if it might well be excluded from the Pharmacopœia. Probably this might be due to the fact that it was too strong, and a diluted form might be more useful. As Mr. Boa had pointed out it acted as a rubefacient; when an ointment was wanted as an antiseptic dressing or for fever patients when desquamation was going on, a strength of 1 in 15 or 1 in 20 might be best, but it would be useless as a rubefacient. It might be advisable to retain the present form, which could be prescribed when a rubefacient was wanted, and the more dilute form could be prescribed for other purposes, but he doubted if the ointment was worthy of a place in the Pharmacopœia. He had never once seen it prescribed.

Mr. Lothian suggested paraffinum molle, with 10 per cent. of eucalyptus oil, would be a useful form. He found there was a considerable demand for such an article, and it gave excellent results.

Mr. Hill said Mr. Boa had pointed out a real defect in this ointment which had not been touched upon by any of the other writers who had been chiefly concerned as to the basis and the method of mixing. Quite possibly the fact that it was too strong explained the infrequency with which it was prescribed. It certainly caused irritation in delicate skins, and when used to apply to fever patients during desquamation it was almost certain to irritate, and might cause serious trouble. He did not think the ointment was a form that could be much used as a rubefacient. A much more suitable form would be a eucalyptised oil, say olive oil, with 10 or 20 per cent. of eucalyptus oil. This note was a valuable contribution to the discussion that had been going on with reference to this ointment for some time.

Mr. Boa, in reply, said Mr. Henry had suggested that this ointment should not be retained in the Pharmacopœia. The Chairman would remember a certain council of medical practitioners and pharmacists which recently considered the Pharmacopœia in Edinburgh, and this ointment was not one of those marked for deletion. Mr. Lothian had suggested 10 per cent. in soft paraffin. He had had some experience of such a preparation, and his opinion was that even that was too strong, and that 1 in 15 suited better for most purposes. What Mr. Hill had said was undoubtedly true as to the ointment causing irritation when applied to the surface of the skin during desquamation, and he thought even 10 per cent. would act in that way. Some few years ago a mixture of eucalyptus oil and iodoform was in much demand as an antiseptic stopping for hollow teeth. A few days ago he met an eminent dentist in town who said he had abandoned this stopping mixture because he frequently found that its use was followed by painful inflammation at the root of the stopped tooth. He now used iodoform alone, and since doing so there had been no such complaint.

The next communication was on "Simple Calculations for Analysis of Certain Mixtures," by Mr. J. A. Forret. This is printed at page 538. In the discussion which followed,

Mr. Cowie said he had supplied Mr. Forret with a few problems, and he had worked them all out in a very accurate way. He thought few chemists would be willing to devote so much time as

Mr. Forret to these calculations, which he had in some cases carried as far as the ninth decimal place. The subject originated in a question which was set at a Major examination. Many would probably remember that at the time it was said by some that the problem could not be solved by anything short of algebra. Mr. Forret had shown that not only that calculation, but many more difficult ones, could be successfully completed by pure arithmetic. Such problems were an indication, however, that it would be a great advantage to have algebra included in the Preliminary examination.

Mr. Hill said Mr. Forret deserved credit for the patient and laborious way in which he had worked out this interesting method. He had shown that they were not limited to the formula of Sutton, which was really not a serviceable one for the detection of sodium in comparatively small quantity in a potassium salt. Mr. Forret had not only devoted a great amount of time and labour to this work, but he had now supplied to those even who did not know algebra, a simple, reliable, and easily-understood method of solving that class of problem. It had the advantage over Sutton's that one did not require to employ factors, the origin and meaning of which were not well understood. One could see clearly all through the process, and could thus feel more assured of the result.

Mr. Forret said he had to thank Mr. Hill for his reference to the work. Mr. Cowie had supplied him with some very stiff problems, and he had proved his method by working out every one of them to an accurate result.

The next communication was on "A Convenient Arrangement for Continuous Percolation," by J. A. Forret. This is printed at page 538.

The Assistant Secretary then drew attention to a sample of ergot of rye from the Canary Islands, which he had just received from Mr. Charles Umney. He had communicated with Mr. Umney, who had put in the form of a note such information as was available.

Ergot of Rye from the Canary Islands.

BY J. C. UMNEY.

This sample of ergot of rye was purchased by Mr. Charles Umney for our firm at a recent drug auction. So far as I know, this particular variety of ergot of rye is the first that has ever reached the London market. It was produced in the Canary Islands, and was shipped from Las Palmas to England. A preliminary examination shows that it yields a larger amount of extractive than the Russian and Belgian varieties, and it is quite equal to an average sample of Spanish ergot of rye.

I have not yet had an opportunity of making an extended chemical examination of it, and a comparison of it with Spanish and Russian ergot, but preliminary experiments on a small sample show that it yields a large percentage of extractive to water, the actual percentage being 17·28.

This is in excess of that yielded by the best Spanish ergot—which is a variety we usually employ for pharmaceutical purposes in preference to the Russian—although I have occasionally handled samples that yield as well, the majority, however, yield from 13 to 15 per cent.

I hope during the course of the next few months to have the opportunity of converting the whole of the parcel, amounting to about 5 cwts., into ergotin, for which it is in my opinion admirably adapted on account of its pale colour.

If the ergot should, on extended examination, present any special features, I will take the opportunity of putting the facts before you.

The Assistant-Secretary also directed attention to a specimen of the poison weed of Western Australia (*Gastrolobium bilobum*) presented by Mr. William Duncan, and several bazaar drugs presented by Mr. Thomas Stephenson, Bombay.

The Assistant-Secretary then exhibited and described, by means of the oxyhydrogen lantern, a series of slides illustrating the micro-organisms found in water. The exhibition was prefaced by a brief historical *résumé* of the observation of Loewenhoeck as to the yeast cells in beer about two hundred years ago, and the consequent theory of fermentation enunciated by Liebig, which was generally accepted till the classical researches of Pasteur cast a new light on the problem. The work of Koch in studying the life history and functions of bacteria was also referred to. Before proceeding to bacteria proper, three slides were shown illustrating the microscopic appearance of the sediment found in well water, sluggish ditch-water, and free-flowing river water respectively. *Saccharomyces cerevisiæ* and *Penicillium glaucum* were also shown. Typical slides of the various classes of bacteria showing characteristic structure, were then shown. The non-pathogenic microbes found in water included *Micrococcus candicans*, *Diplococcus albicans*, *Spirillum volutans*, *Spirillum undula*, *Spirillum plicatile*, and *Spirillum rugula*. Of the higher branching forms there were shown *Beggiatoa alba*, found in sulphur springs; *Crenothrix kuhniana*, found in wator containing iron; and *Cladothrix dichotoma*. Of the pathogenic forms, these were shown the encapsuled coccus of pneumonia, and the bacilli of cholera, tuberculosis, typhoid fever, and anthrax, the later showing the various stages in the life history as traced by Koch in 1876, namely rods, filaments, development of endospores, and free spores. Steam sterilisation, pepto-gelatine plate culture, the method of counting bacteria in water, the rate of increase of bacteria in pure and impure water respectively, and the Pasteur-Chamberland filter were also illustrated and explained.

On the motion of the Chairman, votes of thanks were awarded to the authors of papers and donors of specimens, and to Mr. Hill.

PROCEEDINGS OF SOCIETIES.

Chemical Society.—At the meeting held on December 19, a lecture on "The Liquefaction of Gases" was delivered by Professor Dewar, before a large and interested audience.

The liquefaction of gases. and especially Professor Dewar's share in the work connected with it, has been during the last two or three months a subject of lively discussion amongst chemists, and it was to that fact that the lecturer attributed the request of the Chemical Society for him to lecture on a subject on which he has already lectured before the same Society. Referring in detail to the history of the subject, Professor Dewar said that since the construction by Pictet of an apparatus for the liquefaction of gases by means of the low temperatures created by the evaporation of sulphurous anhydride under a low pressure in a vacuum, all the work done has consisted merely of various improvements, mostly technical, and based upon the same principle. He attributed the success of his own researches in this direction entirely to superior *technique*.

The historical development of the liquefaction of gases was illustrated by drawings of the apparatus used by the different investigators in their work. Amongst those represented were the apparatus of Pictet, Cailletet, Wroblewski, and Olszewski.

One of the most important discoveries in connection with the liquefaction of gases had been made by Wm. Siemens who first observed and studied the phenomena of the regeneration of cold, and M. Solvay was the first to put this principle into practice in constructing a new apparatus for the same purpose. The principle of the regeneration of cold is now applied to most of the varieties of apparatus which have been recently devised for the liquefaction of gases.

Professor Dewar then proceeded to demonstrate a series of very interesting experiments. A quantity of liquid oxygen was prepared before the audience in the course of about ten minutes, in a very handy and ingenious apparatus which has been constructed by Professor Dewar's able assistant, Mr. Lennox, and specially adapted by him for laboratory purposes.

The construction of the apparatus employed in the experiments, as well as of the glass vacuum vessels in which the liquefied gas is kept, was then explained by the lecturer. Amongst the most interesting of the experiments were those of the liquefaction of gases and gaseous mixtures by the use of liquid oxygen.

Professor Dewar dwelt at length upon the researches made by him on the expansion of liquefied gases, and gave a very interesting account of his determinations of the specific weights of various elements and substances, liquid oxygen being used as a medium instead of water.

A discussion followed, in which Lord Playfair, Professor Ramsay, and others joined, and a cordial vote of thanks was awarded to Professor Dewar, and his assistants, Messrs. Lennox and Heath.

Glasgow and West of Scotland Pharmaceutical Association. — At the open meeting, held on Thursday, December 13, the chair was occupied by Mr. Alex. Laing, Vice-President.

Mr. Thos. Dunlop mentioned three things that had come under his notice dnring the recess, an incompatible prescription, an impure salt, and a bad ointment diluent. The prescription was as follows:— Creosote, ℥ij.; quin. disulph., gr. i.; p. camph., gr. i.; aloin, gr. ½; ext. bellad. alch., gr. $\frac{1}{24}$; strychninæ, gr. $\frac{1}{64}$. M. Ft. pil., mitte 48 pills. All the ingredients (except the creosote) were mixed together, and then creosote pill mass added. The combination immediately assumed the consistence of very soft soap. The addition of an equal quantity of absorbent powder, consisting of liquorice powder, 2 parts, tragacanth powder, 1 part, still left it like soft pntty. Camphor and creosote—like camphor and carbolic acid—seem to be incompatible, even although kept well apart. The creosote used was Morson's, so that the liquefaction could not have been the result of an impure creosote. The impure salt was bismuth subcarb, and the impurity (ammon. nitrate) was discovered accidentally when dispensing a prescription containing pot. bicarb., sod. bicarb., and bis. snbcarb. On triturating these in a mortar, Mr. Dunlop noticed a strong smell of ammonia. He afterwards washed 50 grains of the bis. carb. with water, and gently evaporated the filtrate to dryness. No visible residue was left, bnt on washing the evaporating basin with a drachm of water and dropping in sulphate of indigo solution, it was instantly decolorised. He did not repeat the experiment so as to determine the amount of admixture which was more than appreciable, as, after dropping in 30 drops of the indigo solution, the mixture was still clear. The bad oint. dilnent was paraffinum molle. They had heard a good deal lately about that, carbolic acid and other medicaments which had been incorporated with it not remaining so. In the early part of the summer he had made some dilnted nitrate of mercury oint., petrolatnm U.S.P. being used, and he found later that separation had taken place, the bottom of the pot being surrounded by a ring of transparent matter having the colour and consistence of syrup. The U.S.P., after describing the process by which the soft paraffins of commerce are obtained, says: "The clearer portion of the filtrate is then bronght to the proper melting point, if necessary, by the addition of pure block paraffin, which dissolves perfectly in the warm liquid oil." Probably this may account for the separation, whilst it is another illustration of the unsuitableness of paraf. molle as an ointment base, and also seems to demonstrate that a componnd composed of ingredients having different melting points does not acquire a uniform melting point, which is the mean of the whole, but that fractional separation may occnr when a very gradually increased temperature is maintained for some time, with periods of cooling intervening, the result being practically distillation *per descensum*. The U.S.P. says "when petrolatum is ordered without specifying its melting point, the low melting variety which liqnefies at 40° C. (104° F.) is to be dispensed." Seeing that those with higher melting points are artificially produced, wonld it not be better to fix the melting point at 40° and allow the physician and pharmacist to add "block paraffin" as required? A range of 11° C. in the melting point seems too wide, more especially as they can all be said to be "prepared according to the standard." B.P. paraffin molle with a range of 10° F. wonld be less open to objection did it not include "petrolatum" as a synonym.

Mr. Robb submitted the following prescription for an incompatible mixtnre which had come into his hands to dispense:—

℞ Lithii salicylatis .....ʒi.	Quininæ bromidi .....gr. xvi.
Syr. limonis .....ʒvi.	Aquæ destil. ad. .....ʒiv.

On mixing these, a white powder (salicylic acid) is separated and rises to the top. He snggested that it might be dispensed either by using a little mucilage in addition, to diffuse the powder, or by substituting for the lemon syrup a syrup flavoured with lemon but without acid. Such departures from the letter of the prescription were objectionable, but there seemed no other way ont of the difficulty short of getting the prescription altered.

Mr. McKellar referred to the B.P. glycerin suppositories, 70 per cent., and stated that, as mentioned by Squire, these can be made according to his formula ('Companion,' p. 272), without evaporating, as in the B.P. process. A formula of French origin appears in the 'Year Book of Pharmacy,' 1895, for suppositories made with agar-agar, and containing 50 per cent. of glycerin. The author claims that a more transparent mass is produced, which does not clot or stick to the mould and gives a more elegant article when finished (see p. 537). The specimens now shown looked very well, but although only made that day, the glycerin had sweated out of them considerably, and most fatal objection of all, they would not melt at blood temperature, consequently they were useless for their pnrpose. With stearate of soda the suppositories are remarkable for the large quantity of glycerin contained (95 per cent.). The glycerin is warmed with a little stearic acid and, as soon as the latter is melted, snfficient carbonate of soda added to neutralise the acid. The operation requires care, but when properly made a suppository of the strength named is produced of a clear gelatinous appearance. They are highly hygroscopic, and require to be pnt into air-tight bottles as soon as made. From trials in the mouth, Mr. McKellar was inclined to think that the B.P. snppository, made as described by Squire, would be the most efficient on account of the rapidity with which it melts. The stearate of soda article melts very slowly, the agar-agar snppository, as already mentioned, not at all. Mr. McKellar also exhibited a sample of sulphoricinic acid, now being prescribed locally in 2 per cent. solution for painting diphtheritic throats.

Mr. D. Watson had the following to dispense:—

℞ Sodæ bibor.	Potass. bicarb.
Potass. chlor.	Sodæ hyposnlph.
	āā partes æquales.

The result was a highly deliquescent compound. It had been suggested to the prescriber that sodæ bicarb. in place of potass. bicarb. would permit of the prescription being dispensed as a powder, and the suggestion is now being regularly acted upon.

Mr. McKellar inqnired if the soda in Mr. Dunlop's prescription was pure. He had often found traces of ammonia in the ammonia process soda. He had fonnd petroleum of the U.S.P. behave very peculiarly, it sometimes made ung. hyd. ox. rub. very dark, and, as Mr. Dnnlop said, it had a tendeucy to separate into layers with different melting points. The mixtnre of paraffium molle and durum for an ointment base was a failure in the case of ung. acid. carbol., the acid crystallising out. He (Mr. Dunlop) supposed the idea had been borrowed from Lister's boric ointment, where the same base was employed with the intention of forming a plaster that would adhere to the cloth, and come away clean from the sore.

Mr. Dunlop, in reply, stated that Howard's soda was used, and also pointed out that he had tested the bismuth subcarbonate.

Mr. Gates agreed with Mr. McKellar that evaporation was nnnecessary in the preparation of glycerin suppositories. Long heating destroyed the setting power of gelatin, and the resulting suppositories were too soft. Those prepared by Squire's method were firmer, and patients preferred them. To preserve glycerin suppositories made with stearate of soda a coating of hard paraffin was usually employed. It was easily detached before use by pressing between the finger and thnmb. Mr. Gates observed also that as the B.P. requires tinct. opii to be of a certain strength, a process of assay should be appended. He had tried various processes, bnt preferred that of the U.S.P. The alkaloid obtained was lighter in colour than that obtained by the lime process. Its freedom from earthy impurities was ensnred by the addition of ammonium oxalate to the tincture before evaporation.

Mr. Mackenzie stated that a prescription for pills containing creosote and camphor had come to him, and he gave it to half-a-dozen students to dispense. In his opinion the usual practice of adding a little powdered liquorice and tragacanth was the best means for stiffening a mass of that description. Commenting upon the determination of morphine in laudanum, he referred to a barium chloride test of Mr. Dott's, the chief commendation of which seemed to be that results could be arrived at by it in about one-half of the time required by others. He expressed himself strongly in favour of volumetric analysis for determining alkaloids.

Other members also took part in the discussion, after which Mr. E. Taylor, on behalf of Messrs. Burroughs, Wellcome, and Co., then presented the Association with a copy of Remington's 'Pharmacy.' The secretary intimated the receipt of a copy of the 'Year-Book of Pharmacy' from the British Pharmaceutical Conference. These were suitably acknowledged, and the secretary was instructed to convey to the donors the thanks of the Association. Three new members were elected. The announcement was made that Dr. D. Lees, of the Glasgow School of Pharmacy, was forming an ambulance class for chemists on the Register, to be conducted under the rules of the St. Andrew's Ambulance Association at an honr to suit those who may enrol themselves.

Royal Society of Edinburgh.—A meeting of the Royal Society of Edinburgh was held on Monday, December 16, —Professor Copeland, the President, in the chair. Professor Tait, the Secretary, submitted an obituary notice by Mr. W. H. Pearson of Dr. Benjamin Carrington, the eminent botanist.

Dr. C. Hunter Stewart, Public Health Laboratory, Edinburgh University, made two communications to the meeting. The first was a paper giving the results of three years' daily investigations into the amount of carbonic acid in the atmospheric air and in the ground air of Edinburgh. He described the method adopted by him in his investigations, the results of which were shown in detail on large diagrams. The result of his investigations in Edinburgh had been to show that the amount of carbonic acid in the atmosphere in the year 1893 was 3·96, in 1894 3·72, and in 1895 (so far as the year had gone) 3·45 per ten thousand, so that in this northern climate we had the conditions of the air, as regarded carbonic acid, very similar to the conditions of South Germany and of Paris. Dr. Hunter Stewart went on to discuss the question of seasonable variations and morning and evening variations in the amount of carbonic acid in the atmospheric air and in the ground air—his contention being that the carbonic acid in the ground rose into the atmosphere. For various reasons, which he stated, he declared that it was fairly evident that while the air of the soil contained an enormous amount of carbonic acid in comparison with the atmospheric air, the source and the regulator of the atmospheric carbonic acid was undoubtedly the ground air. The soil of Edinburgh was pre-eminently a non-porous soil, and in order that the determinations he had arrived at might be applicable to other cities, he had carried on his investigations on made or "travelled" soils. In a clay soil like that of Edinburgh there was less production of carbon than there would be in a more porous soil.

Passing on to his second subject—the relation of the soil to the incidence of summer diarrhœa among children in Scotland—Dr. Hunter Stewart referred to previous exmainations of the question, and recalled the fact that the years 1884, 1893, and 1895 had been bad years so far as the deaths of children between two days and five years of age, from diarrhœaic causes, were concerned; while 1888, 1892, and 1894 had been low years. The first point he brought out was that between the west (Glasgow, Paisley, and Greenock) and the east of Scotland (Edinburgh and Leith, Dundee and Aberdeen); there was a difference of five or six weeks in the time of incidence of this disease, the east being so much later than the west. He considered that a striking fact, because the conditions of temperature were not materially different. From a diagram he showed how in certain registration districts in the various large towns the mortality in children from this disease was greater than in others, and, taking Edinburgh as one instance, he pointed out that in the Canongate, Newington, and St. Giles districts, where the soil was entirely clay, such mortality was very small as compared with St. Andrews and North and South Leith districts, where the soil was sand. From that and other data he argued that the condition of the soil had clearly something to do with the prevalence of the disease, because wherever there was clay the proportion of mortality among children from summer diarrhœa to the total mortality was low, while wherever they had a sandy or a "travelled" soil the percentage was high. To demonstrate that summer diarrhœa was really a violent disease, he quoted statistics from which it appeared that in the West, in the bad years 1884, 1893, and 1895, the total number of deaths of children under five years from this cause was 1080, and that in 62·61 per cent. of these the illness lasted for less than a week. In the east, again, out of a total of 580 deaths of children in the same period and from the same cause, 55·2 per cent. of the cases had terminated fatally after four days' illness. These facts showed the violence of the disease.

The next communication was on "The cause and nature of chemical changes in ocean deposits," by Professor W. N. Hartley, F.R.S., Royal College of Science, Dublin, and that was followed by a paper on "A new method of making plaster of Paris," by J. L. Kerr, M.D., C.M. The author has been experimenting on the crude sulphate of lime, which is at present an unsaleable bye-product in the manufacture of illuminating gas. The crude ammonia from distillation of the coal is neutralised by sulphuric acid, and the ammonium sulphate thus obtained is used, among other purposes, for the preparation of strong solution of ammonia for industrial and medical purposes. This ammonia solution is obtained by decomposing the ammoniacum sulphate by boiling it with caustic lime. The residual waste product, which accumulates in large heaps at the gasworks, he found to contain 92 to 98 per cent. of hydrated calcium sulphate, $CaSO_4 2H_2O$, in minute crystals. The balance consists chiefly of unsaturated caustic lime. The presence of much caustic lime destroys the setting properties of plaster of Paris, but 2 per cent. makes very little difference. The author has devised a process, protected by letters patent, whereby the calcium sulphate is dehydrated, and yields a plaster of Paris equal in all respects to that obtained from gypsum.

Linnean Society of London.—At the meeting held on Thursday, December 5, the President, Mr. C. B. Clarke, F.R.S., took the Chair. Messrs. Bernard Arnold and Rupert Vallentin were admitted, and the following were elected Fellows of the Society:—W. M. Christy, Rev. H. P. Fitzgerald, A. W. Geffken, Rev. E. A. Peacock, Rev. T. R. Stebbing, and W. O. Stentiford.

The President called attention to a portrait of the late Professor Babington, of Cambridge, which had been lately presented by his widow to the Society. On the motion of Dr. Murie, seconded by Mr. A. W. Bennett, a vote of thanks to Mrs. Babington was unanimously accorded.

Prof. Stewart offered some remarks on the types of the axes of certain Gorgonaceæ, in which he referred chiefly to the importance or otherwise of the presence of spicules in the axes, and exhibited the following species in illustration of his remarks:—*Paragorgia arborea*, *Melitodes ochracea*, *Suberogorgia suberosa*, *Corallium rubrum*, *Caligorgia verticillata*, *Verrucella guadalupensis*, *Isis hippuris*, *Plexaurella crassa* and *Eunicella verrucosa*. Some criticism was offered by Dr. Murie, chiefly in relation to the structure of *Gorgonia flabellum* and *Gorgonia setosa*.

Mr. Martin Woodward exhibited and made remarks on a living specimen of *Ouramœba*, which he thought should be regarded as a common Amœba attacked by a parasitic fungus.

Mr. G. C. Druce communicated a paper on a new species of *Bromus* in Britain, which was said to differ from others of the genus in its inflorescence, having single short stiff pedicels arising alternately right and left of the main rachis, each bearing at its extremity 3-5 sessile, or, in some cases, shortly stalked spikelets giving an interrupted and compact appearance to the whole inflorescence, which is made up of two rows of clustered groups of 3-5 spikelets. This peculiar feature being absent in its nearest allies, the name *interruptus* was proposed to distinguish it. It appeared to have been recognised by Prof. Hackel as *Bromus mollis* var. *interrupta*; but Mr. Druce considered that it was sufficiently distinct to be entitled to specific rank. He had found it growing abundantly in a field of vetches near Upton, Berkshire; and specimens had been examined from Headington, Oxford and Dartford, Kent. In a discussion which followed, Dr. O. Stapf reviewed the literature of the subject, and gave reasons for regarding the so-called new species as a sport, abnormal growth of *Bromus mollis*. Critical remarks were made also by Mr. H. Groves and Mr. A. B. Rendle, who were inclined to share the opinion of the last speaker.

A paper was then read by Mr. W. F. Kirby on some new or little-known *Phasmidæ* in the collection of the British Museum, with illustrative specimen.

Sheffield Microscopical Society.—A general meeting of this Society was held on Friday evening last in the Rutland Institute, Fargate. There was a full attendance. The President, Mr. A. H. Allen, F.I.C., F.C.S., occupied the chair. Dr. Sorby, J.P., F.R.S., delivered a lecture entitled "Recent Natural History Studies in the S.E. of England," illustrated by lantern slides. The lecture consisted of a general description of the various marine animals found in the Kentish rivers, the Medway particularly, during a cruise of the "Glimpse," the lecturer's yacht. One of the interesting features in connection with this lecture was that the whole of the lantern slides were prepared from the animals themselves, by first staining and clearing and then pressing between two squares of glass and mounting in Canada balsam. Even such refractory animals as shrimps, starfish, and several of the Crustaceans had been mounted in this manner, after, of course, being decalcified. Dr. Sorby said he had been very successful in his attempts to stain various marine animals, such as the neries, medusa, and synapta, whilst they were yet living. This he had accomplished by keeping the animal in sea-water, coloured with methylene blue, carmine, or logwood. In some cases they had lived in this solution for many weeks, and when mounted

as described showed a perfect staining, the muscles and the internal organs showing up clearly and boldly. The doctor had experimented with fresh bilberry juice and madder as staining agents for living animals, but, to his surprise, both substances acted as virulent poisons, and killed the little animals in a few minutes. The lecturer preferred this method of staining during life because the differentiation of structure was much more pronounced than in the animal stained after death. As a general stain for dead tissue he said he had found none to equal a tincture of madder. The subdued colour was more pleasing to the eye than the glaring reds and purples so often used for lantern slides.

At the close a very hearty vote of thanks was accorded Dr. Sorby on the motion of Mr. Wilkinson, seconded by Mr. R. B. Greaves, Ph.C., F.C.S.

Dublin University Biological Society.—At the opening meeting of the session of this Society, held recently in the New Buildings, Trinity College, Dr. Alfred R. Parsons, the new President, delivered the inaugural address on "Modern Tendencies in the Treatment of Disease." There was a very large attendance of Dublin medical men, among whom were the Presidents of the Royal Colleges of Physicians and Surgeons, Drs. Cosgrave and J. W. Moore, late examiners to the Pharmaceutical Society; Dr. Duffey, the Government Visitor; Dr. Ninian Falkiner, Professor of Botany and Materia, and Dr. H. C. Tweedy, one of the Society's examiners.

Dr. Parsons, after referring to the importance of the regulation of diet in diseases, remarked that to the Dublin School belonged the honour of having first recognised the importance of the administration of food in fever cases. Having dealt with the rapid strides which skilled nursing had made during recent years, the lecturer spoke of the influence of mind on body, and said that they must remember the potent effects of the mind and will on the course of disease. It was therefore a physician's duty to inspire as much hope and confidence in his patient's mind as he legitimately could. Even in the administration of drugs there could be a marked improvement. Their prescriptions were not so long or complicated as those of earlier physicians. After quoting one of these, which contained sixty-three ingredients, he said that, even assuming any distinct result to be dependent on such a medley of substances, it was almost impossible to determine with which of the ingredients the result was associated. They had to acknowledge their indebtedness, he said, to the chemist for having in many cases isolated the active principles of their drugs, thereby enabling them to diminish the bulk of their medicament, and to regulate much more accurately its dose. As a result of some of these improvements, including hypodermic administration of alkaloids, combined with careful experiments on animals, the administration of drugs tended daily to become more rational and scientific. It must be admitted, however, he said, that increased knowledge did not increase their hope that in drugs they had antidotal substances to the poisonous products of the metabolism of bacteria; on the contrary, he thought there were few physicians more sceptical than their professors of materia medica, a remark which caused much amusement. In discussing the use of serums, he said that there seemed to be much in the most modern therapeutical methods to encourage hope that, as Sir Edwin Arnold recently said, the day would come when man would not die of tuberculosis, of typhoid, of scarlet fever, in London, in Paris, in Vienna, or in Berlin.

Western Chemists' Association (of London).—At the opening meeting of the new session, the inaugural address was delivered by the President, Mr. J. C. Hyslop, in which he considered the question how pharmacists may best work together for the general good. With regard to the "cutting" evil, he expressed the opinion that the bubble will burst when it is big enough. Cutting was no novelty, as it existed before the passing of the Pharmacy Act of 1852. Pharmacists should be careful not to make matters worse by rashly throwing in their lot with any party. They should humour their clients but not strive to attract those of their neighbours or to make money by practices that decent and educated minds would recoil from. There will always be plenty of scope for the energies of the pharmacist while he cultivates legitimate pharmacy, and a fair emolument at the end of it, but if he resorts to ordinary trade methods his pharmacy will slip away. So-called "anti-cutting" systems should be avoided.

With regard to the revision of the Pharmacopœia, Mr. Hyslop thought the time seemed not far off when pharmacists would have their full and proper share in its compilation. It was matter for congratulation that such eminently efficient men were serving on the Committees engaged in the work, and that so many practising pharmacists were lending their aid by communications to the *Pharmaceutical Journal*. It was to be hoped that when the book appeared it would be so accurate and comprehensive that its general acceptance would be assured.

The proposed amendment of the Pharmacy Acts next received attention. It was suggested that the time seemed ripe for amendment in regard to (1) the general education of coming pharmacists, (2) the public safety in the dispensing of medicines and sale of drugs, and (3) improvement in the constitution of the Pharmaceutical Society. Provision for the thoroughness of the pharmacist's general education came first in every sense, and a more complete and comprehensive general knowledge must be required of candidates before being allowed to enter upon their technical studies. Then the law should be further improved in the interest of the public by prohibiting the dispensing of medicine generally by unqualified persons. The revision of the constitution of the Pharmaceutical Society was also a matter of very great importance. Whilst there is life there is always flexibility and consistent change, and those were now looked for in the hope of tending to bring all the pharmacists of Great Britain into closer touch and sympathy with each other, on an equal footing as members of one great Society.

At the conclusion of the address Mr. R. H. Tasker rose to move a vote of thanks to Mr. Hyslop; he considered the address was most valuable and interesting to the trade generally, and fully agreed with the remarks and suggestions made therein.

Mr. Martindale seconded the vote of thanks, and the vote having been put to the meeting, was carried unanimously and with acclamation.

Mr. Hyslop replied with a few suitable remarks and invited the members to discuss the address. A short discussion then took place, those who spoke being generally in accord with the remarks contained in the address.

Mr. Spycer next opened a discussion on a plan whereby he thought chemists situate in a given district might help one another by combining and each one keeping a full stock of certain articles which might be in demand, and supplying to one another to meet requirements. Messrs. Taplow, Marsh, Martindale, Cracknell, Andrews, Perkes, and Mathews took part in discussing the matter, but no definite result was arrived at.

FOREIGN NEWS.

Jury Service in France.—Immunity from service on juries is not accorded to pharmacists in France. At the present moment M. Decesse, pharmacien Rue Perdonnet, Paris, has been called upon to serve on a jury during the present session. Unfortunately for him, his only assistant is away ill, and stating this circumstance to the Court he asked to be exempted. The Judge, however, did not consider it advisable to accede to his request. M. Decesse consequently finds himself in a predicament, for, according to French law, a pharmacist is personally responsible for anything that transpires in his establishment, so that in the event of any mishap during his absence the results will be visited on him. This is certainly a hardship as it makes it impossible for a pharmacist in a small way of business to reconcile his professionsl duties with the functions of a juror.

French Chemists' Assistants' Association.—This Association recently held its annual general meeting in Paris. The Society, although of comparatively recent formation, has already rendered useful service to its adherents, notably in bringing about the earlier closing of pharmacies, the hours of business having been formerly unusually long, and the general conviction is that there still remains room for further improvement in this respect. Its objects partake more of a material than a scientific nature, as may be gathered from the programme, which includes: Improvement of the social and professional position of the assistants; protection of their general interests, finding situations for members, encouraging friendly intercourse among them, rendering assistance to those incapacitated from work by accidents occurring in the exercise of their business, and arbitrating between pharmacists and assistants in case of differences arising. The President in his address commented on the utility of the Society, and the advantages which would be gained by the combination of members for their mutual benefit. The proceedings were of a formal character, consisting in

ratifying the measures proposed during the year and the election of officers for 1896.

Proposed Monument to Pasteur.—The Administrative Board of the Institut Pasteur has formed an initiative committee for the purpose of raising an international subscription for the erection of a monument in Paris in honour of M. Pasteur. In a communication to the Ministers of State and Heads of Government offices, in which they are asked for their patronage, it is stated that as numerous towns in France where the industries have benefited by the discoveries of the distinguished savant have already decided to raise statues in his honour, it is thought that, besides this well-merited homage to his memory, there should be in Paris a monument erected by an international fund and destined to remind both Frenchmen and strangers of his services rendered to humanity.

The Prevalence of Argon.—Some months ago MM. Troost and Bouchard, announced to the Académie des Sciences that on analysing a mineral water collected at Cauteret, in the Pyrenees, they had observed the presence in solution of a certain quantity of helium and argon (*Ph. J.*, *ante*, p. 261), and they have since instituted fresh researches in order to determine the origin of the gases and to ascertain whether they had been absorbed from the atmosphere or produced by the permeation of the water through mineral substances, in contact with which some chemical action occurred which resulted in the production of the gases. Sea and river water were then examined, and M. Troost states that both contain argon but no helium, the latter being probably formed in spring waters by chemical action in the earth. The presence of this gas, he suggests, may modify the medicinal effects of some mineral waters.

LEGAL REPORTS.

Sale of Strychnine for Phenacetine.

An action of great interest to chemists, wholesale and retail, was commenced at the Birmingham Assizes on Wednesday, December 18, before Mr. Justice Day and a special jury. It was brought by Elizabeth Harrop, widow, Beaufort Road, Birmingham, against Wyleys, Limited, Birmingham and Coventry, manufacturing chemists, and James Brown, Hockley Hill, Birmingham, chemist, to recover damages for the negligent poisoning of her husband, and a further claim was made against the defendant Brown for damage to the estate of the deceased by selling him other than that which he contracted for. The negligence was denied by both defendants.

The plaintiff was represented by Mr. Darling, Q.C., M.P., and Mr. C. F. Vachell; Mr. A. R. Jelf, Q.C., Mr. A. Young, and Mr. H. Young appeared for Wyleys, Limited, and Mr. Parfitt and Mr. McCardie for Brown.

Mr. Darling opened the case at length and stated that deceased, who was fifty-four years of age, was the vice-president of an American company, known as the Crane Chemical Company, who had a business in Birmingham. He had a salary of £250 a year and commission, the latter in the last six months of his life amounting to £240. He suffered from no malady and was a temperate man. At times, however, he suffered from headache, and had been advised by his doctor, when so afflicted, to take 10 grains of phenacetine—a drug of recent introduction. On June 24 deceased complained of headache after dinner, and took a 10-grain dose of phenacetine. He then drove about town on business, and as he was still suffering from headache directed his coachman to call at the defendant Brown's shop. He asked defendant to supply him with 10 grains of phenacetine, and Mr. Brown gave him that quantity of a white powder from a bottle labelled "Phenacetine." Deceased took the powder dry, and immediately remarked, "It's bitter; it tastes like quinine." Mr. Brown replied, "It can't be, it's phenacetine," but on tasting it he added, "I have made a mistake. I have given you something which somehow or another is not phenacetine." He further said that he believed it was salicin, a drug used in cases of influenza. Deceased tendered payment, but Mr. Brown refused it on the ground that he had made a mistake. Mr. Harrop proceeded to his office, where he became very ill. Medical aid was procured, but all attempts to administer an emetic of sulphate of zinc were futile, and deceased died on the way to the hospital, within an hour of taking the powder.

Mr. Jelf and Mr. Parfitt agreed, in order to shorten the case, to admit that deceased died from poisoning by strychnine.

Mr. Darling said that they would want to know how it was that poison was sold to deceased for phenacetine, which was a harmless, remedial, and tasteless drug. Phenacetine and strychnine were both white powders, and some time in December, among other articles, Mr. Brown ordered from Messrs. Wyleys quantities of strychnine and phenacetine, both of which were supplied in bottles. The contents of these bottles had been examined, and the one labelled strychnine was found to contain pure phenacetine, and the one labelled phenacetine was found to contain phenacetine and 29·7 per cent. of strychnine. Both of these bottles and their contents were purchased from Messrs. Wyleys, and he believed they raised the defence that they did not know the strychnine was to be retailed by the chemist. That defence, however, he would not trouble himself with then. A singular feature of the case was that on June 20 the defendant made up six cachets from the same bottle that Mr. Harrop was supplied from for a customer named Miss Banfield, and after Mr. Harrop's death he sent his daughter to Miss Banfield's for the cachets. He then learned that Miss Banfield had died two days before, about twenty minutes after taking one of the cachets. It appeared that Miss Banfield had been an invalid for some years, and, in fact, suffered from cancer, and the medical man who was called in, on being informed of this, gave a certificate. Four of the cachets were returned to Miss Brown, and it was explained that Miss Banfield had taken one, and the other had been broken open by the doctor. He contended that the evidence would show that it was not the case of someone making a mistake in regard to the labels only, but that there had been a most serious mistake in the mixing of the contents of the bottles, and for which Messrs. Wyleys were responsible. They were liable because they sent into the market unlawfully described a deadly poison. Their action was in contravention of the 121st Chapter and 17th Section of the Pharmacy Act of 1861, the material part of which was: "It should be unlawful to sell any poison, either by wholesale or by retail, unless the box, bottle, vessel, wrapper, or cover in which such poison is contained be distinctly labelled with the name of the article and with the word poison." As he had said, Mr. Harrop was fifty-four years of age, and being a healthy man he might reasonably have been expected to live another twenty years; therefore they might compute that his death had resulted in a loss to him and his family of something like £6000. He did not ask for a verdict for that amount, but felt certain the jury would conclude it was a case for substantial damages.

Mr. Jelf applied for permission to cross examine the defendant Brown after Mr. Parfitt, seeing that Mr. Brown was being called as a witness for the plaintiff.

His Lordship said that he pointed out in the commencement that he thought it was best to proceed with the case against the retailer first, but as that course had not been accepted by Mr. Darling, Mr. Brown was a defendant, and whether he was called as a witness or not he must treat him as a defendant.

The police superintendent of the division deposed to receiving the bottle reputed to contain the poison from Mr. Brown soon after Mr. Harrop's death. It was labelled "Phenacetine. Dose four to fifteen grains. Wyleys and Co."

The plaintiff having given evidence, James Brown, Hockley Hill, chemist, stated that he had been in business for twenty-one years, and dealt with Messrs. Wyleys. The bottles labelled strychnine and phenacetine and their contents came from Messrs. Wyleys.

By Mr. Jelf: The bottle labelled phenacetine he had had since December, but he had never tested the contents, which were not touched prior to the powder being taken for the cachets for Miss Banfield. He did not suspect that he had given Mr. Harrop poison, or he should have given him an emetic immediately. For the last five years he had purchased his drugs from Messrs. Wyleys or Southalls. Mr. Jelf said that he wished to show that no such mixture as that contained in the bottle could have left Wyleys' works.

The Judge: You will not get that from this witness.

The witness was under cross-examination when the Court rose.

The hearing of the action was resumed on Thursday, December 19. Mr. Jelf resumed the cross-examination of Mr. Brown. He commenced by asking for the poison-book, in which, under the Pharmacy Act, chemists are required to enter the sale of poisons. His Lordship smilingly remarked that Mr. Brown had apparently entered several articles which he was not required under the Act to enter. Mr. Jelf appearing puzzled, his Lordship pointed out that the sale of several packets of vermin killer was entered; these had proved to

be perfectly harmless. Mr. Jelf went on to suggest to witness that he himself had made the mistake in regard to the drug supplied to Mr. Harrop. Witness, however, asserted that he was certain the powder came from Wyleys. He was aware that he was liable for breach of contract if he sold a thing which was not what it purported to be, but Wyleys stated that all they sold was according to the British Pharmacopœia. Everything else he had had from Southalls' and Wyleys' had always been right, and he had never had any complaint from the inspectors. He did not open the bottle from Wyleys supposed to contain the phenacetine until it was required for Miss Banfield, and afterwards for Mr. Harrop. In answer to Mr. Parfitt, witness said he had thirty or forty years' experience as a chemist. He kept all scheduled poisons under lock and key, and no one except himself had access to the cupboard. He had not a shop bottle for phenacetine, and when it was required for Mr. Harrop he fetched it from the cellar. His daughter was present when he first opened the bottle labelled "phenacetine."—The coroner's jury completely exonerated him from all blame.

Further evidence having been given, a long consultation took place between the parties, and ultimately Mr. Darling announced that the case was at an end, a settlement having been agreed upon as follows:—"The record withdrawn; defendants Wyleys to pay to plaintiff's solicitor £2800, and all plaintiff's taxed costs of action, including certificate for special jury; Brown to pay his own costs, and undertake to bring no action against Wyleys in respect of Mr. Harrop's death and its consequences; Judge's order if necessary.

Mr. Jelf said his clients had agreed to the settlement because they were satisfied with his assurance that they would be doing the best, wisest, most generous, and proper thing. From some unexplained cause which they were not able to fathom, a terrible event had arisen, which they were unable to say was produced by any single thing, any want of care on their part. In justice to their own employé, they thought that the matter should be contested, and therefore he was instructed to ask the questions he did of Mr. Brown. He hoped he treated Mr. Brown as a man who had given his evidence honestly and truthfully, and with a desire to ascertain an explanation of what had happened. Messrs. Wyleys felt that although they were unable to trace anything in the way of carelessness at their works, they would not like to have it said in the City of Birmingham that a large establishment like theirs had been allowed to be conducted so that there should be such a suspicion. They would not raise any points of law there might be in the case, and would not put plaintiff to the expense and delay of taking the points to the Court of Appeal or the House of Lords. He made no imputations upon Mr. Brown any more than Mr. Parfitt on his behalf made any imputation against Messrs. Wyleys.

Mr. Parfitt said Mr. Brown was perfectly satisfied with the settlement, because it exonerated him from any charge. He recognised the way in which Mr. Jelf had withdrawn any imputation against him, and he regretted that Messrs. Wyleys should have been placed in that position. Although Mr. Brown's business had suffered, he felt no doubt that after a handsome withdrawal of the imputation he would recover the loss he had undoubtedly suffered.

His Lordship said he could not object to any settlement which was gratifying to the parties. Perhaps, as he had heard the evidence given from Mr. Brown's establishment, he might say it seemed to him a withdrawal of the charge was unnecessary. It was clear that not the least blame attached to anything done in his establishment.

OBITUARY.

Hind,—On December 5, T. W. L. Hind, Chemist and Druggist, Hay. (Aged 51.) Mr. Hind had been an Associate of the Pharmaceutical Society of Great Britain since 1869.

Gray.—On December 5, R. W. Gray, Chemist and Druggist, London. (Aged 25.)

Ferneley.—On December 11, Charles Ferneley, Chemist and Druggist, Worcester. (Aged 60.)

Walton.—On December 13, M. F. Walton, Pharmaceutical Chemist, Sowerby Bridge. (Aged 42.) Mr. Walton had been a member of the Pharmaceutical Society of Great Britain since 1874.

Farthing.—On December 13, T. W. Farthing, Chemist and Druggist, Camberwell. (Aged 36.)

McMillan.—On December 16, James McMillan, Chemist and Druggist, Dundee. (Aged 47.)

NEW REMEDIES.

[*The notes given under this heading embody recent suggestions in therapeutics. They cover both new drugs and preparations, and old ones under new aspects. The word "parts" is used to represent parts by weight, both for solids and liquids.*]

Therapeutic Action of Apocynum Cannabinum.—Dobschewsky has investigated the therapeutic action of this plant, and finds that the favourable opinion expressed of it by former experimenters is fully confirmed. Employing the fluid extract in doses of from 5 to 10 drops three times daily, he finds that it acts energetically, moderating the cardiac pulsations, increasing the diuresis and increasing the blood pressure. The general condition of patients improved, œdema and dyspnœa, where present, were relieved, and the drug was well borne (*Rev. de Thérap.*, lxii., 645 after *Wratsch*).

Parachlorphenol as an Antiseptic.—On account of its slight toxicity, equivalent, according to Girard, to 1 per 1000 of the body weight of the subject, and to its powerful antiseptic action, the same author advocates the use of parachlorphenol for clinical antiseptic purposes. It is soluble in water containing a trace of spirit, to the extent of 2 per cent., which solution kills anthrax spores in an hour, while they resist a 5 per cent. cresol solution for six days, and a 5 per cent. phenol solution for twenty days. The toxicity is less than that of cresol, and much less than that of phenol. Clinical experiments in 150 cases, both surgical and medical, with a 1 per cent. solution, have given excellent results. The same solution is equally efficacious for the disinfection of instruments (*Rev. de Thérap. Méd.-Chirur.*, lxii., 580).

Phenosuccinic Acid, Phenosuccine, and Iodophenosuccine in Tuberculosis.—Phenosuccinic acid has been suggested for use in tuberculosis, but on being tried in four cases, in doses of 80 centigrammes to 1 gramme, no improvement was noted. Phenosuccine (ethoxyphenyl succinate) was also without any useful action, while iodophenosuccine, in daily doses of from 1 to 2·75 grammes, gave a slight improvement, but did not influence the temperature (*Rev. de Thérap. Medic.-Chirurg.*, lxii., 567; after *Therap. Wochenschr.*).

Antiseptic Treatment of Burns.—The burned part should be rendered free from dirt and sterile by the application for half an hour of a 1/2000 solution of bichloride of mercury. Bichloride should not be employed for more than ten minutes if the skin is broken. Cover the parts with a mixture of 1 part of carbonate of soda and 3 parts of subnitrate of bismuth. This prevents the raising of a blister upon the epidermis, and is also antiseptic. If the surface is denuded, sprinkle on iodoform before applying the bismuth and soda powder (*Mod. Med.*, iv., 199).

Eucalyptus in Measles.—Owing to the prevalence of an epidemic of measles in Athens, Dr. Oikónomos, of Pyrgo, near Gastouni in the Morea, publishes in the *Gaceta Medica Catalana* the prescription of a remedy with which he treated 400 cases in the epidemic of 1886 with only one death, and 275 cases in that of 1889, with not a single decease. Besides, since he has used eucalyptus, he has almost ceased to observe any of those complications, such as bronchitis, pneumonia, and diarrhœa, which so aggravate the condition of the patients. As soon as the first spots are seen on the sick person's face, the author increases the dose at first decided upon from the patient's age and general symptoms. Of the following mixture he gives teaspoonful doses frequently during the twenty-four hours to children of 5 years of age; for those of 5 to 10 years double the dose, and for those between 10 and 15 three times the dose:—

	Children of 5 years.	Children of 5 to 15 years.
Eucalyptus leaves	1	to 5 grammes.
Make an infusion of	60	„ 120 grammes.
and dissolve in this		
Extract of eucalyptus	0·12	„ 0·18 gramme.
Add		
Spirit of eucalyptus	2	„ 20 drops.
Eucalyptol	1	„ 5 drops.
Syrup of gum	10	„ 20 grammes.
Syrup of poppies	3	„ 4 grammes.

NOTICES, LETTERS, AND ANSWERS TO CORRESPONDENTS.

All Articles, Letters, Notices, and Reports intended for publication in the Journal, Books for Review, and communications respecting Editorial matters generally, must be Addressed "Editor, 17, Bloomsbury Square, London," and not in any case to individuals supposed to be connected with the Editorial Staff. Communications for the Current Week's Journal should reach the Office not later than Wednesday, but news can be Received by Telegraph until 4 p.m. on Thursday.

Any Instructions from Members, Associates, and Students of the Pharmaceutical Society, with reference to the transmission of the Journal, should be sent to the Secretary—Mr. Richard Bremridge,—17, Bloomsbury Square, London.

Business communications—including advertisements, orders for copies of the Journal, and instructions from Subscribers respecting transmission of same—must be addressed to the Publishers, 5, Serle Street, Lincoln's Inn, London. Cheques and money orders should be made payable to "Street Brothers."

Correspondents who wish notice to be taken of their communications must write in ink, on one side of the paper only, and should authenticate the matter sent with their names and addresses—of course not necessarily for publication. No notice can be taken of anonymous communications.

Drawings for illustrations should be executed twice the desired size; clean, sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

Names and Formulæ should be written with extra care, all systematic names of plants and animals being underlined, and capital letters used to commence generic but not specific names.

Queries addressed to the "Editor" will be replied to in the Journal as early as possible after receipt; answers of sufficient general interest being given under the heading "Notes and Queries." The Editor cannot undertake to reply to queries through the post.

Reprints of articles cannot be supplied unless authors communicate with the Editor before publication.

The Anti-Cutting Agitation.

Progress writes:—"If ever there was sound logic put into print it is to be found in your leader on the anti-cutting agitation. The law of evolution is distinctly at work in the interests of pharmacy, and our good forefathers who framed and sought for the passing of the Pharmacy Acts would now be gratified to see signs of good fruits from their labours. A long time ago I recognised that the cutting up of profits on 'patents' eventually meant death to them, because the very people who were content to sell at cost or at a loss for business-building purposes are those who when their ends are gained, lose interest in the means, and kick away the ladder by which they have risen. In the meantime, self-respecting, State-qualified chemists are steadily gaining their *status quo* with the British public, and are looked upon as the proper persons to consult in minor ailments, relying upon their integrity and honour to be referred to the medical practitioner if necessary. One application a short time since by a stranger who asked for a remedy for some small ailment, adding, 'I don't want an advertised medicine,' opened my eyes, and I have thought of the occurrence as the first bud in the new vineyard. Until we can obtain some official scale of charges, stamped with the stamp of legality, I say registered chemists should maintain fair remunerative prices, which are essential to respect, confidence, and success, and the man who prefers and courts the name of a reliable chemist to that of a cheap one will do much to assist in raising the dignity of his craft, do good to himself, and leave a path of honour behind him. Many of the British public have yet to be educated as to the current question 'What is a chemist?' and I think the shortest cut to the desired end would be wise. The general adoption of 'State-qualified under Pharmacy Acts,' in the stead of the not understood pharmaceutical title, would at once answer the question, and the Queen's subjects at large would soon learn to appreciate the chemist as the proper person for proper physic and proper advice."

Pharmacist or Factory Girl.

"Amused" assures "Traveller" that his statement does not cause him the slightest amazement, as he has even heard of ferri quininæ cit. being made in a frying-pan over a scullery fire, but would hardly expect that either "Traveller" or "Pharmakos" would care to resort to that very primitive method.

"Agnoskos" thinks it may interest "Pharmakos" to know that he has had twenty-five years' experience of pharmacy, and still finds his place "behind a chemist's counter." Moreover, as from 30–40,000 prescriptions (not dispensed at store prices) pass through his hands yearly, and as his intercourse with prescribing practitioners is considerable, he thinks he is justified in venturing the opinion that medical men do not "use the terms pessary, bougie, and suppository in a very loose manner." Nor does the alleged answer of the practitioner, quoted in the letter of "Pharmakos," of November 16 (p. 441), taken in conjunction with the alleged ailment of the patient, suggest that the practitioner meant a bougie used *in urethrâ*. He asks if "Pharmakos" does not himself use "factory-made articles," and whether he personally prepares even one-tenth of the goods he sells? "Does he make even one-tenth of his galenicals? Does he make even his compound rhubarb pills, his compound liquorice powder, his tincture of gentian, or his boric acid ointment? I will not ask him if he makes anything more complex, like spirit of nitrous ether, or chloroform, or various chemicals and alkaloids." In conclusion, he says that his real object in writing previously was to draw attention to the general insolubility of salol in the forms in which it is usually administered, a behaviour which does not agree with published statements respecting it, and he trusts that the fact will not be lost sight of.

Pharmacy as a Profession.

Mr. Alexander Laing, of Glasgow, says:—"I regret to see in the Journal of the 14th inst. a letter from Mr. Prosper H. Marsden which veers away from the subject of pharmaceutical organisation introduced by Mr. J. Anderson, under which I wrote, into a trivial and profitless expression of individual tastes and fancies. My letter, in stating that the Journal had been a stumbling block, neither indicated my own feeling nor implied anything derogatory to the Journal. I would remind Mr. Marsden that although, as we are told, Paul's preaching was to the Jews a stumbling block and to the Greeks foolishness, no one considers that an imputation against the preacher. A much worse stumbling block is manifested in Mr. Marsden's letter, in the cool assumption of superiority, and the complacent, virtuous, self-satisfaction he feels therefrom. 'We, the higher class of pharmacists, who appreciate the Journal, are the elect of pharmacy, and enjoy the favour of the gods as a reward for our merit.' Such vain, separating sentiments are illogical as they are unbecoming, and are more likely to alienate from the Society than incline to it possible supporters. In the interests of pharmaceutical organisation, I hope to hear no more of them. Individual wishes and conceits ought to be sacrificed if they hinder a general movement, and at the present time a general movement is most to be desired."

The Value of Infusions.

"A. R. M." wishes to offer a few words of protest and criticism on Mr. Barnard Proctor's letter *re* infusions which recently appeared in the Journal (*ante*, p. 502), premising them by assuming that which he thinks has never been seriously disputed, viz., that fresh infusions are at least equal to concentrated. In his letter Mr. Proctor says, 'that fresh infusions are possessed of so little value therapeutically that there would be no loss to medical practice if they disappeared at once." "A. R. M." says "I am unable to reconcile this statement regarding the therapeutic value of infusions, either with non-dispensing medical opinion or with the fact that "thousands of gallons of concentrated infusions, *i.e.*, substitutions, are consumed by medical men in their own dispensaries," the concentrated variety being used, I believe, not for any therapeutical superiority but solely for economy of time, trouble in making, etc. I would venture to suggest that should these concentrated infusions find a place in the new B. P., they will do so for the purpose of meeting a long-felt want, viz., uniformity in their preparation, and not as efficient substitutes, which in some instances, ex., digitalis, senega, buchu, etc., I believe to be impossible. With regard to the 'name,' I think with Mr. Proctor, that the dispensing medical practitioner will continue to send his wholesale orders for 'concentrated infusions' as before, whether they be renamed essences, liquors, or misturæ. The only objection to the name, 'concentrated infusion,' lies, I think, in the fact that it would encourage, in a measure officially, the substitution of, in many cases, distinctly inferior preparations for fresh infusions."

Communications, Letters, etc., have been received from Messrs. Antcliffe, Bennett, Bindloss, Burroughs, Cammack, Cracknell, Dott, Evans, Gadd, Greaves, Hayes, Hill, Hyslop, Johnston, Jones, Miller, Nunn, Rideal, Rix, Russell, Umney, Weddell, Williams.

SUPPLEMENT

TO THE

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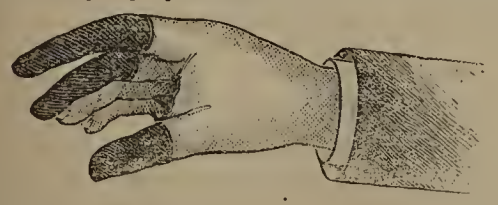
Contents of Supplement.

Trade Notes i
Personal Notes ii
Literary Intelligence ii
Practical Optics for Chemists iii
Photographic Formulæ and Practical Directions iv
Answers to Photographic Queries v
Formulæ for Beverages v
Market Report vi
Legal Intelligence vii
New Books vii
Exchange viii
Company Business viii
Diary of the Week viii
Trade Marks Applied For viii

Trade Notes.

Messrs Marion and Co., 22 and 23, Soho Square, W., have introduced a useful novelty in the shape of sensitive finger covers. These are made of thin indiarubber, and are intended to cover the thumb and first two fingers, so that whilst any injury or stain to the skin is avoided,



sensitiveness of touch is in no way impaired. It is probable that their use will be appreciated by medical men and photographers, as well as pharmacists. The set of three, packed in a box, retails at 6*d*.

Messrs. Burroughs, Wellcome, and Co.—The lengthy list of tabloids manufactured by this firm has just received further additions in the shape of Gregory Powder, Vinum Ipecac, and Dr. Carl Sieler's Nasal Compound in this form of medication. We notice that the first contains a proportion of bicarbonate of soda in place of carbonate of magnesia. This modification has been carried out at the suggestion of a well-known member of the medical profession, who had obtained good results from it. For children "Gregory" in this form has advantages over the nauseous draught which has hitherto been the only method of administration practicable. The Ipecac. Tabloids correspond to a five minim dose of the wine, whilst the Nasal Tabloids are made according to a formula which is largely employed in the United States. One is dissolved in one or two ounces of water, and the solution may be used for irrigating the nostrils or gargling the throat. Good results have also been obtained with it when used as a mouth wash in fungoid diseases of the throat or in mercurial stomatitis.

The extraordinary cures of obscure and hitherto incurable diseases effected during the last few years by means of organic remedies of animal origin have brought this system of medication very prominently before physicians and pharmacists. Week by week clinical reports have appeared in the journals confirming the therapeutic value of these substances, and expert pharmacists have been busily engaged in discovering the best form in which to exhibit the various new remedies. The earlier attempts to prepare aqueous, alcoholic, and glycerin extracts have been only partly successful because it was found that not only were their keeping qualities uncertain, but also it was doubtful whether they contained the real curative principle. In the present uncertain state of our knowledge on this head, it is satisfactory to learn that physicians find Messrs. Burroughs, Wellcome and Co.'s "Tabloids" of these substances possess permanent keeping qualities and perfect activity. They now prepare, in addition to the Thyroid Gland "Tabloids," which first attracted so much attention, "Tabloids" of Thymus Gland, Pineal Gland, Pituitary Body, Suprarenal Capsules, Spleen Substance, Kidney Substance, Uterine Wall Substance, Didymin (Orchitic Substance), and Cerebrinine (grey matter of brain). The great advantages claimed for these "Tabloids" is that, as they represent the whole substance of the organ from which they are prepared, they contain the active principle or principles of that organ. The favourable reports received by Messrs. Burroughs, Wellcome and Co. from practising physicians certainly bear out this statement.

Messrs. Maw, Son, and Thompson, of 12, Aldersgate Street, have introduced a sponge basket which will undoubtedly supply a want. Everyone has experienced the annoyance that is caused by the old-fashioned wire basket, which rusts after being in use for a short time, and substitutes for it in the shape of collapsible net baskets do not seem to have taken the public fancy. The extremities of the one in question are formed of painted tin, and between is a thin bent plate of perforated zinc on which the sponge rests, thus allowing the water to drop through into a tin trough, from which it can be readily emptied when necessary. Hooks are attached to the back for the purpose of suspending the basket to the wall or towel rail. For travellers' use an aluminium sponge case has been introduced. This is practically a large edition of a soap case, and a sponge of considerable size can be readily compressed into it. This firm has now on show a large assortment of swan-neck and cylindrical carboys at prices which are astonishingly low when compared with those which had to be paid a few years since. Aluminium has again been pressed into use for casing menthol, and a large variety is shown, at various prices, as well as new lines in celluloid. Maw's are now putting up a "Sauce Piquante" of their own manufacture, which fully sustains the firm's reputation.

Messrs. Barclay and Sons, Limited, 95, Farringdon Street, E.C., have introduced a 50*s*. hand camera as a prominent line for the outdoor photographic season. They claim for this that it is the best value on the market. It takes twelve quarter plates, which are successively brought in front of the lens by merely pressing a knob, and at the same time registers the number of the exposed plate. By a simple

contrivance, time or instantaneous exposures can be made at will. It is bound in morocco, and being strongly made, will stand plenty of wear and tear. Discounts of 20 and 25 per cent. are allowed to the trade according to the quantity taken.

The same firm also makes a special paste for photographic use. This is called the "Grip Fast," and is equally useful for general purposes. It is put up in two sizes of bottles, with brush, to retail at 6*d*. and 1*s*.

The Sanitas Company, Limited.—Recent additions to this Company's list of preparations include a pocket disinfector, Sanitas Eucalyptus Toilet Soap, and Shaving Soap. The first consists of glass capsules filled with "Sanitas" fluid and enclosed in cotton-wool tissue. They are used in the same manner as amyluitrite capsules. The box of twelve retails at 1*s*. The toilet soap is well made and packed in good style to retail at 1*s*. 6*d*. The combination of deodorants is such that a delightfully refreshing feeling is experienced from its use. For the shaving soap a "superfatted" basis is employed in combination with a certain percentage of Sanitas. It is put up in silver-gilt tubes, to retail at 1*s*.

The Sharp Brothers Soap and Perfumery Co., Limited.—This Company has just purchased the very old-established business of Sharp Brothers, who have carried on the manufacture of soap as far back as 1796. The present Company is now removing into their large and commodious premises at 18 and 19, Red Lion Square, Holborn, London, W.C. On these premises they have erected extensive machinery, including a new milling plant, etc. They supply their own electric light, the whole building being lighted by about 125 lights. It is the intention of the Company to largely develop this old-established business. The reputation of their specialities, such as Bentley's Old Brown Windsor and White Rose and Cucumber soap, of which their predecessors, Messrs. Sharp Brothers, are the originators, is so great, that these soaps are found in all countries of the civilised world. The reputation which the old firm enjoyed for the quality of its perfumes is excellent, and the present Company will at all times keep up the quality of their goods. A new milled and superfatted soap which they have just got out, viz., "Musk Lavender"—is a huge success, and the sales of it are increasing daily. When the Company are in full swing in their new premises the feature will be the prompt and rapid execution of all orders entrusted to them. The Company has an extensive stock of druggists' sundries, cut glass

bottles, etc. They have just added to it a great variety of novelties obtained during the recent visit of one of their representatives to the manufacturing centres for these goods in France and Germany. No effort has been spared in securing goods combining originality, good workmanship, and low price, the villages where the peasants work in their own homes being in several cases visited.

DURING a visit to Messrs. Fletcher, Fletcher and Co.'s works in Holloway, abundant testimony was afforded of the method and accuracy with which all the details of their manufacturing processes are carried out. This is of course absolutely essential in a business which consists almost entirely of the manufacture of specialties, and without it, their products would never have attained their present standard of excellence. In the course of a chat with Mr. F. W. Fletcher, Itrosyl naturally claimed attention, and some interesting experiments were carried out illustrative of the heat resisting powers of the glass capsule in which it

is enclosed. Cartridges of Itrosyl containing respectively 40 and 80 per cent. of ethyl nitrite were heated up to a temperature approaching 200° F. without bursting, and a determination of ethyl nitrite before and after the experiment showed no loss in strength. Hence no deterioration can occur in shipping it to the tropics or when exposed to other trying conditions of temperature. As before mentioned, two strengths of Itrosyl, containing respectively 40 and 80 per cent. of ethyl nitrite, are now put up. The first, when made up to a pint with rectified spirit, forms the spirit. ether. uit. of the B.P., sp. gr. ·840, whilst the latter has been called for to form the spirit of the U.S.P., the standard of which is absurdly high. A special form of tube with five communicating bulbs, each of which is graduated to fill one cartridge, is used in filling the Itrosyl, in order to avoid exposure.

The Thermo-Hydrometer and Autometric Stopper, of which Mr. Fletcher is the patentee are too well known to call for special mention except that the former has been greatly improved by having both the Centigrade and Fahrenheit scales marked on it. The method of using the Autometric stopper is here figured. Of pharmaceutical preparations recently introduced, Vibrona deserves attention. This is Fletcher's Cinchona Wine, under a new and appropriate name. It is a very elegant and palatable preparation, the basis being a red Spanish wine, and is well adapted for a tonic and invigorant. The style in which it is put up is especially tasteful, the lettering being in aluminium upon a dark green ground. The Liquor and Syr. Cinchonæ Hydrobrom. possess the manifest advantages that they can be dispensed with iron without decomposition or blackening, and remain clear when diluted with water.

Whilst inspecting various manufacturing processes in the laboratory, methods adopted to ensure accuracy and facilitate reference were noticed. When each preparation is made, the amount of drug used is entered on a printed form, with a description of the process. The laboratory man enters his details, such as the amount of menstruun used, time occupied, etc. The yield is noted, and if a liquid the specific gravity is taken. A sample is then sent up to be standardised, and the details then obtained of specific gravity, spirit strength, extractive, and alkaloidal value, are entered on the same sheet, and the result of recovery of spirit from the marc. This is initialed by the worker, signed by the laboratory manager, and filed. Hence, reference can readily be made to the details of any particular batch. In the drying room a large amount of biennial henbane grown at King's Lynn was seen. It is interesting to know that the yield of dried leaves obtained from the fresh plant amounts to 7 per cent. Mr. Fletcher is devoting some attention to the question of the use of annual and biennial henbane in official preparations. It is to be hoped that as a result of his experiments biennial henbane may be excised from the new pharmacopœia.

MESSRS. HARKER, STAGG, AND MORGAN, wholesale druggists, Laurence Pountney Lane, E.C., entertained their staff at Southend on Saturday last, on the occasion of their annual excursion; about eighty attending.

THE CURANILLO CO., LTD., of 23, Bartlett's Buildings, E.C., invite chemists to apply for a supply of descriptive pamphlets of their "Fruit Cure," containing analytical reports by Professor Wanklyn, Dr. de Lacy Evans, and others. Curanillo was awarded a gold medal at the Manchester Food Exhibition last year.

MR. J. FEAVER sends specimens of his Patent Medicine Time Indicator, both in label and tablet form. It consists of a label or tablet, upon one side of which the numbers from 1 to 12 are printed, and upon the edge opposite to the numbers a pointer or index is so affixed that it can be readily made to point to either of the figures. In view of the many serious accidents arising from confused or careless label-reading, the idea possesses some merit. The Indicator should ensure safety from poisoning, and regularity of administration.

Personal Notes.

ALDERMAN G. BREEZE has been appointed on the Commission of the Peace for the borough of Devonport.

COLONEL P. D. MAJENDIE, C.B., Chief Inspector of Explosives to the Home Office, has been appointed K.C.B.

MR. ALFRED MILNER, C.B., Chairman of the Board of Inland Revenue, has been similarly honoured.

PROFESSOR JUDD, F.R.S., of the Royal College of Science, has been appointed C.B.

MR. JAMES DUDGEON, Chemist and Druggist, was married at 6, Hermitage Hill, Leith, on June 26, by the Rev. Dr. Mitchell, South Leith, to Nelly Kerr, eldest daughter of William Hall, wool-broker, Leith.

MR. ALFRED COLEMAN, Chemist, Cardiff, one of the directors of Hicks and Co., Ltd., acted as Hon. Sec. of the Cardiff Working Men's Flower Show, which took place last week.

MR. ERNEST J. EASTES, F.I.C., succeeds Mr. F. W. Short, B.Sc., as Secretary to the School of Pharmacy, 17, Bloomsbury Square, W.C.

Literary Intelligence.

MESSRS. WILLIAM WOOD and Co., the well-known medical publishers, of New York, have appointed Mr. Edward Arnold, 37, Bedford Street, Strand, sole agent for the sale of editions of their books in the United Kingdom.

A 'HANDBOOK of GRASSES,' by William Hutchinson, will shortly be published by Messrs. Swan, Sonnenschein and Co. It will treat in simple language of the structure, classification, and distribution of grasses, with special reference to British varieties. Another forthcoming book is to be called merely 'Botany,' and is the work of a German, Dr. Thonner, who is an authority upon the flowering plants of England.

FIRST AID TO PERSONS INJURED BY ELECTRIC CURRENTS.—Now that electric currents are so widely distributed in our towns, and seeing that, when an accident of any kind occurs, the public frequently conveys the injured to the nearest pharmacy, the following extract from the *American Medico-Surgical Bulletin* may be of service:—"When a person meets with an accident due to contact with electric conductors or generators, the contact must first be broken if it still exists, otherwise those who come to render assistance may also become victims. The patient should be carried to a well-ventilated room, from which all persons but necessary assistants are excluded. The clothing should be at once loosened, and the earliest possible efforts made to re-establish respiration and circulation; to restore respiration, rhythmical traction of the tongue and artificial respiration may be resorted to. Both should be continued for a sufficient length of time. At the same time the circulation should be stimulated by rubbing the skin, flagellation of the trunk with wet towels, or with the hand, or by other means." It will be seen that the method of treatment is practically that employed in the case of the apparently drowned.

PRACTICAL OPTICS FOR CHEMISTS.

THE SPECTACLE TRADE.

There is a very common idea that anyone can sell a pair of glasses or spectacles, nor is it, in one sense, far wrong either. But is there not something beyond this? Granted that it is not at first sight apparent that more profit is to be gained by a careful examination of the sight and the recommendation of correct glasses, it will be, on second thoughts, conceded that, like everything else, a little extra care will pay in the long run if not immediately, and it is by no means definitely settled that even an extra charge at the time may not be made.

To be able to examine the sight properly it is necessary to understand the elementary laws of optics, and if in endeavouring to explain these to students and those who are really unacquainted with the primary laws, we repeat what is but an "old, old story;" those who know it must perforce skip it or smile derisively.

Light travelling through any medium, whether air, glass, or water, always travels in straight lines till it meets with an obstacle. This is very apparent when entering a room in summer when the Venetian blinds are down, and through the chinks of which the sun is shining; the golden bars of sunlight will be seen as proceeding in straight lines. Have we not often, too, seen very much the same thing in Nature out of doors, when the sun shining through the clouds, as the country people say, sucks up water, or, as more aptly put by a poet, throws "the shadow streaks of rain."

We have so far taken the sun as the source of light, but suppose instead of that we take as the source a candle about 3 feet off. In such a case the rays of light are no longer parallel, but diverge, and this can be readily proved. Place

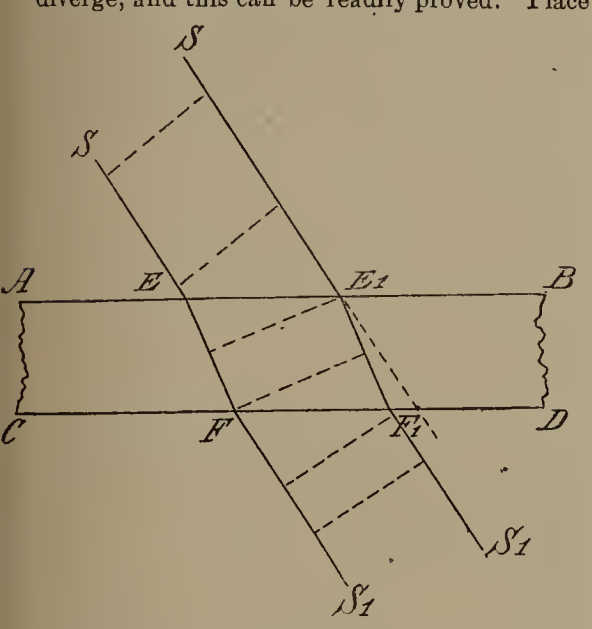


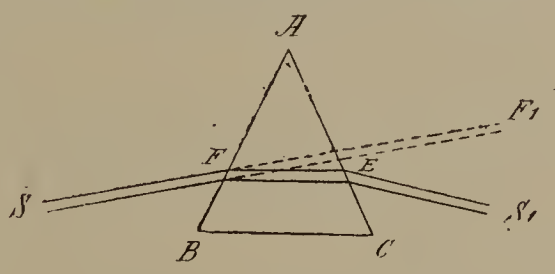
Fig. 1.

a candle in a box, one side of which is pierced with a small hole of about ¼-inch diameter; take the whole arrangement into a darkened room, and if you are a smoker blow a little cigarette or pipe smoke about 6 inches from the hole, and it will be at once seen that the rays spread out from the hole fan-shaped, or "diverge."

Now take an ordinary reading glass or Coddington lens and place it some little distance from the hole, and behind the glass place a white card; by moving it nearer to or further from the glass, we shall get an image of that hole; keep the distances constant and again puff a whiff of smoke between the lens and card, and it will be seen that the rays of light contract and get closer together, or "converge."

Supposing a ray of light meets with an obstacle, what happens? It all depends on the nature of the obstacle. If black velvet, it is absorbed or swallowed up, or lost; if a mirror, it will be reflected or bent out of its straight course to another and different part of the room to that which it would have reached. Supposing, however, it is a piece of glass, what will happen? To answer this, we must take a little time and make use of one or two diagrams. Assume the glass to be a parallel plane—that is a straight piece of glass with parallel sides—Fig. 1—A, B, C, D, and let S be a ray of light striking the glass at E. If the glass were of the same density as air, the light would go straight through as shown by the dotted line, but the glass is denser, or in other words, its particles are closer together, consequently light travels through it more slowly, and is bent slightly out of its course, but as soon as it gets to the other side C F D, and leaves it, the glass is again slightly bent, but so as to be parallel to its first, path. The explanation of this is easier understood if we compare the ray of light to a column of soldiers always keeping in line. Whilst marching from SS to EE^1, they can march quickly because it is level ground, but on reaching EE^1 it is evident that they cannot march quite so quickly if it is broken ground, their direction is slightly altered, until on reaching FF_1 they again get on easy ground, and to keep in line it is evident that the left-hand man must swing round a bit so that their direction becomes FF^1 to S^1 S^1, parallel to their former path.

Supposing now, instead of using parallel plates, we use what is called a .rism—a triangular piece of glass of the sha , shown in Fig.



2, A, B, C. By the same reasoning we shall see that the direction of the light is changed, and if the eye was placed at S^1 the light would appear to be at F. This bending of the light is called "refraction."

It will be noted that the ray S^1 is bent or refracted to S, that is, towards the base of the prism, and if we turned our prism upside down, as in Fig. 3, exactly the same would take

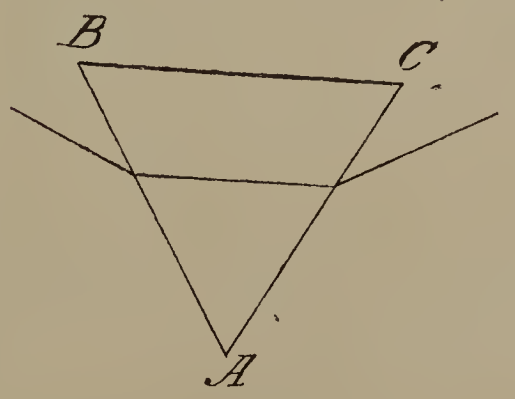


Fig. 3.

place, namely, the light is refracted towards the base; therefore we establish another fact—light is always refracted toward the base of a prism.

Supposing now we place two prisms point to point, as in Fig. 4, it is obvious that the two rays, R^1R^2, can never meet after passing through the prisms. It is also evident that actually if instead of straight lines we have curved ones, as shown by the dotted lines in Fig. 4, we shall get precisely the same effect, and thus we get

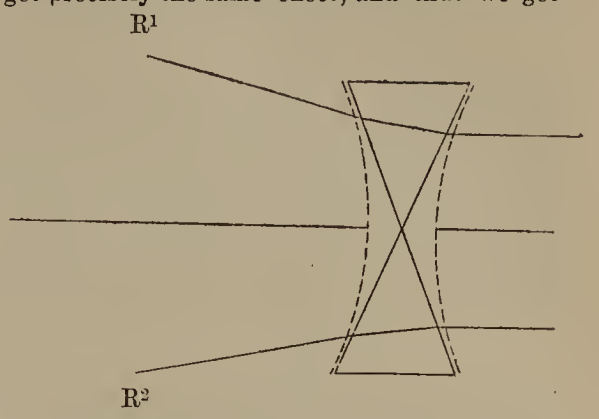


Fig. 4.

"divergent or concave lenses," which are always thinner in the middle than at the edges.

If we place our prisms base to base the rays R^1R^2 are refracted towards the bases, and consequently they must cross somewhere, as shown at f, fig. 5. Here, again, we can replace the

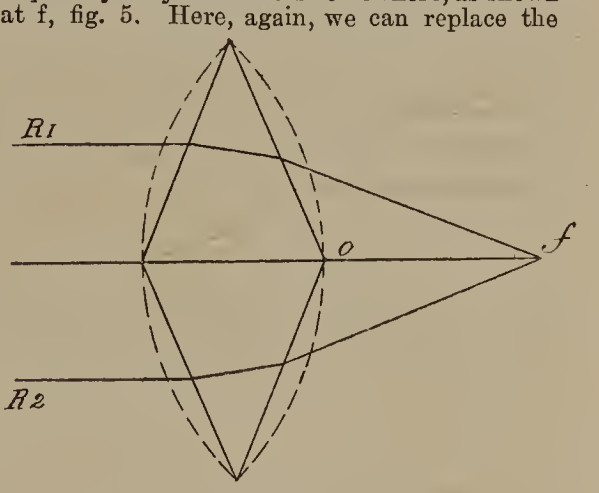


Fig. 5.

straight by curved lines, and we get precisely the same effect, and "convergent or convex lenses," which are always thicker in the middle than the edges.

The principal forms of lenses are shown in Fig. 6. 1 is a plano-convex, that is, has one side plane or flat, the other convex; 2 is a bi-convex; 3 is a convergent concavo-convex

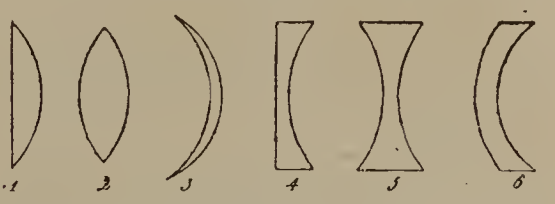


Fig. 6.

generally called a convergent meniscus; 4 is a plano-concave; 5 a bi-concave; 6 a concavo-convex, or divergent meniscus.

Nos. 1 to 3 are also called positive lenses, and Nos. 3 to 6 negative lenses, but we need hardly enter into this subject except to point out that these terms apply to the formation of a real image or focus.

We saw in Fig. 5 that the parallel rays R^1R^2 after refraction crossed one another, and this point of intersection is called the principal focus of the lens, and the distance between it and the lens is called the "focal length of the lens," or, briefly, the focus.

We will now take the formation of an image in a camera. Let A, B, C, D, Fig. 7, be a camera or box, and O a small hole in one side, and EE an arrow, which shall represent the object. Rays of light proceed from all points of EE in straight lines, though, for convenience sake, only two are here shown, and passing through the hole O form a small image of the arrow at FF upside down. If instead of a

plain aperture we use a lens, precisely the same thing happens, only when a lens is used there

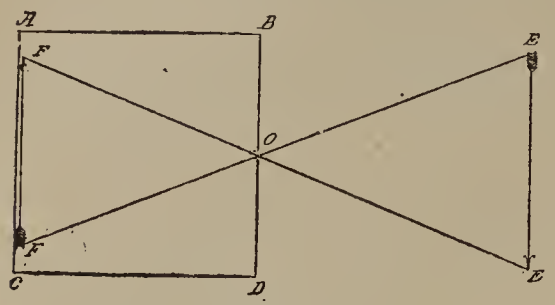


Fig. 7.

is but one point at which a sharp image can be formed; but the image is still upside down.

Precisely the same thing happens in the eye. Fig. 8 represents parallel rays of light entering a normal eye and being brought to a focus on the retinal rods and cones, and such an eye is

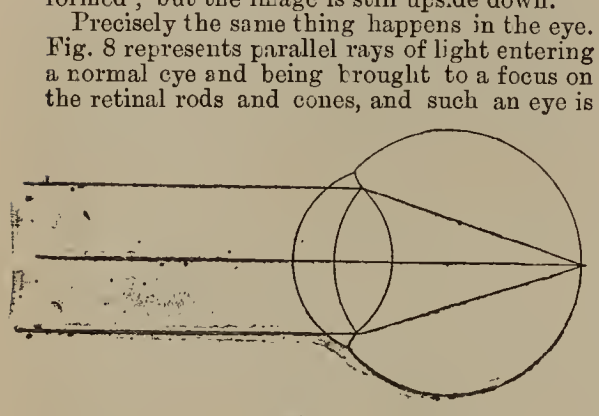


Fig. 8.

called "emmetropic." When from some cause, such as a shortened eyeball, parallel rays are focussed behind the retina, as in Fig. 9, the eye

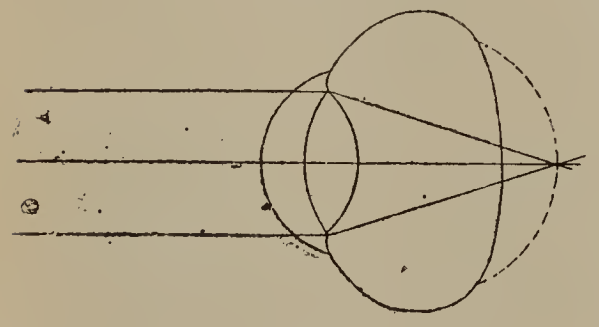


Fig. 9.

is said to be "hypermetropic," and when the rays are focussed in front of the retina, as in Fig. 10, then the eye is said to be "myopic," as in Fig. 10.

Spectacles are used to correct these faults, and upon the correct diagnosis and correct adjustment of the glasses depends the success of the trade.

We have seen that concave glasses cause parallel rays to diverge, and that convex make them converge. Now if we place in contact a concave glass and a convex of equal power, so that the divergence of the former is exactly equal to the convergence of the latter, it is

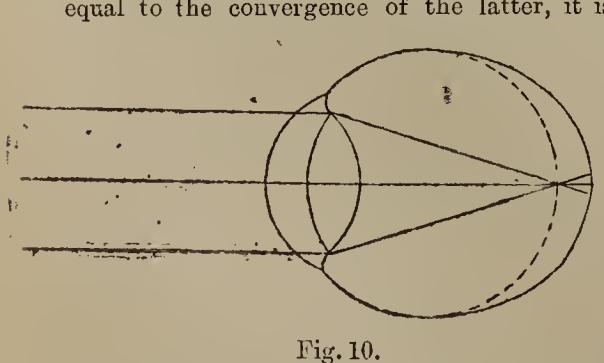


Fig. 10.

obvious that we shall have nothing more than a piece of curved glass without any divergent or convergent power; but if we so adjust the powers of the two glasses we may obtain any effect we like, and this is only what an optician does with the eye. It is obvious that, taking Fig. 9 as representing the condition of anyone's sight, it is possible by using a convex glass to so shorten the focus of the parallel rays that they will sharply define on the retina, and also in the case of Fig. 10, by using a concave glass, we can lengthen the focus of the parallel rays.

It must not be assumed that both eyes are always alike, one may be hypermetropic and the other myopic, therefore each eye must be tested separately.

There is one other defect from which the human vision may suffer, and it is far more common than is supposed, the probable percentage of perfectly normal eyes, particularly with respect to this defect, "astigmatism," being very small indeed. Practically astigmatism is an inability to see clearly lines at right angles to one another, and is due to unequal refractive power of the cornea in meridians at right angles to one another. This is shown exaggerated in Fig. 11. Let L represent an astigmatic eye, and R^1 R^1 R^{11} R^{11} a black cross on a white ground, it will be seen that the rays of light from R^1 R^1 naturally pass through the eye at right angles to those rays from R^{11} R^{11}, and are brought to a focus at I, whilst those from R^{11} R^{11} are focussed at II. It is obvious then that it is impossible to see the two lines simultaneously sharp. To cure this defect plano-

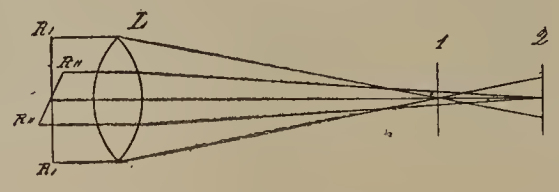


Fig. 11.

cylindrical lenses are used, that is, lenses which are plane or flat one side and the other ground to a cylinder, not a sphere as other glasses are. If of course the eye is myopic or hypermetropic also, the cylinder may be ground to the necessary curves.

"Presbyopia" is now the only other defect we need describe, and this is due generally to advancing age, and it may be defined as a lack of power to read or work at close quarters. The normal distance is stated to be 22 centimetres, and when the work or book has to be held beyond this then convex glasses are required, which should only be used for near work, distant vision being generally good.

Having thus briefly run through the ordinary defects of human vision, it is only necessary to describe the system of numbering the glasses. Prior to 1872 lenses were numbered according to their radii of curvature, 1 inch being taken as the standard, and a 4 inch was expressed as $\frac{1}{4}$, and as this was found extremely inconvenient it was decided at an International Congress to take a lens of 1 metre focus as the standard, and it was called a "dioptre." This has been found extremely convenient, and a lens of 2 dioptres, or, as it is always written, 2D, is twice the strength of 1D, and has a focal length of half a metre, 10D, is of 1/10th metre, or 10 cm. focus. For convenience decimals are also used, we may thus have a glass of 10·5D or 12·75D.

To those wishing to study the human vision and its defects the best work on the subject is 'The Refraction of the Eye,' by G. Hartridge, published by J. and A. Churchill, price 6*s*. Another useful book is Dr. George Black's "Our Eyesight, and How to Take Care of It," (1*s*.), supplied by J. Raphael, of Oxford Street, London.

The next special article on "Practical Optics for Chemists," will deal with "The Microscope."

PHOTOGRAPHIC FORMULÆ AND PRACTICAL DIRECTIONS.

[The formulæ and directions here given are specially compiled by a practical chemist and photographer, who will be pleased to supply any special information required, or to answer photographic queries. Letters should be addressed "Editorial Department, 17, Bloomsbury Square, W.C."

Varnish.

Every authority says it is the proper thing to varnish your negatives, but how few do it? Amateurs are not adepts at varnishing, and varnish like collodion is too apt to run over the edge of the plate on to the floor, or up the sleeve; still, some do it. One of the best formula known is—

Sandarac	½ lb.
Venice turpentine	2 fl. ozs.
Oil of turpentine	4 fl. ozs.
Alcohol (sp. gr. ·825)	½ gallon.

In place of the rectified alcohol, the old methylated spirit can be used. The best way to make the varnish is to get a wide mouth pottle bottle and a piece of nainsook or lawn about eighteen inches square, insert the centre of the material in the bottle and push it well down, so that it forms a bag, leaving just enough to tie round the neck of the bottle, and thus form a bag; into this should be put the sandarac, and then the spirit poured through it and the cork put in. The gum will gradually dissolve, and the heavy solution sink to the bottom of the bottle. As soon as all the sandarac has dissolved, measure out the Venice turpentine and pour through the bag, then measure out the turpentine, stirring well while in the measure so as to clear off the adherent Venice turps, pour this through the bag, and when it has all gone through remove the bag and throw it away. If the varnish is made like this there will be no need to filter it after making.

Whilst the operation of varnishing will be described in some future note, it may be said that for use with the above the negative has to be heated, and amateurs like a varnish they can apply cold and can even apply with a brush. Such a varnish can be made as follows:—

White hard varnish	5 ozs.
Liq. ammoniæ ·880	*q.s.*
Water	2½ ozs.

The white hard varnish can be obtained at any oil and colourman's, and the best should be obtained, and sufficient ammonia added to redissolve the precipitate first formed, and then the water may be added. Another method of making a cold varnish is as follows:—

Bleached shellac	1 oz.
Borax	1 oz.
Water	15 ozs.

The shellac should be obtained freshly made, as by keeping it becomes insoluble. Powder the shellac with the borax and add the water, and then boil for some hours. The water that evaporates should be replaced by fresh. Or 1 oz. of white shellac may be powdered and added to 15 ozs. of a saturated solution of ammonium carbonate, and digested in a warm place for forty-eight hours with frequent agitation, then allow to settle and decant the clear liquid.

Zaponlack.

Under this name a very good varnish which can be applied cold is placed on the market, and it consists of celluloid dissolved in amylic alcohol and acetone.

Celluloid (pale)	50 grs.
Amylic alcohol	5 ozs.
Acetone	5 ozs.

Instead of these solvents amyl-acetate may be used. The only disadvantage with this varnish is the long time it takes to dry; after varnishing

the negative should be set in a current of air, and then finally dried in front of the fire.

Crystal Varnish.

This is used for varnishing transparencies and lantern slides, and is made by dissolving—

Gum dammar	25 grs.
in benzole	1 oz.

Matt Varnish.

This is generally used to coat the back of negatives for local intensification or "faking," and is then generally stained with some dye. A good formula is—

Sandarac	1 oz.
Mastic	96 grains.
Ether	10 ozs.
Benzole	*q.s.*

The more benzole is added the coarser the grain. A medium grain will be obtained with about 3½ ozs. For colouring this coralline rouge should be used, and as a fairly deep colour is required because of the very thin film of varnish that can be applied, about 10 grs. per ounce should be used.

Lainer's formula is—

Sandarac	1 oz.
Ether	10 ozs.

Dissolve and filter and add

Toluol	3½ to 4 ozs.

ANSWERS TO PHOTOGRAPHIC QUERIES.

Foto-Depôt inquires:—(1) the ratio between the various speed numbers.—Hurter and Driffield, Watkins and Warnerke's sensitometer. Unfortuuately, no exact determination of the latter as regards the former has ever been made, but from practical trials we can say that 100 H. and D. equals 25° Warnerke, and the latter sensitometer increases in the ratio of 1/3rd, that is, 25° W. is 1/3rd more sensitive than 24° W. We hope this will get him out of his difficulty. Watkins' numbers can be obtained by multiplying H. and D. numbers by 1½. (2) He also asks the comparative speeds of the Gem, Universal, and Meteor. These are, roughly, Universal, 50, and Meteor, 100 H. and D. (3) How to obtain black tones on gelatino-chloride paper with platinum toning. This is evidently prompted by practical work, and we may at once state that black tones are extremely difficult to obtain; it requires very plucky negatives and deep printing, and even then pure blacks cannot be obtained, only brownish blacks. (4) Chloroplatinite of potassium can be prepared from platinum chloride by Carey Lea's process, which is briefly as follows:—dissolve 36 grains of platinum chloride, 18 grains potassium acid sulphite, and 18 grains potassium chloride, in 1 oz. of distilled water in a flask, and raise to the boiling point, and boil for twenty-five minutes, allow to cool, and pour into a flat-bottomed glass vessel; in about two days the red potassium chloroplatinite will crystallise out. We may add that it will be actually cheaper to buy it. (5) Our correspondent complains of a stock solution containing 1 oz. of sulphite, and, we assume quinol, turning black, and asks for something to replace this. There is nothing better than potassium metabisulphite and ½ or 1 oz. may be used, and the solution will keep indefinitely. (6) Sodium tribasic phosphate is superior to any other alkali; we shall shortly have a note on it.

The next special photographic article for chemists will be entitled "How to take a Photograph."

Formulæ for Beverages.*

Coffee Nog.

One egg.	
Shaved ice	½ tumblerful
Syrup	1½ fluid ounce
Extract coffee	½ fluid ounce
Port wine	1 fluid ounce
Milk	6 fluid ounces

Shake well, and fill the tumbler with soda-water, using the fine stream.

Coffee Syrup.

1.—Mocha coffee	½ lb.
Java coffee	½ lb.
Boiling water	1 gal.
Granulated sugar	10 lbs.

Boil together, or pass through a suitable filter coffee-pot, until one gallon of infusion is obtained; let it settle, and add the sugar.

2.—Fl. ext. coffee	8 fl. oz.
Citric acid	2 drs.
Syrup	1 gal.

Dissolve and mix.

Egg Lemonade.

Shaved ice	½ tumblerful
One egg.	
Juice of one large lemon.	
Powdered sugar	3 teaspoonfuls
Spring water	6 fl. oz.

Shake thoroughly. Draw a small quantity of soda-water, fine stream only, and grate a little nutmeg on top.

Egg Phosphate.

Draw into a thin 9-ounce tumbler 2 ounces of Maltese (red) orange syrup, and add an egg, a few squirts of acid phosphate, and a small piece of ice; shake well, fill shaker with soda-water—using the large stream only—and strain.

Flowing Stream.

Shaved ice	½ tumblerful
One egg.	
Vanilla syrup	1 fl. oz.
Orange syrup	1 fl. oz.
Ice cream	1 tablespoonful

Add a few dashes of bitters, rum, and orange extract. Fill the glass nearly full of cream, shake well, grate a little nutmeg on top, add a little soda-water—using fine stream—and serve with spoon and straws.

Goldenade.

Shaved ice	½ tumblerful
Powdered sugar	4 tablespoonfuls.
Juice of one lemon.	
Yolk of one egg.	

Shake well, add soda-water from the large stream, turn from tumbler to shaker and back several times, and strain through a julep strainer into a 12-ounce tumbler.

Hickory-Nut or Walnut-Cream Syrup.

Take one pound of hickory-nut or walnut kernels, and remove the skin by blanching; then powder in a Wedgewood or porcelain mortar—adding a few drops of lemon juice to prevent the separation of oil from the kernels, and water, gradually added, to make a thick emulsion. As fast as the kernels are reduced put them in a linen cloth, which should be gathered around them so that they may be squeezed through the cloth. Whatever is left in the cloth should be returned to the mortar and pulverised further—the lemon juice and water being added as needed. All should eventually pass through the strainer. The result of this process (about 2 pints) is to be added to 2 quarts of cream syrup.

* From *Merck's Market Report.*

This formula may be varied, and perhaps improved, by a slight addition of extract of lemon or vanilla, or any other flavour to suit the taste.

Limeade.

Draw the usual quantity of plain syrup into the tumbler, then squeeze the juice of half a fresh lime—not lemon—into the tumbler with a squeezer, and add a small quantity of shaved or ground ice. Squirt in, from an essence bottle, a few drops of citric acid solution (1 in 3) which may be slightly coloured for effect, and fill the tumbler full of soda-water.

Mead (New Orleans).

Tonka Beans	2 ozs.
Cloves, Cinnamon, Ginger, Nutmeg	of each 7 ozs.
Mace	2 ozs.
Syrup	20 gals.

Bruise the spices in a mortar, then place those containing the most oil in a bag by themselves and the others in another bag; immerse all in the syrup, and boil from 12 to 24 hours—the longer the better. Then take 2 pounds of sassafras bark, add 3 gallons of water and boil slowly until reduced to 2 gallons; 8 ounces of all spice may be added to advantage. Finally, after the spices have boiled sufficiently add the sassafras decoction and two gallons of honey. Put five quarts into a suitable fountain, add water to make 10 gallons, and charge to 100 pounds.

Milk-Punch Syrup.

Brandy	4 vols.
Jamaica rum	4 vols.
Condensed milk	1 vol.
Syrup	8 vols.

Milk Shake (New Formula).

Fill the tumbler half full of shaved ice, add 1½ fluid ounce of milk-shake syrup (equal parts of vanilla and pineapple syrups), fill the glass almost full of milk, and shake well.

A pint of port wine added to a gallon of the milk-shake syrup improves the drink.

Orange Syrup.

1.—Orange essence (1:8)	1 fl. oz.
Sol. citric acid (50 per cent.)	1 fl. oz.
Tincture curcuma	*q.s.*
Syrup	1 gal.
2.—Six oranges.	
Tincture quillaja	4 fl. dr.
Loaf sugar	4 lbs.
Water	To make 1 gal.

Grate the oranges lightly and macerate the graitins in a quart or more of water; throw the whole on a flannel filter, then pass enough water through, when added to the orange juice, to make 4 pints; finally add this to the sugar contained in a conical percolator and dissolve by percolation. The tincture of quillaja is added to the finished product.

3.—Grate the outer peels of six large oranges and rub the gratings with 8 ounces of loaf sugar. To this add ½ gallon of syrup, stir thoroughly until the sugar is dissolved and strain. Add the expressed juice of the oranges and 1 fluid ounce of a 50 per cent. solution of citric acid to the strained solution, and lastly, add sufficient syrup to bring the bulk up to 1 gallon, and use without foam.

Blood Orange Syrup.

Orange essence (as above)	1 vol.
Solution citric acid	1 vol.
Raspberry juice	4 vols.
Syrup	To make 64 vols.

Mix and strain through flannel.

MARKET REPORT.

Chemicals and Drugs.

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the pharmacist. It is important that this should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

THE CHEMICAL MARKET.

THURSDAY, JULY 4, 1895.

In the chemical market business since our last report has been very quiet, and nothing has occurred of especial interest. In carbolic acid a brisk market is reported, without as yet leading to any alteration in the quotations. Salicylates in a somewhat uncertain position, and some of the outside holders are selling at prices considerably lower than those recently fixed by the Convention of manufacturers. Citric and tartaric acids are dull of sale. The manufacturers of chloroform have advanced the price all round 2d. per lb. Other changes do not call for special remark. Full details of the various articles of interest will be found below:—

ACID, BORACIC.—*Crystals*, 30s.; *powder*, 32s.

ACID, CARBOLIC.—The general tone of the market has improved, and a considerable amount of business has been done at last week's rates. The current quotations are as follows:—*Crystals*, 34°-35° C., 5⅜d.; 39°-40°, 6d.; 39°-40° (*detached crystals*), 7d. per lb. *Crude*: Unchanged. Sixty per cent. is quoted at 1s. 6d., with 75 per cent. at 1s. 9d. per gallon. *Liquefied*: 95 per cent., 1s. 0½d. per gallon. *Cresylic*: 11d. per gallon.

ACID, CITRIC.—Dull of sale. Manufacturers' quotations remain 1s. 1¾d. per lb., but in second hands it is fractionally easier at 1s. 1⅝d.

ACID, OXALIC.—Unchanged at 3⅝d. net, *ex* rails.

ACID, TARTARIC.—Rather dull of sale at unaltered rates. For *English* brands of acid 11¼d. is the price, whilst *foreign* makers quote both *powder* and *crystals* at 11d.

ACETANILIDE.—The present price is 1s. 3d. per lb.

AMMONIA SALTS.—*Carbonate*: Dull of sale at 3½d. to 3¾d. *Liquor*: Unchanged at 3d. to 3¼d. *Sal ammoniac*: *First* quality is unaltered at 39s., with *seconds* quoted at 37s. *Sulphate* has been on the down line during the week, but at the close is steadier at £9 15s. for grey 24 per cent.

ASHES.—Unaltered. Canadian *potashes* are worth 23s., with *pearl ashes* at 40s.

ARSENIC—Very firm, owing to the continued scarcity of supplies, and advanced prices have been paid. At the close best *powdered* white is quoted at 15s. 6d. to 16s. 6d.

BLEACHING POWDER—Steady. The spot price is £7 10s. to £7 15s., whilst in Liverpool it is also quoted at £7 10s. to £7 15s. *f.o.b.*

BORAX.—There is no improvement in this, or likelihood of it. The Convention prices are maintained at 21s. for *powder*, with *crystals* at 20s., but in second hands it offers at about 1s. 6d. less.

COPPER SULPHATE—Steady. The quotations range from £15 2s. 6d. to £15 15s., according to brand.

CREAM OF TARTAR.—A firm market at advanced prices. For German brands of *powder* 71s. is the price, whilst for best white French *crystals* 67s. to 68s. has been paid.

MERCURIALS.—Quotations are unaltered, and the current rates for quantities up to 56 lbs. are as follows:—*Calomel*, 2s. 11d.; *corrosive sublimate*, 2s. 7d.; *red precipitate*, 3s. 2d; *white ditto*, 3s. 2d.; *blue pill*, 1s. 8d.; *blue ointment*, 1s. 8d.

PHOSPHORUS—Steady. *Sticks* are worth 2s. 1d. to 2s. 2d., and *wedges* 2s. per lb.

POTASH SALTS.—*Bichromate*: Unchanged at 4⅝d. to 4¾d. *Chlorate*: Lower. On the spot 4⅞d. would be accepted, and in Liverpool a limited demand only has occurred at the same quotation. *Permanaganate*: Small *crystals* are worth 52s. 6d.; large *ditto*, 57s. 6d. per cwt. *Prussiate*: Lower at 8¼d. per lb. In Liverpool the price paid has again been 8d.

QUICKSILVER—Steady. Importers' prices remain at £7 10s., whilst in second hands it offers at £7 8s.

SALOL.—*Schering* quotes this at 7s. 4d. per lb.

SALTPETRE—Unchanged. *British* refined is worth 22s. 6d. to 23s. 6d. on the spot. In Liverpool also the price remains at 23s. 6d. in kegs, and 23s. in barrels.

SODA COMPOUNDS—*Bicarbonate*: £7 5s. in London, £6 15s. in Liverpool. *Caustic 70 per cent.* is still worth £8, with 60 *per cent.*, £1 less. *Crystals*, 38s. *Hyposulphite*: Much dearer, and held for £7 to £7 10s. per ton in Liverpool.

SULPHONAL,—18s. per lb.

THE DRUG MARKET.

THURSDAY, JULY 4, 1895.

Several changes have occurred since our last report which possess interesting features. Of alkaloids, quinine is fractionally easier, but caffeine is exceedingly scarce. The position of cocaine is still uncertain, but no definite alteration has occurred in the price. Of the essential oils, *H.G.H.* Peppermint is very firm, and holders ask advanced prices, but both cassia and aniseed oils are dull of sale. Of the raw drugs, ipecacuanha and colocynth are very firm, with a tendency to see higher prices. The market in crude camphor is considerably firmer, whilst in the refined article the agreement between English and German refiners has been broken up, and the latter offer at a reduction on the former prices. Full details will be found below of the various articles of interest:—

CAFFEINE.—No definite change has occurred in the position of this article, which is as scarce as ever. On the spot 28s. per lb. is asked for small second-hand lots. For delivery, September to October, 22s. to 23s. would be accepted.

CAMPHOR (REFINED).—The prices fixed by the Convention of *English* and *foreign* refiners have been entirely broken up. One of the *German* refiners now quotes *bells* and *flowers* at 1s. 8½d. in 10 cwt. lots, on the spot. The *English* refiners have not followed this lead and their prices remain at 1s. 9½d. for 10 cwt. lots of *bells* and *flowers*, with *squares* at proportionate rates.

CAMPHOR (CRUDE).—A firmer tone has prevailed in this since our last report, and prices are now considerably higher. Still at the close the market is somewhat easier again. The quotations are:—*China*: For delivery, July to September, up to 155s., *c.i.f.*, has been paid closing at 152s. 6d. *Japan*: Distant shipment 155s. *c.i.f.* and for arrival near at hand 157s. 6d.

CANARY SEED.—At the sales on the 3rd inst. both *Barbary* and *Turkish* seed were bought in at 45s.

CIVET.—There is none of the genuine article in the London market at present. The price last paid for a parcel of about 9 ozs. was 32s. 6d. The so-called Civet is worth about 17s. 6d.

COCAINE.—There is no alteration in the position of this article, and no agreement has been arrived at amongst the different manufacturers; each fixing his own price. Certainly 14s. 6d. per oz. is the lowest price for 100 oz. lots, and it ranges from this figure up to 15s., with smaller quantities at proportionate rates.

COCA LEAVES.—Privately a steady amount of business has been done in broken *Truxillo* leaves of good green colour at the firm rate of 11d. per lb.

COCOA BUTTER—Dearer.—At the monthly sales held on the 2nd inst., 350 cases of *Cadbury's*, representing 35 tons, sold at an average of 12⅝d. per lb., against 11½d. at the June sales.

COCHINEAL.—Quiet, with unchanged prices. The current rate for *black* is 1s. 2d. to 1s. 3d., and *silver*, 1s. 3d. to 1s. 4d. per lb.

CODEINE—Unchanged. Quotations range from 10s. 3d. to 10s. 6d. per oz., according to quantity and brand.

COLOCYNTH—Very firm. *Turkey*: Continues very scarce, and a very few second-hand cases are all there is at present on the market. For fair to good pale apple, 2s. to 2s. 6d. is asked. *Spanish* is firm at 1s. for fair, bright quality. From New York a strong market is reported, with steadily advancing prices, and *Spanish* has been selling at a parity of 1s. to 1s. 1d., with *Trieste* at 1s. 11d. to 2s., but these quotations are likely to be advanced.

COPAIBA—Firm. Privately, good bright *Maranham* offers at 1s. 10d., with *Para* at 1s. 8d., but there is little of the latter variety to be had. From America a good demand is reported at steady rates.

CORIANDER SEED.—At the sales ordinary brownish *East India* fair seed sold at 7s. 6d., and in fair quality at 9s. 6d.

GINGER.—At the auctions on Wednesday *Cochin* was again in large supply, but the rough kinds were mostly bought in; ordinary dull and washed rough sold at 32s. to 33s.; small to bold Native, half cut, at 46s. 6d. to 48s. up to 60s. for bold B cut, and 70s. for good A cut. *Jamaica* sold quietly at previous rates.

INSECT POWDER.—Finest *Dalmatian* powder is very firm, and the current price is 70s. per cwt. in barrels.

INSECT FLOWERS.—Unchanged. *Hoffmann* continues to quote open flowers at 50s., half-dried ditto 78s., and closed cultivated ditto at 105s. per cwt.

IPECACUANHA.—Very firm. Privately *Rio* (*Brazilian*) root has been selling at fully last sales rates. *Carthagena* (*Columbian*) root is very scarce, and there is none to be had in first-hand. For single bales of fair bold second-hand root 3s. 8d. is readily paid. The price is likely to harden unless some consignments arrive, as during the last few months this variety of ipecacuanha has been in continuous demand at steady advancing prices.

JALAP—Firm. Most of the damaged root on the market has been sold, and for fair bold *Vera Cruz* holders now ask 1s. to 1s. 1d. per lb. From New York a steadier market is reported, with sales at a parity of 8d. to 9d., a further drop not being anticipated for the present.

KOLA.—In London little business has been done in this drug recently, and where sales have occurred privately the prices show a considerable decline. From Liverpool sales of fresh nuts are reported at 5½d. per lb.

MENTHOL.—Unchanged and dull of sale. On the spot 13s. 9d. to 14s. is asked for good white dry *crystals*.

MORPHINE.—Unaltered. *Hydrochlorate* is still quoted at 4s. per oz. in 1000 oz. lots, with smaller wholesale quantities at 4s. 2d. to 4s. 3d. *Crystals*, 2d. per oz. more.

OIL (COD-LIVER).—Quiet, but unchanged in price. *Isdahl's* oil offers at 170s. per barrel of 25 gallons for new *Lofoten* oil. Other holders

quote 165s. to 170s. Privately there have been sales of good *Newfoundland* oil at 5s. per gallon.

Oils (Essential).—*Star Anise:* Remains very dull of sale at a nominal price of 6s. 3d. on the spot, but 6s. 2d. would in most cases be accepted. From China lower prices are reported. *Cajeput:* Steady at the unchanged rate of 2s. 9d. *Cassia:* Unchanged, but slow of sale. On the spot 4s. 6d. is the nominal price for oil testing 70 to 75 per cent. of cinnamic aldehyde, and 4s. 9d. for 75 to 80 per cent. ditto. Reports from China state that there is only a small supply offering of inferior quality oil, and for this high prices are asked. *Citronella:* Steady. On the spot 1s. 4d. per lb. is the price for oil in tins, whilst for delivery 1s. 2d. *c.i.f.* is the price. *Clove*: *English* oil offers at 2s. 7d. to 2s. 8d. per lb. *Lemon grass*: Dull of sale at 1⅝d. *Peppermint*: *H. G. Hotchkiss'* oil is firmer, and holders are now asking 10s. 3d. per lb. From America a firmer tone in all varieties of peppermint oil is reported, without any special cause being assigned for the improvement. The New York price for *H.G.H.* oil is at a parity of 8s. 10d. *Wayne County* (*D. & O.*) oil is very firm on the spot, and 8s. 6d. is now the price. *Japan* is dull of sale at the nominal rate of 7s. 3d. to 7s. 6d. per lb. for oil testing 40 per cent. of menthol, and *Dementholised* is unchanged at 5s. 3d. to 5s. 6d. *Lemon:* Essence guaranteed to contain 7 per cent. of citral is offered at 3s. 5d. *f.o.b.* Messina. *Almond*: The current quotation is 25s. per lb. *Pimento:* The preseut price is 8s. 6d. per lb.

Oils (fixed) and Spirits.—*Castor*—*Italian* is unchanged, fine quality oil offering at 30s. to 31s. *c.i.f. Calcutta* is without enquiry; 2⅞d. is the nearest spot price for fair seconds. In Liverpool also the market is very quiet, the nominal quotation being 2⅞d. to 2 3/32d. Reports from Calcutta do not indicate any likelihood of a decline in the price, although the market until recently was weak. The steadiness is attributed to the fact that the rainy season is at hand, and seed is not so plentiful. *Cotton*—A fall of 5s. to 10s. On the spot; refined oil is now worth £17 10s. to £18, according to make and package. *Coco-nut*—Dull of sale at lower rates on the spot. *Ceylon* is quoted at £22 10s. to £22 15s., and *Cochin* at £24 to £24 10s. *Linseed:* Steady. On the spot £21 10s. to £21 12s. 6d., was the price for oil in barrels. *Rape:* Lower. £22 10s. is now the spot price for refined oil. *Turpentine:* Firmer, but the prices are unchanged. *American* spirit quotes at 21s. 9d. on the spot. *Petroleum:* Dull of sale *American* oil is worth 5⅞d, *water white* 6½d. to 7d., and *Russian* 5⅞d. *Petroleum spirit: Ordinary*, 8½d. to 8¾d.; *deodorised*, 8¾d. to 9d. *Almond:* The current quotation is 1s. 1d. per lb.

Opium.—*Turkey* is firm, but no change has occurred in the prices, and the stocks are somewhat small. Best selected is worth 11s. 6d.; seconds ditto, 10s. 9d.; druggists', 7s. 6d. to 9s. *Persian.* Very firm. No low grades are offering. Finest selected is worth 12s. 6d. to 13s.

Orris Root.—The market is firm at unchanged rates. *Florentine* root is quoted at 73s. for good sorts, with best selected at 77s. to 80s. per cwt.

Peru (Balsam).—Steady. For genuine balsam 9s. to 9s. 3d. is the price.

Pilocarpine.—Makers' prices are 8s. to 8s. 6d. per gramme, but it can be bought in second hand for considerably less.

Quinine Sulphate.—The market has again been devoid of interest, and with no enquiries quotations are again easier. On the spot *H.B.* and *B. & S.* are quoted nominally at 1s 0½d.

Senega Root.—The nearest spot price for good sound root is 1s. 3d. per lb.

Serpentary.—Reports from America state that the best *Texas* root is scarce. The New York price is at a parity of 1s. 0½d. to 1s. 5½d., according to quality.

Salicin. — Manufacturers' prices are unchanged. For quanties of 1 cwt. 8s. is the price with smaller quantities at 8s. 6d. per lb.

Santonin.—The current quotation is 5s. 5d. to 5s. 8d. per lb., according to quantity.

Soy.—Fair *China* remains slow of sale at 1s. to 1s. 1d. per gallon.

Tolu Balsam.—Fairly steady. For good genuine balsam the price accepted on the spot is 1s. 7d. per lb.

Turmeric.—Dull of sale. At the auctions on the 2nd inst., of 467 bags offered only 59 were sold subject, at 8s. 9d. for bold *Madras* finger. All the *Cochin* was bought in.

Wax (Japan).—Dull of sale. For good white *squares* 25s. to 26s. is the nearest spot price.

Synthetic Oil of Neroli.

In view of the high price of natural neroli oil, which at present is worth about 10s. 6d. per oz., the introduction of a synthetically-prepared oil by Messrs. Schimmel and Co. is a matter of considerable interest. The constituents of neroli essence have for some time attracted attention, and Tiernann and Semmler, amongst others, contributed condiderably to our knowledge of its chemistry, but it was left for Messrs. Schimmel and Co. to isolate the body, to which the characteristic odour of *Citras Bigaradia* is due. They found that this constituent is present to the amount of about 1½ per cent., and on the basis of their analysis of the oil, have put on the market an artificial essence, under the name of "Neroli," which is said to correspond perfectly with the natural product of the fresh flowers. The price is one half of the natural essence, at which it seems worth attention.

Cinchona Statistics.

Statement of the shipments of cinchona bark from Ceylon to all parts in each month during the last two seasons:—

	1895.	1894.
January .....lb.	Nil.	311,885
February.....	79,000	55,557
March	61,925	246,261
April	165,273	134,000
May	98,022	79,697
June.....	—	265,234
July	—	590,000
August.....	—	412,373
September	—	90,620
October	—	39,373
November	—	36,544
December	—	182,773
Total ... Season	—	2,444,317

The following statement exhibits the total quantities exported from Ceylon to all parts from January 1 (commencement of season) to May 31, 1895, compared with previous years:—

1895 ....lb.		404,220
1894		827,400
1893		1,963,835

The following is a statement of the exports from Java to all parts from October 1, 1894, to May 31, 1895, compared with previous years:—

1894-95 .....Amstd. lb.		5,170,775
1893-94		4,919,742
1892-93		5,608,436

Legal Intelligence.

Queen's Bench Division.

Important Opium Case.

The case of Helbig and others *v.* Rüffer and Sons came before Mr. Justice Mathew and a special jury, on Tuesday, as one of the cases in the commercial list. The plaintiffs were syndics or trustees in the bankruptcy of a person named Cherbertgian, of Constantinople, who it appeared speculated largely in opium, and the defendants are bankers in Lombard Street, who made advances to Cherbertgian. The action was for an account of the proceeds of opium which had been sold by the defendants to cover their advances, and for damages on the ground that they had so flooded the market as to unduly lower the price. The defendants contended that they were justified in selling to lower their advances, as Cherbertgian had not kept up the margin agreed; they denied that they had forced the market, and set up also on the accounts that the interest charged had been agreed to be raised from 5 to 6 per cent.

Mr. Moulton, Q.C., and Mr. Mainsty appeared for the plaintiffs; Mr. Tindal Atkinson and Mr. Abraham for the defendants. After a lengthy hearing, the jury found that the defendants were justified in selling as they did up to December 29, at which date they had realised enough to repay their advances, and that they had not lowered the price on the market by so doing; but that they were not justified in selling a further lot of twenty-eight cases on December 30, and that there was not a valid agreement to raise the rate of interest to 6 per cent.

At this point in the case the defendant's solicitors made an offer of £200 to plaintiffs to settle the case. This was at first declined, but Mr. Justice Mathew having intervened an arrangement was come to by which the sum mentioned was accepted. The question of costs, which will amount to a very considerable sum, was not decided. Amongst the witnesses for the defendants Mr. J. A. Wink, Mr. Man (Man and Bishop), and Mr. Bowyer (Bowyer and Bartleet) gave evideuce as experts.

New Books and New Editions.

[*Publishers are invited to forward full particulars of new publications, including price.*]

Through the Copse, another Ramble after Flowers. By M. C. Cooke. Cr. 8vo, pp. 104. Price 1s. 6*d.* Boards, 1s. (Nelson.)

From Matter to Mind. By M. R. P. Dorman. Divided into two books, 'From Matter to Man' and 'The Development of the Mind,' forming an outline of some of the principles of physiology, psychology, and general physiology. 8vo, pp. 328. Price 7*s.* 6*d.* (Kegan Paul, Trench, and Co.)

Tuberculous Disease of Bones and Joints: its Pathology, Symptoms, and Treatment. By W. W. Cheyne. With 60 illustrations. 8vo, pp. 384. Price 14*s.* net. (Young, J. Pentland, London.)

Lung Complaints. By T. Allinson. Post 8vo, pp. 104. Price 2*s.* (Fowler.)

Royal University of Ireland Examination Papers, 1894: a Supplement to the University Calendar, 1895. Cr. 8vo, pp. 644. Price 2*s.* 6*d.* net. (Longmans, Green and Co., London.)

Petrology for Students, an Introduction to the Study of Rocks under the Microscope. By A. Harker. Post 8vo, pp. 310. Price 7*s.* 6*d.* (Cambridge Natural Science Manuals.) (Cambridge Warehouse, Cambridge.)

Exchange.

[*Notices of books, apparatus, etc., for exchange, of reasonable length, are inserted free in this column, if they do not partake of the nature of ordinary advertisements. The notices should be written on post-cards, addressed "Editorial Department, 17, Bloomsbury Square, W.C."*]

WANTED.

Photographic Apparatus.

Lancasters Instantograph, ¼ or ½ plate. Must be in good condition. Lowest price to Dickenson, 34, Myrtle Avenue, Sherwood Rise, Nottingham.

Literature.

'Pharmaceutical Journal,' February 23, 1895. —Full price will be paid by the Secretary, 17, Bloomsbury Square, London, W.C.

'Hoblyn's Dictionary of Medical terms. In good condition. State price, carriage paid, to Pollittn, 106, Woodhouse Lane, Leeds.

Hargreaves 'Manual of Venereal Diseases,' etc. Last edition. State lowest cash price.—Button, Chemist, Alderley Edge.

Shop Fittings.

Bent Glass Case, 7 or 8 ft., flat or bent, 3 ft., to open in front.—Cocks, Pharmacist, Torquay.

Two specie jars, must be in good condition. Height including stand and cover not exceeding 32 inches.—Sharman, Potter's Bar.

OFFERED.

Shop Fittings.

Mahogany Circular Soda-Water Stand, triangular base, marble top, shelves with holes, good condition, 55s. Bent Case, 2 ft. 3 in., sloping shelf, mirror back, 32s. 6d. Ditto, 3 ft. 6 in., glass cracked, three velvet lined trays, 30s. Homœopathic Case, 10s. 6d. Two Handsome Specie Jars, 3 ft. 2 in , mahogany stands, 7s., 10s.—Cocks, Pharmacist, Torquay.

Photographic Apparatus.

Morley's Stereoscopic Camera, leather bellows, flap shutter, two spare fronts adaptable for single lens up to half plate, three double dark slides, leather case and well-made tripod, pair Grubb's B stereo lenses and a 5 by 4 doublet by Lawley, Waterhouse stops, nearly as new, five printing frames. Price, for cash, £6. —Cocks, Pharmacist, Torquay.

High-class ½-plate camera, lenses, stand, etc., etc. Cost £14; price £7.—G., 13, High Street, Yeovil.

"Facile" Hand Camera, quite new, R. R. lens, waterproof cover, cost £5 12s. 6d. ; exchange for good ½-plate set.—Rae, 126, Gloucester Street, Glasgow.

Ilford P. O. Paper (white), in tubes containing 12 sheets each; offer wanted for 10 tubes. —Jeyes and Co., Ltd., Northampton.

Literature.

Mohr and Redwood's 'Practical Pharmacy'; Faraday's 'Chemical Manipulation'; 'Turner's Elements of Chemistry,' by Liebig and Gregory; Bell and Redwood's 'Progress of Pharmacy'; 'General View of the Writings of Linnæus,' by R. Pulteney, M.D., to which is annexed the 'Diary of Linnæus,' written by himself, fine plates, in perfect condition (1805); 'Physiological Chemistry,' by Lehmann, 3 vols. (Cavendish Society); Atlas of above, by Otto Funke; 'Life and Works of Cavendish,' by Dr. G. Wilson; 'Life of Dalton,' by Dr. Henry. What offers, to J. D. Rose, Chemist, Jarrow-on-Tyne.

'Manual of Formulæ,' over 1000 recipes, published, 5s., post free for 3s. 9d. 'Minor Ailments,' same price, published, 5s. 'Chemists' Legal Hand-Book,' published, 3s. 6d., 2s. post free. Copies practically unsoiled.—Ballard, 126, Newington Causeway, S.E.

'Era Formulary,' published by *Pharmaceutical Era*, New York, at 5 dollars; 5000 recipes of every description; practically new; 15s., carriage paid. 'Chemist's Legal Handbook,' 3s. 6d. 'Diseases of Dogs and Cats,' 2s. 6d.; and 'Practical Dentistry,' 1s. 6d. Offered at 5s. 9d., carriage paid. In good condition.—Evans, 37, St. Paul Street, Islington, N.

Pereira's 'Materia Medica,' vol. i., vol. ii., part 1, and vol. ii., part 2; illustrated; excellent reference works; good condition. What offers? —Arthur, 21, Hertford Road, Lower Edmonton, N.

Miscellaneous.

Tooth forceps, good condition, by Mather, Manchester, in mahogany case, cost 80s. Cash offers.—Wilson, D.S., Tow Law.

Stramonium plants. Have a quantity suitable for botanical specimens. Price 2s. per dozen. —Williams, Chemist, Longfleet, Poole.

Two Foot or Fracture Cradles, as Fig. 4; Maw's complete. What offers?—Williams, Chemist, Longfleet, Poole.

Humber Diamond Frame model safety, Perry's bearings, Bramptou chain, detachable latest non-slipping tyres, £20 machine, new three weeks ago, guaranteed sound and perfect, approval anywhere, sacrifice £7 7s.—Pharmaceutical Chemist, 77, Welbeck Street, Loudon, W.

Waterlow's Foolscap Lithographic Press, Roller, Stones, etc., for sale, or exchange for something useful.—Cooke, 68, Brightou Road, Surbiton.

First-class Bell-shaped Garden Tent for sale, 40 feet circumference, height in centre, 7 feet, 6 inches; in excellent condition. Original cost, £5; will sell for 25s., including pole, mallet, pegs, etc —W. H. Aukland, 46, Camdeu Road, London, N.W.

Company Business.

HEWITT'S, LIMITED.—Registered on June 19 by Neve and Beck, 21, Lime Street, E.C., with a capital of £1000 in £1 shares. Objects: to acquire the business of chemists and druggists and manufacturers of and dealers in chemicals and drugs, carried on at 41, Crook Street, Bolton, Lancashire, and all the fixed and loose plant, etc., appertaining thereto, and to carry on and extend the said business in all its branches. Registered without articles of association. Registered office: 41, Crook Street, Bolton, Lancashire.

CURANILLO, LIMITED.—Registered on June 21 by Church and Co., Bedford Row, W.C., with a capital of £10,000 in £1 shares. Objects: to carry on business as manufacturers of, and dealers in (both wholesale and retail), compounds known as "Curanillo" (Dr. Caleb's fruit cure), "Norton's Lumbago Cure," "Norton's Dentifrice," "Norton's Gout and Rheumatic Cure," "Norton's Pills," and "Norton's Pain Killer," and as chemists and druggists generally. The directors are Cecil O. Martin and Ralph Tod.

RENNY, FORBES AND CO., LIMITED.—Registered with a capital of £2000 in £5 shares by Firth and Co., 77, Chancery Lane, W.C. Object, to enter into an agreement with R. H. A. Atkin and W. A. Wade for the acquisition of the business of chemical manufacturers, etc., as hitherto carried on by Renny, Forbes and Co. at Alperton, Harrow, Middlesex, and to develop and extend the same.

BRITISH DRUGGISTS, LIMITED.—Registered with a capital of £5000 in £1 shares by Morten, Cutler and Co., 99, Newgate Street, E.C. Object, to carry on in the United Kingdom or elsewhere the business of manufacturers of and dealers in patent medicines of every description.

Diary of the Week.

[*Notices for insertion under this heading should reach the Editor on or before Wednesday.*]

WEDNESDAY, JULY 10.

Pharmaceutical Society of Great Britain.
Library, Museum, School, and House Committee.

Plymouth, Devonport, Stonehouse, and District Chemists' Association.
Annual Outing at Lidford. Trains leave Friary Station at 2.25 p.m., and 4.57 p.m , Devonport fifteen minutes later.

Midland Pharmaceutical Association.
"Married v. Single" Cricket Match, on the Langley Ground, Small Heath. Wickets pitched at 2.45. Lawn tennis, quoits, bowls, and refreshments will be provided.

Trade Marks Applied For.

[From the *Trade Marks Journal.*]

No. 186,719.—CHEMICAL SUBSTANCES used in manufactures, photography, or philosophical research, and anti-corrosives, but not including paints or goods of the same description as paints.—The Gas Light and Coke Company, Beckton, London, E., April 2, 1895. Words "Balloon Brand."

No. 187,533.—BORAX, being a chemical substance used in manufactures, photography, and philosophical research.—F. S. Strecten, trading as The Harmony Borax Company, 5, Quality Court, Chancery Lane, London, W.C., May 10, 1895. Device of a lyre and the words "Harmony Borax," etc. The essential particular is the device.

No. 186,720.—CHEMICAL SUBSTANCES used for agricultural, horticultural, veterinary, and sanitary purposes.—The Gas Light and Coke, Company, Beckton, London, E., April 2, 1895. Words "Balloon Brand."

No. 187,346.—AN OINTMENT for veterinary purposes.—H. B. Budd, trading as Bentinck, London Road, East Park, East Grinstead, May 1, 1895. Words, "Bentinck's Celladema." The essential particular is the word "Celladema."

No. 187,836.—ALL GOODS included in Class 2. —Charles Simpson, The Limes, Duston Road, Northampton, May 27, 1895. Word, "Symbolic."

No. 186,558.—CHEMICAL SUBSTANCES prepared for use in medicine and pharmacy.—Thomson, Marshall, and Co., Ltd., Aultou Brewery, Aulton, Aberdeen, March 28, 1895. Word, "Pixie."

No. 186,721.—CHEMICAL SUBSTANCES prepared for use in medicine and pharmacy.—The Gas-Light and Coke Company, Beckton, London, E., April 2, 1895. Words, "Balloon Brand."

Late Advertisements.

Assistants Wanted.

QUALIFIED ASSISTANT wanted at once. State terms, enclosing photo. GRIFFITH & WALDEN, Slough, Bucks.

QUAIFIED ASSISTANT wanted. Indoors. Able to take charge of Branch Business. A good opening for an energetic man. Apply by letter only with full particulars of previous experiences and salary required to CHEMIST, 285, Hedon Rd , Hull.

Apprenticeship.

WANTED.—APPRENTICE in a first class business. Moderate premium. 4 years' comfortable home. GRIFFITH & WALDEN, Slough, Bucks.

SUPPLEMENT

TO THE

PHARMACEUTICAL JOURNAL.

The Pharmaceutical Journal circulates amongst Pharmacists in Great Britain and Ireland, France, Germany, Austria, Italy, Russia, Canada, the United States, South America, India, Australasia, South Africa, etc., etc., and the average number of copies printed weekly is seven thousand.

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Contents of Supplement.

Personal Notes	i
Partnerships Dissolved	i
The Value of Judgment and Adaptability	i
Market Report	ii
Liverpool Market Report	ii
New Books	iii
Exchange	iv
Company Business	iv
Diary of the Week	iv
Trade Marks Applied For	iv

Personal Notes.

Professor Henry Trimble, of the Philadelphia College of Pharmacy, has had the degree of Master of Arts conferred upon him by the Haverford College.

Mr. J. E. Dutton, son of Mr. John Dutton, pharmaceutical chemist, Birkenhead, who is studying for a medical degree at the Victoria University, has been awarded gold medals in anatomy and physiology, and a silver medal in materia medica, in connection with the second M.B. examination.

Mr. P. W. Squire was one of the winners in a scratch double punting race, held last week by the Thames Punting Club, of which he is the honorary secretary.

Mr. William Turver, chemist, Chester, was married on Thursday, July 4, at Newark parish church, by the Rev. Marshall Wild, to Minnie, only daughter of James and Alice Turnbull, of Newark.

Mr. James Farr, Chemist and Druggist, Crown Street, Halifax, has disposed of his business to Mr. W. S. Thompson.

Mr. W. S. Thompson, A.P.S., who has purchased the aforesaid business will carry it on under the old name. He has acted as manager to Mr. W. C. Hebden, in the same town, for fourteen years.

Partnerships Dissolved.

[From the *London Gazette*.]

Harold Mitchell and Herbert George Boyce, carrying on business as chemists and druggists at 56 and 80, Woodgrange Road, Forest Gate, under the style of Mitchell and Boyce. The business will be carried on by Harold Mitchell.

Richard Parnell and F. J. Brownfield Bateman, surgeons and general medical practitioners, Wells, Somerset.

Martin Waddell and James Kinnear, artificial limb and surgical appliance makers, trading as Waddell, Kinnear and Co., at High Street, Sheffield.

Thomas Pickering and Harry Sydney Leonard, veterinary surgeons and dealers in veterinary medicines, trading as Pickering and Leonard, of Ogleforth, York. Business will be carried on by H. S. Leonard.

THE VALUE OF JUDGMENT AND ADAPTABILITY.*

BY C. H. BANGS.

It is assumed that business interests impel every man to make the best efforts and use the greatest possible acumen toward the building up of a prosperous and successful trade. I say it is assumed, because in a great many cases appearances do not seem to warrant this assumption. Certainly the motive can hardly fail to be lacking in even a single instance, otherwise a man would rarely be in trade. Given, therefore, that the desires and motives are in the right direction, we must conclude that lack of proper judgment in most cases is the prevalent cause of non success. Of course, there are other causes which might and do contribute to the same result, but I am speaking of those cases where no fault of location exists, or lack of sufficient capital is wanting to carry the business to a successful issue. In many cases it has seemed to me insufficient attention has been given to the changed conditions of trade and the requirements of the present day as compared with a former period, when the druggist with whom the young man who is now starting out for himself for the first time, has served his apprenticeship, learned his business methods, and largely shares the prejudices brought down from a still more remote period. This one beginning his business career twenty-five or thirty years ago may or may not have kept fully in touch with the times and their changed requirements, but the chances are decidedly against his having done so.

In the last few years it has seemed as though every dealer's hand was raised against the druggist. This has extended to the dry-goods, the grocer, the barber-shop, the milliner, gents furnishings, and even the boot and shoe stores. One or the other, if not all of these, from first to last have encroached on nearly every line dealt by the druggist, except prescriptions, and even these have not been exempt in all cases. In this matter it does seem as though some small degree of blame rested with the druggist himself. Take the articles like combs, brushes, and similar goods which have been carried by several lines of trade, and nearly always have borne good profits by whomsoever sold, the druggist frequently without due regard to the excellence of his stock, and often a very meagre quantity from which to make a selection, has yet marked his goods from 10 to 50 per cent. higher than offered by the larger stores where a great variety is shown from which to make a selection. Here not only are sales lost, but a reputation for dearness is earned as well, which, from its oft recurrence, has given the druggists as dealers a reputation for extortionate prices far beyond their deserts.

Here, too, is where judgment seems to be lacking. It is always easy to see errors in others and find fault, and not always so easy to suggest a remedy. Without assuming extraordinary knowledge of these matters, it is permitted me to have a fuller knowledge of the outgoings of many of the most progressive druggists in the United States than almost any other with whom I am acquainted, thus enabling me to form opinions of the possibilities within the reach of the druggist from the results achieved by one or the other of these bright and progressive men. What is possible with them is also possible with you, under similar circumstances, if you have the right adaptability. You injure yourself and your profession when you allow your customer to get a bad impression of your stock in whatever line you attempt to carry. The damage will not be so great if the quality and arrangement of your goods have been such as to have left the impression on your customer's mind that the quality warrants the price, even should he decide to purchase elsewhere. The damage is done when he goes away feeling that the goods are inferior and the prices superior.

An elegant drug store in all its appointments does much to correct a bad impression and make it a favourable one. A few days since, I showed a customer through one of my elegant drug stores. One of the proprietors was busy selling to a lady who completed her purchases before we left the store, and we were shown the goods bought by her, amounting to $68, and all could be held in the palms of your two hands at least, if not in one—knick-nacks in sterling silver; not a thing in the direct drug line. No one in the world has a more elegant drug store, and as a result, no one can more easily impress his customer with the value of his goods. Their store enables them to sell the highest class of goods. The goods do credit to the store, and both combined are a source of profit to its proprietors. Here are druggists who do not depend upon a single crop, like the cotton planters or the wheat growers, and they are selecting goods which reflect credit upon their establishment, and yield a good revenue of profit. In this case they make good the loss for cut prices in patents, and give their store by the sale of these sterling silver, ivory goods, and bronzes, a much more enviable character. But in order to sell goods of an æsthetic character, it is desirable that your store should partake of the same character.

* From the *New England Druggist*.

MARKET REPORT.

[*Specially compiled for the Pharmaceutical Journal.*]

Chemicals and Drugs.

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the pharmacist. It is important that this should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

THE CHEMICAL MARKET.

THURSDAY, JULY 11, 1895.

Since our last report no very important changes have occurred. The carbolic acid market is quite inactive, and quotations are a shade easier. Citric and tartaric acid are both very dull of sale, but cream of tartar has been selling briskly at a considerable advance. The importers lowered the price of quicksilver on the 9th inst., but this move has not as yet led to any alteration in mercurials. Full details will be found below of the various articles of interest :—

ACID, CARBOLIC—Dull of sale, at fractionally lower rates for *crystal* acid. The current quotations are as follows :—*Crystals*, 34° to 35° C., 5⅜d. ; 39° to 40° C., 5⅝d. ; 39° to 40° C. (detached crystals) 6⅞d. per lb. *Crude*—Unchanged. 60 per cent. is worth 1s. 6d., 75 per cent. at 1s. 9d. *Liquefied*, 95 per cent. is slightly lower at 1s. per gallon. *Cresylic*, 11d. per gallon.

ACID, CITRIC.—The position is unchanged, the market being quiet. Manufacturers maintain their quotations at 1s. 1¾d., but in second hands it can be bought for 1s. 1⅝d.

ACID, OXALIC.—The old price of 3⅝d. net *ex* rails is unaltered.

ACID, TARTARIC—Has been rather dull of sale at unchanged rates. *English* manufacturers quote 11¼d. as the price, whilst *foreign* brands of acid, both in *crystal* and *powder*, are worth 11d.

AMMONIA SALTS.—*Carbonate* unchanged at 3½d. to 3¾d. *Liquor* quiet at 3d. to 3¼d. *Sal ammoniac. First* quality, is still quoted at 39s., with *seconds* at 37s. *Sulphate* remains a dull market at low rates. At the close £9 15s. is the price for grey 24 per cent.

ASHES.—Canadian *potashes* are lower and can be bought for 37s. 6d., but the best *pearl ashes* remain unchanged at 2?s.

ARSENIC—Steady at unaltered rates. The current quotation for best *powdered* white is 15s. 6d. to 16s.

BORAX—Very dull of sale, and second-hand holders have reduced their prices for both *crystals* and *powder*, the first of which can be bought at 18s. to 18s. 3d., with *powder* at 18s. 6d. to 19s. The Convention prices still remain at 20s. and 21s. respectively.

BLEACHING POWDER—Unchanged. The spot price being £7 10s. to £7 15s. ; in Liverpool the price is also £7 10s. to £7 15s., *f.o.b.*

COPPER SULPHATE—Rather dull of sale. The spot quotations range from £5 to £5 15s., according to brand.

CREAM OF TARTAR.—A very firm market at considerably advanced prices. For *German* brands of powder on the spot 72s. has been paid, whilst best white French *crystals* are now worth 70s., showing an advance of 2s. to 3s.

POTASH SALTS.—*Bichromate* : Unchanged at 4⅝d. to 4¾d. *Chlorate* : Rather quiet, and on the spot 4⅞d. is still the price. This price also holds in Liverpool. From New York a quiet market is reported, but leads to no reduction in prices, owing to the strong foreign markets. *Permanganate* : Small *crystals*, 54s. ; large *ditto*, 59s. per cwt. *Prussiate* : Unchanged at 8¼d. The Liverpool price has again been 8d.

QUICKSILVER.—On the 9th inst. importers lowered their prices 5s. per bottle, and now quote at £7 5s. ; second-hand holders offer at £7 4s. 6d.

SALTPETRE—Unchanged. *British* refined offers at 22s. 6d. to 23s. 6d. on the spot. The Liverpool price is firmly maintained at 22s. 6d. in kegs, and 23s. in barrels.

SODA COMPOUNDS.—*Bicarbonate*. The spot price is £7 5s. in kegs. In Liverpool the price remains at £6 15s. in kegs, and £6 5s. in casks *f.o.b. Caustic*, 70 per cent is steady at £8, with 60 per cent. £1 less. *Crystals*, 38s. *Hyposulphite* : Firm at £7 to 7s. 10s. per ton in Liverpool. *Nitrate* : Ordinary, £8 6s. 3d., and refined, £8 7s. 6d. to £8 10s. on the spot.

TAR DISTILLATION PRODUCTS.—*Benzole* : 50 per cent. is quoted at 11d. to 11½d., with 90 per cent. at 11½d. to 1s. per gallon. *Creosote* : 1⅛d. per gallon. *Crude naptha* : 30 per cent., at 120° C., 5d. per gallon. *Pitch* : 37s. per ton, *f.o.b. Tar* : Quiet at 11s. per barrel of 40 gallons.

THE DRUG MARKET.

THURSDAY, JULY 11, 1895.

The amount of drugs offered to-day was not very heavy, and a quiet tone prevailed. The most important feature was the continued advance in ipecacuanha, both Rio and Carthagena root. The other items do not call for special mention. No change has occurred in the various alkaloids, and essential oils are practically the same as last week. Full details will be found below :—

ACACIA.—A considerable amount was offered to-day, but met with no inquiry. The only lot sold was two cases of medium pale hard picked gum, which sold "without reserve" at £5 12s. 6d. Pale Turkey *Sorts* from Suez were bought in at 60s.

ACONITE (JAPANESE).—Steady. A parcel of 10 bags were offered and sold at 22s. 6d.

ALOES.—*Cape* was in moderate supply only, and sold freely at very firm prices. Fine bright hard fetched 25s., medium hard 23s., dull and drossy 21s. 6d. *East Indian.*—*Socotrine* in kegs is firmly held at 70s. to 75s. per cwt. for good softish of fair aroma. A parcel of seven cases of *East Indian* sold at 41s. to 43s. *Curaçao* : 257 boxes were shown. These were mostly bought in, but one case of medium liver sold at 40s.

AMBERGRIS.—Three tins only were offered, one of these consisting of ordinary dark quality sold at 37s. 6d. Better grades were bought in at 80s. to 95s.

AMMONIACUM.—In moderate supply only to-day. Of a parcel of 12 cases of *block* gum two sold at 35s. Mixed drop and lump gum was bought in at 30s.

ANNATTO SEEDS.—A large amount, consisting of 81 bags, was offered. Good bright *Madras* was bought in at 4¼d. to 5d., but a parcel of nice bright *Coconada* seed sold at 3¾d.

ARECA NUTS.—Two bags—the only lot offered—sold without reserve at 10s. 6d.

ASAFŒTIDA.—To-day 53 cases were offered, but not eliciting a bid, were all withdrawn.

BENZOIN.—*Sumatra* gum only was sold to-day. A parcel of 10 cases, composed of good almondy seconds, sold at £8 10s., and for medium seconds with fair centres, but very falsely-packed sides, £6 to £6 5s. was paid. *Siam* : Nice loose almonds were bought in at £18, a bid of £16 being refused. Ordinary siftings in block were bought in at 57s. 6d. to 67s. 6d.

BIRDLIME.—Eleven cases of *Japan* were again offered, but were bought in at 1s. 3d.

BUCHU.—A parcel of very yellow, stalky *round* leaves were sold at 1¾d. Another lot consisting of nice bright *round* leaves sold at 3¾d., and ordinary dull *long* at 2½d.

CAFFEINE—Remains very firmly held on the spot, 28s. being the nearest quotation for prompt delivery. For delivery August to September, 22s. per lb. is asked.

CALUMBA ROOT.—A parcel of 18 bags of medium sorts, of fair colour, sold at 18s. to 18s. 6d.

CAMPHOR (CRUDE).—A very firm market, and prices have considerably advanced since our last report. At the close, the quotations are :—*China*. For delivery July to September, 160s., *c.i.f.* To-day 62 tubs were bought in at 165s. *Japan* : For delivery July to September, 160s. to 165s., *c.i.f.* At the sales, 94 tubs were bought in at 175s.

CAMPHOR (REFINED).—There is no alteration in the position of this article, except that it would be difficult now to buy under 1s. 9½d. in 10 cwt. lots of *bells* and *flowers*, as the second-hand stock is much reduced. *Squares* quote at 1s. 10½d., and proportionate rates.

CANADA BALSAM.—Two casks were again offered to-day, but were withdrawn at 1s. 5½d. per lb.

CANNABIS INDICA.—Absolutely no enquiries. Brownish stalky tops were bought in at 3d., ditto very dusty, 2¾d., and very dark stalky at 2d.

CANTHARIDES—No sales were effected to-day. Seven cases of fair *China* were bought in at 1s. 1d.

CAPSICUMS.—A parcel of 9 bales sold at 13s. 6d., with damaged at 9s. to 11s.

CARDAMOMS.—The demand to-day was not at all brisk, and a large amount of that offered was bought in. The prices realised were :—*Ceylon-Mysore* : Fine pale bold, 4s. ; medium pale, 2s. 6d. ; small pale, 1s. 9d. to 1s. 10d. ; medium sizes, part split and specky, 1s. 3d. to 1s. 5d. *Seed* : 1s. 9d. per lb.

CASCARA SAGRADA.—No inquiries. Sixty-seven bales of fair bold bark were bought in at 17s. 6d.

CASCARILLA.—Three cases—which was the only lot offered—consisting of good silvery bark, sold at 42s. 6d.

CASSIA FISTULA—No inquiries. Fair bold pods from *Jamaica* were bought in at 25s. The price required is about 18s.

CINCHONA.—*Carthagena* bark was bought in to-day at 5d. to 7d. *Crown* bark at 7d. *Succirubra* : Bold bark was bought in at 8s. 6d. to 10s., and ordinary ditto at 1s. 2d. to 2s. 6d. *Yellow* bark was mostly bought in, but first-class damaged sold at 1s. 4d., with seconds ditto at 1s. 1d. A parcel of 12 bales of *Maracaibo* sold freely at 4d. for damaged, other qualities at 5½d. to 8½d.

CIVET—Sold at 30s.

CLOVES.—At the sales on the 10th inst., no *Zanzibar* was sold, ordinary dark being bought in at 2¾d., and fine to fine pale 3⅜d. to 3¾d. A few bags of dark *Amboyna* sold without reserve at 3⅜d. All the *Penang* was bought in. The market is firmer for delivery, the quotation for arrival August to October being 2 13/16d.

COCAINE.—The position of this is unchanged. The current quotation for 100-oz. lots in tins varies from 14s. 6d. to 15s., with smaller quantities at proportionate rates.

COCA LEAVES.—None were sold to-day. A parcel of 12 bales broken *Trurillo* leaves, good quality, being bought in at 1s. The price is 11d.

COLOCYNTH.—No Spanish was offered at the sales. The only lot offered consisted of 3 casks of *Turkey*, which sold at 2s. 2d. for medium to bold apple, and 1s. 9d. for small broken ditto.

COPAIBA.—*Maranham* only was offered; and bought in at the steady rate of 1s. 9d. for pale cloudy balsam.

CORIANDER SEED.—Coarse *Bombay* seed has sold at 8s. 6d. to-day. A parcel of 115 bags of *East Indian* were bought in at 10s.

CUBEBS.—*Singapore* berries met with no enquiries, being all bought in at 35s. A parcel of 111 bags of good brown *Bombay* all sold at 36s. 6d.

CUMIN SEED —Very scarce. 2 bags of good quality *Maltese* sold at 36s.

CUTTLEFISH.—Thirteen cases of nice whole bone from Las Palmas sold at 1¾d.

DRAGON'S BLOOD—Little enquiry. Good bright gum, partly broken in *reeds* was bought in at £12 10s. Two cases of fair bright gum in lump, somewhat seedy, sold at £9 10s. to £10 respectively.

ELEMI GUM.—Firmly held, and none was sold to-day, although 83 cases were offered. These were all bought in at 30s. for good pale clean gum, and 27s. 6d. for medium ditto.

ERGOT OF RYE.—A parcel of 11 cases sold "without reserve" at 7¼d. to 7½d. This consisted of weevily *Spanish* that had been recently sifted.

FENNEL SEED.—Twenty bags of fair bright *East Indian* seed were bought in at 20s.

GAMBOGE—Slow of sale. Not a single case sold to-day. Good bright pipe was bought in at £10, fair ditto at £9, and rather drossy pipe at £8 5s.

GENTIAN.—Seven bales of fair root sold at 14s.

GUAIACUM.—Six cases only were offered, consisting of broken block somewhat drossy; these were bought in at 1s. 2d.

GUARANA.—Bought in at 3s.

HONEY.—*Jamaica*, sold freely to-day at steady rates; dull brown liquid fetching 20s. to 22s., and thick yellow, 24s. to 25s. *Australian* was all bought in. *Californian* was held for 45s., and *Peruvian* for 30s.

INSECT POWDER.—*Dalmatian* powder of extra fine grinding is quoted at 70s. per cwt. To-day 11 kegs were offered, but bought in at 8d. per lb.

IPECACUANHA—Has been selling at greatly advanced rates during the week, and the prices paid at to-day's sales show an average advance of 1s. for *Rio* and 6d. for *Carthagena* over the last sale rates. The *Danube* brought a consignment of 55 bales on Wednesday, but this arrival did not effect the prices to-day. The prices paid to-day were as follows:—*Rio* (*Brazilian*) Fine plump annulated root, 5s. 3d. to 5s. 6d., and good annulated sound root, 4s. 10d. to 5s. 2d. *Carthagena* (*Columbian*): For good sound root, 4s. to 4s. 1d., was paid.

LIME JUICE.—*Antiguan* and ordinary *Jamaica* juice sold to-day at 1s. 3d.

LIMES.—Two half barrels from *Antigua* sold at 1s. 6d.

MYRRH.—Only gum offered without reserve, sold to-day. Dull lumpy roota fetched 46s. to 47s., and a case of very drossy siftings sold at 12s.

NUTMEG PASTE.—Six cases of fair quality were bought in at 3¼d.

NUX VOMICA.—A parcel of 379 packages from *Tellicherry* sold at 2s. to 3s. 3d. Fair *Bombay* sold at 7s., and *Madras* were bought in at 4s. 9d. to 5s.

OIL (COD-LIVER)—Steady. There is naturally but little business doing in this at present, but quotations are unaltered. *Isdahl* quotes fine new *Lofoten* oil at 170s., whilst *Finmarken* summer oil is worth 150s., *c.i.f.*

OILS (ESSENTIAL).—*Star Anise* remains dull of sale at 6s. 2d. to 6s. 3d. on the spot. *Bergamot*: Two half cases of genuine essence were bought in at 7s. *Cassia*: Dull of sale at 4s. 6d. for oil containing 70 to 75 per cent. of aldehyde, and 4s. 9d. for 75 to 80 per cent. oil. *Cinnamon*: Sold without reserve at 3d. to 6d., according to quality. *Citronella*: Remains very firm on the spot at 1s. 4d. per lb. in tins, whilst for arrival it is quoted at 1s. 3d. to 1s. 3½d., according to package. *Lemon*: Bought in at 3s. *Lemon Grass*: Firm at 1⅝d. to 1¾d. per oz. *Nutmeg*: Bought in at 3½d. *Peppermint*: Two cases of *Cocking's* oil were bought in at 6s. 3d. *H. G. Hotchkiss'* oil is very firm at 10s. 3d., but there is little offering at this price, and holders seem inclined to advance their quotations. *Japan* is steady at 7s. 6d. for 40 per cent. oil, with *dementholised* dearer at 6s. *Dodge & Ollcott's* oil is worth 8s.6d. on the spot.

OILS (FIXED) AND SPIRITS.—*Castor*: *Italian* oil is unchanged, and offers at 30s. to 31s. *c.i.f.* for fine quality. Reports from Calcutta advise a firm market, and prices tending higher. The crushers of seed are not anxious to accept fresh orders except at advanced prices, and business has in consequence been limited. *Cotton*: Quiet at unchanged rates. *Refined* oil offers at £17 10s. to £18 according to make and package. *Coco-nut*: Unchanged. *Ceylon* is quoted at £22 10s., and *Cochin* at £24 to £24 10s. *Linseed*: Fairly steady. On the spot £21 10s. is the price for oil in barrels. *Rape*: Rather easier, and £22 5s. to £22 10s. is now the price for refined oil on the spot. *Turpentine*: Dull of sale at lower rates. On the spot *American* spirit offers at 21s. 4½d. to 21s. 6d. *Petroleum*: Steady; *American* oil is worth 5¾d. to 6d., *Water white* 6½d. to 7d., and *Russian* 5⅝d. to 5⅞d. *Petroleum spirit*: *Ordinary*, 8½d. to 8¾d.; *Deodorised*, 8¾d. to 9d.

OPIUM.—*Turkey* is steady at the following rates:—Best selected, 11s. 6d. to 11s. 9d.; seconds ditto, 10s. 9d.; druggists', 7s. 6d. to 9s., according to quality. *Persian*: Very firm, and stocks are very low. Finest selected is worth 12s. 9d. to 13s.

ORANGE PEEL—Asolutely no enquiries to-day. Thin cut *Maltese* peel was bought in at 9d.; quarters at 4d., and coarse-cut at 4d.

ORRIS ROOT—Rather easier. *Florentine* root can now be bought at 71s. 9d. for good sorts, with best selected at 76s. *c.i.f.* To-day 8 bags of yellowish sorts were bought in at 72s., and 10 parcels of powder at 100s.

PERU BALSAM.—Good genuine balsam is worth 9s. 3d. to 9s. 6d. To-day 3 cases were bought in at 10s.

QUININE SULPHATE.—If anything this is a trifle easier, but there is no business of any consequence passing. There have been some small sales of *B & S* and *HB* brands at 1s. 0⅜d. to 1s. 0½d. The landings during June were *nil*, and the deliveries 68,912 ozs. making the stock on June 30 2,263,248 ozs. against 3,099,552 ozs. last year.

RHUBARB.—Dull of sale. A few bales of medium round *Shenshi* sold at 11d. to 1s. 2d., but the remainder was all bought in.

SAFFRON.—Hardly so firm. Super extra *Valencia* can now be bought at 23s. per lb.

SARSAPARILLA —*Honduras* was bought in at 1s. 3d. *Jamaica* sold freely at 1s. 3d. to 1s. 4d. showing full prices. *Guayaquil* sold at 8d. to 9d. *Lima* sold at 9d. to 1s.

SENEGA ROOT.—Dull of sale. Thirteen bales of fair root were bought were bought in at 1s. 3d. to 1s. 6d.

SENNA.—Some very fine lots of *Tinnevelly* senna were shown to-day, which realised good prices. The prices paid were as follows:—*Tinnevelly*: Medium to bold good leaves of bright colour, 5d. to 6d¼.; yellowish and dull brown to dark, 1¾d. to 1½. *Pods* sold at 1d. *Alexandrian*: All bought in at ½d. for good bright, down to 6d. for broken ditto.

SHELLAC.—The market has remained very quiet, and small sales only have been made. The auctions on the 9th inst. passed off very quietly. *Second orange* was in small supply only, and was all bought in at 125s. to 126s. for fair reddish *TN*. Blocky *A. C. Garnet* was bought in at 102s. A few cases of hard block *Button* sold at 107s. to 115s.

TOLU BALSAM.—None was sold to-day, 17 cases being bought in at 1s. 8d. to 1s. 9d. The current price is about 1s. 7d. per lb.

WAX (BEES).—*Jamaica* met with a good demand at steady rates, selling from £7 15s. to £8 5s. *Australian* sold at £7 2s. 6d. to £7 5s. *Madagascar* at £7, and bleached *East Indian* at £6 10.

LIVERPOOL MARKET REPORT.

(From our Special Correspondent.)

JULY 10, 1895.

DRUGS.

KOLA NUTS.—Small parcels of dried have changed hands at 8½d. lb.

QUILLAYA BARK.—Some sales have been made at £12 per ton.

GUM ARABIC.—*Soudan* sorts in small demand at late rates.

CANARY SEED.—The market for *Turkish* is steadier, and considerable business has been done on the spot at 40s. per 464 lbs. fair average quality.

CASTOR OIL.—Quotations remain as last week; 2 1/16d. to 2 3/32d. good seconds *Calcutta*; 2 1/32d. to 2 1/16d. first pressure *French*; *Madras*, 2d. per lb. on the spot. Demand quiet.

CHILLIES.—Seventy-five bags *Sierra Leone* have been reported at 37s. 6d. per cwt.

CUTCH.—No business done, holders very steady.

GAMBIER.—Market still firm. A little done on the spot at 21s. 9d. to 22s. 6d., or in arrival parcels at 20s. 3d. to 21s. per cwt., according to position.

LINSEED.—Dull on the spot. *River Plate*, 35s.; *Calcutta* (4 per cent.), 39s. 3d. per 416 lbs.

OILS AND CHEMICALS.

PALM OIL.—Prices in buyer's favour. Market dull, no sales either in spot or arrival parcels reported.

OLIVE OIL.—In fair request for store lots at full prices.

LINSEED OIL.—Liverpool makers' in export casks going slowly at firm prices, 22s. 6d. to 23s. per cwt.

COTTON-SEED OIL—Still very quiet. Liverpool *refined*, export barrels, quoted at 18s. to 18s. 6d. per cwt. *American* at 18s. per cwt.

TURPENTINE.—*American*, 21s. 6d. to 21s. 7½d. per cwt. At present rather quieter in tone.

PETROLEUM.—No change, remaining at late rates. *Russian*, 6d. per gallon. *American*, from 6¼d. to 8½d., according to quality.

POTASHES, 22s. 6d. per cwt.

PEARL ASH, 42s. 6d. per cwt., both in slight demand.

New Books and New Editions.

[*Publishers are invited to forward full particulars of new publications, including price.*]

A TEXT-BOOK OF ZOO-GEOGRAPHY. BY F. E. BEDDARD. Post 8vo, pp. 252. Price 6*s.* (Cambridge Natural Science Manuals.) (Cambridge Warehouse, Cambridge).

THE CAUSES AND TREATMENT OF LATERAL CURVATURE OF THE SPINE. BY R. BARWELL. Fifth edition. Carefully revised, with numerous illustrations. Post 8vo, pp. 220. Price 6*s.* (Macmillan and Co., London.)

A TEXT-BOOK OF PHYSIOLOGY. BY M. FOSTER. With Illustrations. Sixth edition. Part 2, comprising Book 2, The Tissues of Chemical Action, with their respective Mechanisms: Nutrition. 8vo, pp. 524. Price 10*s.* 6*d.* (Macmillan and Co., London.)

Exchange.

[*Notices of books, apparatus, etc., for exchange, of reasonable length, are inserted free in this column, if they do not partake of the nature of ordinary advertisements. The notices should be written on post-cards, addressed "Editorial Department, 17, Bloomsbury Square, W.C."*]

WANTED.

Literature.

'Pharmaceutical Journals' of July 2, 9, 16, 23, 30; August 6, 13; September, 3; October 15, 22, 1892; February 25; March 11, 18, 1893.—Mitre Chemical Works, Cordova Road, Grove Road, Mile End.

Miscellaneous.

Chemical Balance, short beam, with rider, complete. State price.—Amos, 30, Stanton Street, Newcastle-on-Tyne.

Sponge Case; ½ plate camera, complete; lowest cash price.—M., 7, Broadway, West Norwood.

OFFERED.

Miscellaneous.

Nine 1s. tins of Allen and Hanbury's Chloride of Ammonium Pastilles. What offers in cash or Zoological Literature?—Fielding, Heath Pharmacy, Clover Hill, Halifax.

Microscope.—Collins' Histological Microscope, with coarse and fine adjustments, 1 inch and ¼ inch objectives, live box, polariscope, Beale's neutral tint glass, in case, £5.—J. A., 5, Pond Street, N. W.

Raglan Roadster Bicycle, Welch-Dunlop tyres (unpunctured), Grose gear-case, owner giving up riding; almost new machine. With all accessories, £10 10s. Seen by appointment, or between 1 p.m. and 6 p.m.—Western Dispensary, Rochester Row, Westminster.

Literature.

Exchange weekly *Pharmaceutical Journal* for some similar publication, *Chemist and Druggist* excepted.—A. G. Gorton, Jersey Villa, Grange Park Road, Leyton, Essex.

Twenty-two vols. 'Year-Book of Pharmacy' (1872 to 1893), and consolidated index to 1885. Quite clean and sound, £5.—J. S. B., 40, Loraine Road, N.

Attfield's 'Chemistry,' 9th edit.; offers. Martindale's 'Extra Pharmacopœia,' 7th edit.; offers. Squire's 'Companion,' 15th edit.; offers.—Chemist, 5, Pond Street, London, N.W.

Photographic Apparatus.

Beck's Frena Camera, lantern-plate size, in leather case, Beck's rapid rectilinear lens, cost £5 5s. Price £3 15s.—J. A., 5, Pond Street, N.W.

Half-plate camera by Watson, with excellent lens by Shew, stand, and three dark slides. Cost £13. Price £5 10s.—J. A., 5, Pond Street, N.W.

THE DIFFICULTY of making an adjustable book-reading cover, remarks the *Academy*, seems to have been solved by Mr. Edward W. Hanscomb, in his Grosvenor book cover. The invention consists of a neatly made cover with a very simple but ingenious elastic arrangement at each end by which the cover is held fast to the book at any desired point along the sides, the elastic extending in such a manner that volumes of any ordinary size, even smaller or larger than the cover itself, can be placed in it and receive perfect protection whilst being read or carried about. For use in small circulating libraries, as well as for the general public, the cover will prove useful.

Company Business.

LEVINSTEIN, LIMITED.—Registered on June 26 by Grundy, Kershaw and Co., 4, New Court, Lincoln's Inn, W.C., with a capital of £90,000 in shares of £10 each. Objects: To acquire all or any part of the business of I. Levinstein and Co., Limited, to enter into several agreements for such acquisition, and to carry on business as manufacturers and producers of and dealers in every description of chemicals, drugs, colours, dye stuffs, pharmaceutical preparations and other goods, both wholesale and retail.

WRIGLEY AND CO., LIMITED.—Registered by Jordan and Sons, 120, Chancery Lane, W.C., with a capital of £1000 in £1 shares. Objects: To carry on the businesses of wholesale and retail chemists and druggists, drysalters, scientific instrument and patent medicine manufacturers, etc., in all or any of their respective branches. Registered without articles of association. Registered office: 101, Queen Street, Morley, Yorkshire.

HARLEQUIN SOAP SYNDICATE, LIMITED.—Registered on June 26 by Finney, Thomas and Co., 33, Chancery Lane, W.C., with a capital of £10,000 in £1 shares. Objects: To carry on the businesses of soap manufacturers, chemists and druggists, manufacturers of and dealers in medicinal, chemical, and toilet articles, wine merchants, grocers, etc., in all their respective branches.

W. J. HOLMAN AND CO., LIMITED.—This company was registered on July 2 by King, Wigg, and Co., 11, Queen Victoria Street, E.C., with a capital of £250 in £1 shares. Object: To acquire and carry on the business of a chemist and druggist, lately carried on by S. T. Mill, at Higher Market Square, Holdsworthy, Devon. The regulations of Table A mainly apply.

NATIONAL ASSOCIATION OF MEDICAL HERBALISTS OF GREAT BRITAIN, LIMITED.—Registered on June 29 by A. M. Wilson, 54, Bank Street, Sheffield, with no capital, but having a membership declared not to exceed 500, each being liable for £5 in the event of winding up. Objects: To promote and encourage the study and knowledge of the vegetable kingdom in its application to public health, agriculture, and technical industry; for that purpose to give prizes and other rewards and distinctions; to adopt such means as may be necessary for the diffusion of a knowledge of the vegetable kingdom by lectures, classes, publications, and other lawful means; to support and protect the character, status, and interest of medical herbalists; to promote honourable practice; to repress malpractices, and to decide all questions of professional usage or courtesy between and amongst medical herbalists, to consider all questions affecting the interests of medical herbalists, and to procure changes of law affecting them. Registered office, 132, Sheffield Road, Barnsley.

SURGEON-DENTISTS' ASSOCIATION, LIMITED.—Registered, with a capital of £1000 in £1 shares, by H. Wingfield, 13, Waterloo Place, London, S.W. Object: To promote the adoption and practice of the best methods of dentistry, whether English or foreign. Registered office: 19, King's Road, Chelsea, S.W.

BOWLING MATCH.—Glasgow Apothecaries Company (Driver, D. C. Honston) *v.* Partick Chemists (Driver, J. McNicol).—The annual encounter between above rinks came off on Whitevale Green, Dennistown, on the evening of Thursday, July 4, the result, after a pleasant game, being in favour of the Partick players by 34 shots to 15.

Diary of the Week.

[*Notices for insertion under this heading should reach the Editor on or before Wednesday.*]

MONDAY, JULY 15.

Edinburgh Chemists', Assistants', and Apprentices' Association, at 8.30 p.m.

Summer Meeting to be held at 36, York Place, Edinburgh.

WEDNESDAY, JULY 17.

Edinburgh Chemists', Assistants,' and Apprentices' Association.

Botanical Excursion to Inveresk. Train leaves Waverley Station at 8.15 p.m.

Trade Marks Applied For.

[From the *Trade Marks Journal.*]

No. 186,955.—PILLS for human use.—The Giant Oxie Company, 20, Willow Street, Augusta, Maine, U.S.A., April 9, 1895. Word, "Oxien."

No. 187,166.—OINTMENT for human use. W. S. Brothers, 44, Wakefield Road, Dewsbury, May 7, 1895. Word, "Silall."

No. 184,230.—CHEMICAL SUBSTANCES prepared for use in medicine and pharmacy.—John Garwood Everett, 29, High Street, Windsor, Berks., December 12, 1894. Word, "Khootolle."

No. 187,249.—MEDICATED WINES.—Hertz and Collingwood, 4, Sussex Place, Leadenhall Street, London, April 26, 1895. Word, "Hereczona."

No. 187,470.—A MEDICINE for external human use.—John Bennett Martin, Market Place, Helston, May 7, 1895. Word, "Trepol."

No. 187,802.—MEDICATED LOZENGES and compressed drugs, all being for human use.—Samuel Bergheim, 62, Gray's Inn Road, London, W.C., May 23, 1895. Word, "Zablone."

No. 185,834.—A VAPORISER OR FUMIGATOR, being an apparatus (not medicated), for hygienic purposes.—Breidenbach and Co., 48, Greek Street, Soho Square, London, W., February 23, 1895. Word, "Glow-worm."

Late Advertisements.

HOLBORN UNION.

DISPENSER wanted for the Holborn Union Infirmary, Archway Rd., Upper Holloway, N. Age not to exceed 40 years. Salary £70 per annum. The person appointed must be qualified in accordance with the Orders of the Local Government Board, particulars of which can be obtained on application. He will be required to attend at the above Infirmary for the purpose of Dispensing medicines from 9 a.m. till 1 p.m. daily (including Sundays). Forms of application, which must be returned to me not later than Tuesday, the 23rd instant, will be sent on receipt of a stamped addressed envelope (foolscap size).

Canvassing the Guardians, either directly or indirectly, will be deemed a disqualification.

Candidates will have notice to attend when required.

By Order,
HARRY O. HILL,
Clerk to the Guardians.

Clerk's Offices, Clerkenwell Road,
July 9th, 1895.

WANTED, early in September, a qualified general ASSISTANT. Age 25 or 26. Accustomed to good-class retail and dispensing, to work with the principal. In-door. Apply, stating age, height, and salary required, to GAMBLE & Co., 4, Edwardes Terr., Kensington Rd., London, W. (3 Assistants in 17 years).

SUPPLEMENT

TO THE

PHARMACEUTICAL JOURNAL.

Contents of Supplement.

Photography for Chemists i
Answers to Photographic Queries ii
Partnerships Dissolved ii
Trade Notes ii
Market Report iii
Personal Notes iv
Exchange iv

PHOTOGRAPHY FOR CHEMISTS.

HOW TO TAKE A PHOTOGRAPH.

When a man gets hold of a camera for the first time he is very much like a child with a new toy, and nothing will content him till he has tried it, but this is rather a mistake. The first thing to do is to learn all the parts of the camera and their various uses.

The various parts of the camera are the baseboard, the lens front, the bellows, and the back. The baseboard is that part which bears the bush or screw hole to affix it to the tripod head. Sometimes the baseboard is perforated and a brass ring let in on which the whole camera may be turned, and to which the legs can be affixed; this is a saving of weight sometimes, as the brass weighs less than the wood which it replaces, in other cases, however, it does not decrease the weight at all.

When fixing the camera to the tripod head it should be so arranged that the lens is directly over one of the legs, so that when working the operator can stand between the other two legs, and thus manipulate the camera without any trouble; this is shown in Fig. 1. If the camera is arranged in this way, not the slightest diffi-

Fig. 1.

culty will be found in adjusting it to any position; for instance, supposing on examining the image on the ground glass you find that the horizon line is too high, by merely drawing the front leg a little towards you the horizon line is lowered, and *vice versâ*. Then, again, suppose that the horizon does not appear straight, one of the side legs can be stretched further out or drawn in without any trouble.

The position of the horizon line, as regards the base of the picture, that is the focussing screen, of course, may be altered also by raising or lowering the lens bearing front, a movement which is fitted to all good-class cameras, but this should not be used unless absolutely necessary, as it is an accepted axiom that the axis of the lens should always be in a line with the

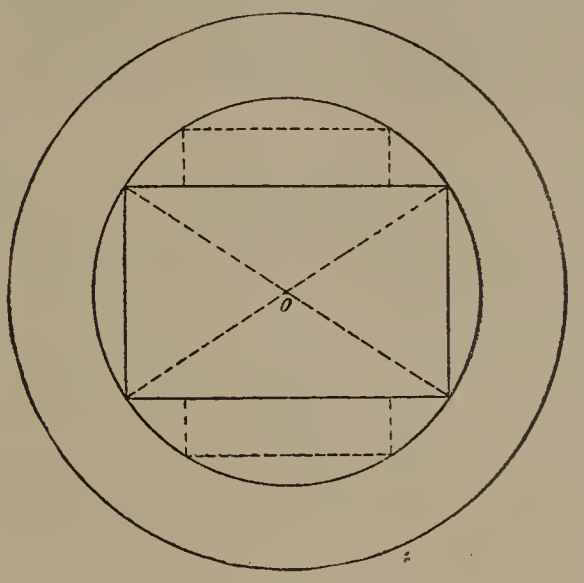


Fig. 2.

centre of the focussing screen. Most cameras are also fitted with what is called a cross front, that is, a sliding movement from right to left. This enables one to slightly alter the point of view; that is, by shifting the cross front to the right we include a little more subject on the right. This movement should also be sparingly used for the same reason as stated above, which is easily explicable from the following diagram. Let A, B, C, D represent our plate, it is obvious that whichever way the plate is turned it will be contained in the inner circle; now if we assume the outer circle to be the entire circle of light transmitted by the lens when it is central with centre O of the plate, it is obvious that shifting the lens either right or left must bring the plate nearer the margin of the field where the definition and the illumina-

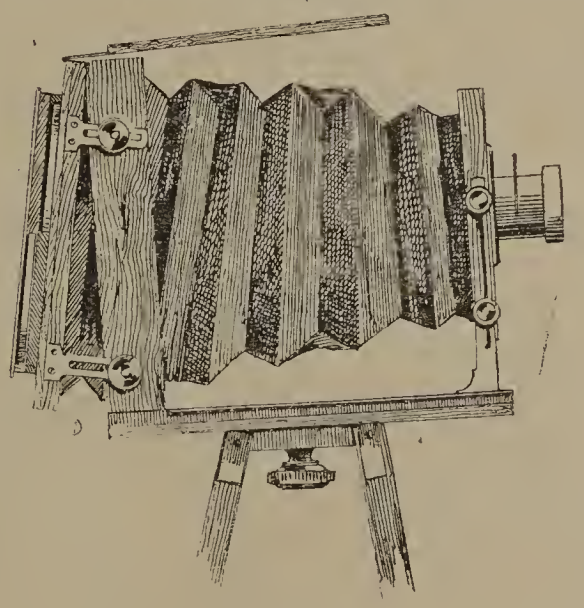


Fig. 3.

tion are poorer, and therefore the lens must be stopped down more.

The back of the camera is generally made what is called reversible, that is to say, it can be turned so that the longer base of the plate can be turned either horizontal or vertical. With the old form of camera it was necessary to unscrew the camera and turn it bodily over. Beside this movement the back should possess a swing, that is, it should be possible to swing the top or bottom in or out. The advantage of this is that when we wish to include a very high building it is necessary sometimes to tilt the camera, as shown in Fig. 3, and if the back were kept in the normal position the lines of the building would, instead of being parallel, be convergent, and the sides of the building will show as in Fig. 4.

There is now only one part of the apparatus we have not dealt with, and that is the dark slide. The dark slide is nothing more than a shallow box made generally to contain two sensitive plates back to back with a piece of black card or blackened metal in between to prevent the light striking through from one plate to the other. There are two principal forms, the solid in which the plates are put in from one side, the first film or sensitive side downwards, then the separating card, and then the second plate film up. The other form of slide is what is called the book form, which opens at one end on a hinge, the plates being laid film side down, the card being placed on one and then the slide closed again. It is of course almost unnecessary to repeat that the slides must be filled in the dark-room. After filling the slides it is always advisable to make sure that you have not placed the plates the wrong way round in the slide, that is with the glass side towards the lens, and to determine this it is just as well to draw up the sliding part, the so-called shutter, about an inch and just look at the plate; it will be found that if the right or film side is towards you it will look somewhat dull, and without the shine of glass.

We now come to the question of plates. For the beginner undoubtedly the slow plate, usually called the "ordinary," is the best; the "rapid" and "extra rapid" may be left till general experience is gained. It would be invidious to single out any particular make, but any one of the leading brands should be obtained and adhered to till a good result is obtained; chopping and changing from one plate to another, and from one developer to another, is ruination to successful work at first. As experience is gained every plate and every developer may be and should be tried in turn.

Having decided on the particular brand of plate and filled your dark slides, you will naturally look out for a subject, and it is almost ten chances to one that you choose a portrait. Well, if you want to mortally weary and offend anyone, by all means ask them to sit to you; by the time you are ready to expose, their temper and patience will be all gone. There is hardly any subject in photography which is so difficult as portraiture, especially portraiture at home, therefore do not attempt portraiture as your first subject.

Set your camera up at an open window at the back of the house, and learn thoroughly the result of every movement on the camera. When you are thoroughly conversant with every movement and the action of the diaphragms, then begin to look about for a subject. We will suppose for the occasion that you can see from your back windows the backs of a row of houses, then focus these as sharply as you can. Do

Fig. 4.

not look at the centre of the screen, but placing the head about 9 inches from the ground glass—the head and camera being covered with the

focussing cloth to keep out the glare of light—choose some point about midway between the centre and the margin of the screen, and with the full aperture of the lens, focus this, that is, rack the camera in or out till it appears sharp. When this is sharp examine the centre and the extreme margins; probably they will be indistinct. Then insert the stops in the lens, commencing with the largest, till satisfactory definition is obtained. Now cap the lens, turn back the focussing screen and insert the dark slide; cover it with the focussing cloth and withdraw the sliding shutter, and everything is ready for making the exposure.

The problem of correct exposure has not inaptly been dubbed the *pons asinorum* of photography. It is the most difficult thing to correctly estimate. There are numerous instruments in the market for correctly estimating exposure, and one of the most satisfactory is Watkin's exposure meter, sold by R. Field and Co., 142, Suffolk Street, Birmingham. The principle of this is the darkening of a specially prepared bromide paper to a standard tint, and then by the use of a series of sliding scales the correct exposure is found.

Exposure is determined by numerous factors, the principal of which are (*a*) the rapidity of the plate; (*b*) the actinic power of the light, (*c*) the aperture of the lens. We have already commented on the aperture of the lens. The rapidity of the plate is estimated unfortunately by various methods, but we will assume that we are going to use a slow landscape plate, such as an Ilford ordinary. The actinic power of the light varies with the latitude of the place, the state of the atmosphere, the time of day, etc. And as some guide we give Scott's table of the variation in actinic power of the light for the different months of the year and times of the day.

We will, however, proceed to practically test the exposure. Suppose we have set up the camera at a window with the lens stopped down to F. 45, using an ordinary plate, this time of the year, midday, with the sun shining. We will draw the sliding shutter of the dark slide just about one-fourth of the way out; we uncap the lens for a quarter of a second and replace it. Now we withdraw the shutter another fourth, and give another quarter of a second, and again cap the lens, and repeat this till the whole plate is exposed; we shall find on exposure that we have a negative with four strips of totally different character, and we shall soon be able to determine which is the correctly exposed strip. This gives us a guide to work from. A correctly-exposed negative should have little or no bare glass in it, even in the deepest shadows, and a gradually increasing deposit throughout all the half tones of the picture to a dense deposit in the sky, the highest light.

To all beginners we strongly recommend that they try and see a correctly exposed and developed negative, and in these days of photographic societies and papers it will not be difficult to find somebody who can show you such a negative.

The question how to develop must be left over to a future article.

ANSWERS TO PHOTOGRAPHIC QUERIES.

BLACK TONES ON GELATINO-CHLORIDE PAPER.—J. A. F., noticing Foto-Depôt's query (*vide* Supplement, July 6, p. v.), says that black tones on gelatino-chloride paper are obtainable more or less perfectly by gold and bicarbonate of soda bath. The printing should be fairly deep, and the bath weak in gold, the toning being slow, and stopped when the red has just disappeared, when the print is examined by transmitted light.

Trade Notes.

MESSRS. JEANCARD, GAZAN, and DOUMIN, distillers of essential oils, of Cannes, France, have opened a warehouse at 13, St. Mary Axe, London, E.C.

CAMWAL.—At an extraordinary general meeting of the Chemists' Aërated and Mineral Water Association, Limited, held on Tuesday last at 54, New Oxford Street, a resolution was passed, authorising the directors to largely increase the capital of the Association by the issue of fresh shares to double the number of those in existence when all the present shares are subdivided into £1 shares. The new shares are first to be offered to existing shareholders at par in the proportion of one new share for each £1 share, either original or subdivided, already held, and will be paid for as follows, namely, 5*s.* on application and 15*s.* on the 1st of October next, when the new certificates will be issued. They are not to participate in the profits of the present year. The list of applications for the issue of shares to present shareholders will be closed for town and country, on Tuesday, July 22, at mid-day.

Partnerships Dissolved.

[From the *London Gazette.*]

William James Best and John Alexander Milne, carrying on business under style of Best and Milne, as surgeons and apothecaries at Dover. Debts will be received and paid by W. J. Best.

Henry Pywell Daniell and Maximilian Lincoln Trechmann, carrying on business as physicians and surgeons at Anerley and South Norwood, under the style of Daniell and Trechmann.

Arthur Wightman Kempe and James William Jellett, carrying on business as medical practitioners at Exeter. Debts will be received and paid by A. W. Kempe.

Charles Edward Lloyd and Percy Foster Garnett, carrying on business at The Avenue, New Brighton, as manufacturers of table waters under style of Lloyd, Garnett and Co. Debts will be received and paid by C. E. Lloyd, who will continue the business under the same style.

Scott's table of Variation in Actinic Power of Light.

Hour of Day.		June.	May. July.	April. Aug.	March. Sept.	Feb. Oct	Jan. Nov.	Dec.
12		1	1	1¼	1½	2	3½	4
11	1	1	1	1¼	1½	2½	4	5
10	2	1	1	1¼	1¾	3	5	6
9	3	1	1¼	1½	2	4	12	16
8	4	1½	1½	2	3	10		
7	5	2	2½	3	6			
6	6	2½	3	6				
5	7	5	6					
4	8	12						

MARKET REPORT.

[*Specially compiled for the Pharmaceutical Journal.*]

Chemicals and Drugs.

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the pharmacist. It is important that this should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

THE CHEMICAL MARKET.

LONDON, JULY 18, 1895.

The most important features in the Chemical Market this week may be briefly summarised. Crystal carbolic acid is fractionally lower in price, but at the close there is rather more enquiry for export. Citric and tartaric acids are dull of sale, but the demand for cream of tartar has continued, and it has again advanced in price. The makers of chrysophanic acid have advanced their prices owing to the continued scarcity of the raw material.

ACID, CARBOLIC.—Very little alteration in price, and fractionally lower. But at the close makers report rather more enquiry. The current quotations are as follows:—*Crystals*, 34° to 35° C., 5¼d.; 39° to 40° C., 5¾d.; 39° to 40° C. (*detached crystals*) 6¾d. per lb. *Crude:* Unchanged. 60 per cent. is quoted at 1s. 6d., and 75 per cent. at 1s. 9d. per gallon. *Liquefied:* Quiet at 1s. per gallon for 95 per cent. *Cresylic*, 11d. per gallon.

ACID, CHRYSOPHANIC—Very firm, and manufacturers' prices have been advanced owing to the scarcity of good quality araroba. Present quotations are 9s. 3d. to 9s. 6d. per lb. according to quantity.

ACID, CITRIC.—No change has occurred in this article, in which a fair amount of business has been done at steady rates. Makers quote at 1s. 1¾d., but in second hands it offers at 1s. 1⅝d.

ACID, TARTARIC.—A quiet market at unchanged prices. The price asked by the *English* manufacturers still remains at 11¼d., whilst *foreign* brands of acid, both in *crystals* and *powder*, offer at 11d.

AMMONIA SALTS.—*Carbonate*: Dull of sale at 3½d. to 3¾d. *Liquor:* Unchanged at 3d. to 3¼d. *Sal ammoniac: First* quality still quotes at 39s., with *seconds* at 37s. *Sulphate:* Remains dull of sale at a slight decline. At the close grey 24 per cent. offers at £9 13s. 9d.

ASHES.—Canadian *potashes* are quiet at the reduction noted last week, the price being 37s. 6d.; best *pearl ashes* offer at 23s.

ARSENIC—Very firm and scarce. The present price of best *powdered* white is 15s. 6d. to 16s.

BLEACHING POWDER—In steady demand at fully firm rates. On the spot the price remains £7 10s. to £7 15s., whilst in Liverpool it is quoted at £7 to £7 10s. on rails, or *f.o.b.*, according to variety.

BORAX.—The position is unchanged from the reduction noted last week. Second-hand holders still offer *crystals* at 18s. to 18s. 3d., with *powder* at 18s. 6d. to 19s. The Syndicate prices are maintained at 20s. and 21s. respectively.

CREAM OF TARTAR.—Again a very brisk market at an advance in prices. For *German* brands of *powder* on the spot 73s. has been paid during the week, and 74s. is now asked. Holders of best white French *crystals* now require 71s.

MERCURIALS.—Has not been affected by the fall in quicksilver, and quotations remain as

follows for quantities up to 28 lbs. :—*Calomel*, 2s. 11d.; *corrosive sublimate*, 2s. 7d.; *red precipitate*, 3s. 2d.; *white* ditto, 3s. 2d.

Phosphorus.—Firm. *Sticks* quote at 2s. 1d. to 2s. 2d., and *wedges* at 2s.

Potash Salts.—*Bichromate*: Unchanged at 4⅝d. to 4¾d. *Chlorate*: Rather dull of sale on the spot at 4⅞d., and this price is still accepted in Liverpool. From New York a quiet market is reported, although holders show no anxiety to realise, owing to the cost of replacing stock. *English* makes are quoted at a parity of 5d. to 5¼d., with *Continental* at 4¾d. to 5d. *Permanganate*: Steady at 5½d. for small *crystals*; large *ditto* quote at 5⅝d. *Prussiate*: Quiet at 8¼d.

Quicksilver.—The market is firm, importers' prices being maintained at £7 5s. In second hands it offers at £7 4s. 6d.

Saltpetre.—Rather dull of sale. British *refined* offers at 22s. 6d. to 23s. on the spot. The Liverpool price is still 22s. 6d. to 23s. according to package.

Soda Compounds:—*Bicarbonate*. The price in London is £7 5s. in kegs. From Liverpool it is quoted at £6 15s. in kegs, and £6 5s. in casks. *Caustic* 70 per cent. is unchanged at £8, with 60 per cent. offering at £1 less. *Crystals*: 38s. *Hyposulphite*: Steady at £7 to £7 10s. per ton in Liverpool.

Tar Distillation Products. — *Benzole* is steady at 11d. per gallon for 50 per cent, with 90 per cent. at 1s. *Creosote*: Lower, at 1⅜d. per gallon. *Crude Naphtha*: 30 per cent. at 120° C., 5d. per gallon. *Toluol*: 1s. 1d. per gallon. *Pitch*: Firmer at 37s. 6d. per ton, *f.o.b.* *Tar*: Steady at 10s. per barrel of 40 gallons.

THE DRUG MARKET.

London, July 18, 1895.

There have been but few alterations since our last report. Caffeine is very firm at the close, after being easier earlier in the week: the other alkaloids are unaltered. Glycerine is tending higher. Ipecacuanha is very firm, and advanced prices have been paid for Carthagena root, which is scarce. Colocynth also has been selling at good rates for Turkey. There is little change in essential oils, except that cassia is very firm and scarce on the spot, and that H. G. Hotchkiss' peppermint oil is hardening in price. Spices generally are quiet with little alteration. Full details will be found below:—

Caffeine.—Earlier in the week the demand had slackened down considerably, and as little as 26s. 6d. to 27s. would in some instances have been accepted on the spot, but yesterday the market was again very firm, with holders asking 28s. on the spot. For delivery in October 23s. is still the nearest price. Reports from New York advise an easier market, owing to increased supplies; prices are at a parity of 34s. to 38s. per lb. according to quantity.

Camphor (Crude).—Steady, but little business has been done in this article since our last report. The nearest price for *Japan* camphor for delivery is now 162s. 6d. to 165s. *c.i.f.*, with *China* at 160s. to 162s. *c.i.f.*

Camphor (Refined).—There has been no change in the position of this article. As mentioned a fortnight ago, one of the *German* refiners still quotes *bells* and *flowers* at 1s. 8½d. in 10 cwt. lots, although, curiously, his forward price is 1s. 10d. *English* refiners maintain their quotations of *bells* and *flowers* at 1s. 9½d., with *squares* at 1s. 10½d., and proportionate rates.

Chamomiles.—New season's flowers are now offering. They are of very good quality, and the price asked is 70s. per cwt.

Cloves.—Privately business in *Zanzibar* is very dull at lower prices, sales having been made for delivery, August to October, at 2⅝d. At the sales on Wednesday the same price was accepted for medium quality.

Cocaine—Unchanged. The current quotation for 100-oz. lots in tins varies from 14s. 6d. to 15s., with smaller quantities at proportionate rates.

Coca Leaves.—A good business has been done privately in fair broken *Truxillo* leaves of somewhat yellow colour, at the steady rate of 10d. to 11d. There is now little offering.

Cochineal.— Dull of sale at late rates. Ordinary grey has been selling privately at 1s. 2½d. per lb.

Codeine — Unchanged. It is quoted at 10s. 3d. to 10s. 6d. per oz., according to quality and brand.

Colocynth.—There is rather more *Turkey* offering now, but prices are very high. During the week 2s. 4d. has been paid for odd cases of good bold apple recently arrived, but for larger quantities 2s. 3d. would be accepted. Fair *Spanish* is steady at the unchanged rate of 1s. for medium quality. From New York a firm market is reported at advanced prices, and in sympathy with the home market the best *Trieste* is quoted at a parity of 2s. to 2s. 0½d., with *Spanish* at 1s. 1d.

Copaiba.—Dull of sale. Good bright *Maranham* is worth 1s. 8d., with *Bahia* and *Para* at 1s. 7d. In New York the market is somewhat overstocked, with a tendency to lower prices. At present the holders maintain firm rates.

Coriander.—At the sales on Wednesday *East Indian* sold at low rates, a few bales of ordinary brown seed fetching 8s. 6d.

Galangal. — There has been an arrival recently of six bales of this root. When last sold—which was not very recently—the price was about 20s. per cwt.

Ginger.—At the sales on the 17th inst., *Cochin* sold quietly at previous rates, fair washed fetching 34s. to 34s. 6d., brownish, part cut, 46s., and bold cut at 65s. A few bags of *Japan* sold at 26s. *Jamaica* was dull of sale at a decline of 1s. to 2s. 6d., the prices realised being as follows:—Good bright, 70s. 6d. to 72s.; medium washed, 60s. to 65s; ordinary scraped, 54s. to 59s.; and common, 53s. to 54s.

Insect Flowers.—The new crop flowers will soon be on the market, when higher prices may be expected. At present the current quotations are as follows:—Open flowers 50s., half closed ditto, 78s., and closed cultivated ditto 105s. per cwt. in barrels.

Insect Powder.—Dearer, and the price may be expected to harden still further. Good quality *Dalmatian* powder from the grinding of cultivated flowers is quoted at 72s. 6d. per cwt.

Ipecacuanha.—Since the sales, *Carthagena* (*Columbian*) root has been selling at prices showing an advance of 2d. to 3d. per lb. For good root, first class damaged, 4s. 3d. has been paid, and holders now ask 4s. 4d. per lb. The stocks are but small of this variety, and we may expect higher prices. *Rio* (*Brazilian*) root has been selling at steady rates, 5s. 6d. being the price for sound annulated root.

Juniper Berries.—The new season's crop in bags offers at 6s. 9d. per cwt. *c.i.f.*, less 2½ per cent. discount.

Menthol—Remains dull of sale at low rates. Good white *crystals* offer at 13s. 6d. on the spot, and probably less than this would be accepted.

Morphine.—Quotations for *Hydrochlorate* are unchanged at 4s. per oz. in 1000 oz. lots, with smaller wholesale qualities at 4s. 2d. to 4s. 3d. *Crystals* 2d. per oz. more.

Oils (Essential).—*Star Anise* is still somewhat dull of sale, being quoted at 6s. 2d. to 6s. 3d. per lb. on the spot. *Cassia* very firm. A large amount of business has been done in this at prices up to 6d. per lb. dearer. There is now but little offering on the spot, and holders ask 5s. for oil testing 70 to 75 per cent. of cinnamic aldehyde, and 5s. 3d. for 75 to 80 per cent. oil. For near shipment there have been sales at 4s. 6d. per lb. *c.i.f.* *Citronella* is unchanged, but rather quiet on the spot. The price for oil in tins or bottles is 1s. 4d. per lb., with 1s. 4½d. asked oil in drums. Arrival terms are unchanged from 1s. 3d. to 1s. 3½d. *c.i.f.* respectively. *Clove*: English oil is dull of sale at 2s. 7d. per lb. *Lavender*: *English* oil continues to rise in price, and 120s. per lb. is now talked about for fine *Mitcham* oil. *Lemon grass* steady at 1⅝d. *Lemon*: The quotation for an oil of guaranteed purity, containing 7 per cent. of citral, is 3s. 5d. *f.o.b.* Messina. *Pennyroyal*: The price for new oil is 5s. 6d. per lb. *Peppermint*: *H. G. Hotchkiss'* oil is very firm; 10s. 3d. per lb. has been paid during the week, and 10s. 4½d. to 10s. 6d. is now asked. *Wayne County* is also very steady, and 8s. 6d. per lb. is the price. *Japan* oil, containing 40 per cent. of menthol, is unchanged at 7s. 6d., with *dementholised* quiet at 5s. 6d. on the spot. For the latter variety 5s. per lb. net has been paid during the week for arrival July-August, *c.i.f.* terms. The American market seems to be in an uncertain position, and *Western* oil is variously quoted at prices which show a parity of 6s. 8½d. to 7s. 1½d., with 7s. 9d. asked for *Wayne County* oil. Reports as to the American peppermint crop are very unfavourable, and in some States it has been an entire failure. Many growers of mint in Wayne County have given up the cultivation altogether, much difficulty having been met with in the shape of variable weather in the spring, and lack of rain when most wanted. *Caraway*: At present English oil is dull of sale at 5s. 9d. per lb., but the price will be considerably reduced when the new seed comes on the market.

Oils (Fixed) and Spirits. — *Castor*: *Italian* oil is unchanged and still offers at 30s. to 31s., *c.i.f.*, per cwt. for extra fine quality. *Calcutta*: On the spot this is somewhat dull of sale; from Liverpool a quiet market is reported, with sale of good *seconds* at 2 1/16d. per lb., whilst first pressure *Marseilles* oil offers at 2 1/32d. to 2 1/16d. per lb. From Calcutta a steady market is reported, but the export trade to Great Britain and the colonies has fallen off considerably. *Cotton*: Unchanged, but with a somewhat easier tendency. *Refined* oil still offers at £17 10s. to £18, according to brand and package. *Coco-nut*: *Ceylon* is unchanged at £22 10s., but *Cochin* is dull of sale at lower rates, the present quotation being £24. *Linseed*: Dull of sale at somewhat easier rates. On the spot £21 7s. 6d. to £21 10s. is the price for oil in barrels. *Olive*: Steady at unchanged rates. *Syrian* is quoted at £33, and *Spanish* at £37. *Rape*: Rather lower, and the current quotation for *refined* oil on the spot is £22 to £22 5s. *Turpentine*: Very quiet at still lower rates. *American* spirit now offers at 20s. 10½d. to 21s. *Petroleum*: Steady and unchanged. *American* oil is worth 5⅞d., *water white*, 6½d. to 7d., and *Russian*, 5⅝d. to 5 11/16d., *Petroleum Spirit*, *ordinary*, 8½d. to 8¾d., *deodorised* 8¾d. to 9d.

Oil (Olive).—The cultivation of the olive is steadily increasing in California, so much so, that the oil there produced will soon have to be reckoned with by importers of foreign oil. At present the demand greatly exceeds the supply, and, in addition, the olive crushers have to contend with substituted imported oils which are sold under false labels at lower rates than the genuine native oil. In spite of these difficulties, pure Californian oil at the present time realises higher prices in San Francisco than the best brands of foreign oil.

Oil (Cod-Liver).—There has been no change in the position of this article, which is quiet, but steady. *Isdahl's* brand of fine new *Lofoten* oil is quoted at 170s. *c.i.f.*, with *Finmarken* summer oil at 150s. *c.i.f.* *Newfoundland* oil is worth £20 10s. per ton.

OTTO OF ROSE.—Last year's stock is entirely exhausted, and the new season's product will be on the market in about a fortnight's time. Nothing definite is known about the price, but it is hardly likely there will be a reduction, at any rate.

PERU BALSAM.—Fairly steady on the spot. For good genuine balsam 9s. remains the price nominally, but this could probably be shaded.

QUININE SULPHATE.—There is really nothing doing in this. Nominally the quotations for *H. B.* and *B. & S.* vary from 1s. 0⅜d. to 1s. 0½d.

SAFFRON.—Steady. Super extra *Valencia* can still be bought at the unchanged rate of 23s. per lb.

SALICIN.—Unchanged. Manufacturers quote at 8s. per lb. in 1 cwt. lots, with 28 lbs. at 8s. 6d.

SENEGA ROOT.—This is worth about 1s. 3d. per lb. on the spot. From New York a brisk export trade is reported, with *Manitoba* root selling at a parity of 1s. 0½d., and *Minnesota* at 1s. 3d. Holders are now asking 1s. 4d. for the latter variety.

SHELLAC—Has been in quiet but fairly steady demand privately, although there have been no public sales. For *TN Orange*, 124s. has been paid. Futures are very slack, but no change in price has occurred.

SOY.—Fair *China* remains very dull of sale at, 1s. to 1s. 0½d.

SPICES (*Sundry*).—*Pimento* was dull of sale at the auctions on Wednesday. A few bales of medium quality sold at 2⅝d. *Mace*: Quiet. All w bought in: *Penang* at 2s. to 2s. 3d. for medium to good medium, and pickings at 1s. 7d. *Nutmegs*: *Penang* sold at 3s. 4d. down to 6½d. for damaged. *Cassia-lignea*: Quiet. Fair quality was bought in at 31s. to 32s., with broken at 18s. to 21s. *Chillies* and *Capsicums* were all bought in.

TOLU BALSAM.—Quiet on the spot, 1s. 7d. being the price for genuine balsam. The parcel, which was the subject of some discussion recently, offers at 1s. 5d. per lb. Although some doubt was shown, there is every reason to believe this to be genuine balsam.

TURMERIC—Remains dull of sale. on the spot *Bengal* is quoted at 10s. 6d. to 11s. and for arrival at 8s. 6d. *c.i.f. Madras* is worth 12s. on the spot. *Cochin*: Fair finger, 8s. 3d.; whole bulbs, 5s. 6d. to 7s. 6d.; split bulbs 6s. to 6s. 6d.

VANILLA.—In commenting upon the inferiority of Tahiti vanilla to that of Seychelles, Bourbon, and Mexico, a recent consular report states that the low prices obtainable for the former variety have caused the natives, of late years, to neglect the cultivation and curing of it. A more efficient method of curing the bean is, however, under consideration, and it is hoped that its adoption will increase the market value. At present the amount of vanilla exported from Tahiti amounts to only 15 tons.

WAX (JAPAN)—Is dull of sale, the nearest spot price being 25s. to 26s. for good *squares*.

Personal Notes.

HARRY SAMPSON WILLS, son of Mr. G. S. V. Wills, Principal of the Westminster College of Chemistry and Pharmacy, has been successful in passing the Matriculation Examination of London University, his name being placed in the first division.

MR. HENRY CHURCHILL, of Brighton, a former Bell Scholar and Pereira Medallist, is also to be congratulated on his son's name appearing in the first division of those who were successful at the same examination.

LIVERPOOL MARKET REPORT.

(From our Special Correspondent.)

JULY 16, 1895.

DRUGS, SEEDS, ETC.

LINSEED.—Very quiet, no business reported, though sellers would be willing to make concessions to buyers. HEMP SEED.—Three hundred and twenty-six bags Chilian at 30s. per 336 lbs. *ex* quay reported. CANARY SEED.—Market for Turkish firm at recent improvement, little offering, and that at 42s. 6d. per 464 lbs. KOLA NUTS.—Seven packages of dried nuts sold at 7d. per lb. GUM.—"Arabic sorts" steady at late rates, very little inquiry, and no sales to report.

OILS, SPIRITS, ETC.

CASTOR.—Small business done in spot parcels, Calcutta good seconds offered at 2$_{T\frac{1}{6}}$d., French first pressure 2 1/32d. to 2$_{T\frac{1}{6}}$d., and Madras at 2d. per lb. OLIVE.—Firm market. Candia £32 per ton. COTTONSEED.—Slow of sale at former values, Liverpool refined, in export barrels, 17s. 9d. to 18s. 3d.; American, 18s. per cwt. LINSEED.—Steadily held at 22s. 9d. to 23s. per cwt. for Liverpool make in export barrels. PALM OIL.—Very dull, 50 tons Lagos on the spot changed hands at £20 per ton. TALLOW.—Quiet, but no change in values, Australian, 22s. to 25s. 6d.; South American, 24s. 9d. to 25s. per cwt., according to quality. TURPENTINE.—In moderate demand, remaining steady at 22s. per cwt. PETROLEUM.—Holders steady at following quotations: Russian, 6d., and American refined oil, 6¼d. to 8½d. per gallon, according to quality.

CHEMICALS.

POTASHES only in retail demand at 22s. 6d. per cwt. PEARLASHES, 42s. 6d. per cwt. NITRATE OF SODA.—Spot quotations, 8s. 1½d. to 8s. 4½d. per cwt. Somewhat slow of sale. CREAM OF TARTAR.—Very little offering on the spot. First white steady at 72s. to 73s. per cwt. ACIDS.—*Tartaric*: English crystals, 11¼d. per lb. spot; 11½d. forward; foreign, 11d. per lb.; powder, 11d. per lb. Very firm. *Citric*: Quiet at 1s. 1¾d. to 1s. 2d. per lb. *Oxalic*: Firm at 3¾d. per lb. AMMONIUM SALTS.—*Chloride* steady at £39 per ton firsts, £37 seconds. *Sulphate*: Dull market, 24 per cent. good grey, £9 15s. *f.o.b.*, Liverpool or Hull. ALUM.—Ordinary in good demand, mostly for export at £4 15s. per ton for barrels and half tierces, and £4 12s. 6d. for tierces *f.o.b.* Ground in bags, £5 12s. 6d. to £5 15s. per ton *f.o.b.* Liverpool. Best quality, free from iron, £5 to £5 2s. 6d. per ton. ARSENIC—Firm. Powdered, £15 per ton; lump, £26 per ton. COPPERAS (GREEN).—Sales larger, going freely at 36s. Welsh; 37s. per ton Lancashire. COPPER SULPHATE.—Value on spot, £15 10s. *f.o.b.* Prices steady, business quiet. WHITE LEAD.—Very little doing, retail demand only, English white, £27 10s. per ton. BLEACHING POWDER.—Quiet at £7 5s. per ton net cash, *f.o.b.* Liverpool, packed in hardwood casks. POTASH SALTS.—*Chlorate* quiet, spot and forward value 4¾d. per lb. *Bichromate* remains steady at 4⅝d. per lb. net *f.o.b.* *Prussiate* selling at 8d. per lb., both English and foreign crystals. SODIUM SALTS.—*Ash* (*Caustic*): 48 to 58 per cent., £3 15s. to £5 per ton. *Ash* (*Carbonated*): 48 to 58 per cent., steady at £3 15s. to £5 per ton, large casks. *Carbonate* quiet at £2 10s. per ton *f.o.b.* *Bicarbonate* selling at £7 per ton. *Bichromate* scarce at 3¾d. per lb. net. *Caustic Soda:* Prices remain very steady, 60 per cent. £6 15s. to £7 per ton net, 70 per cent. £7 15s. to £8 net. BORAX.—Prices: Lump, 20s. per cwt.; powdered, 21s. Market quiet.

Exchange.

[*Notices of books, apparatus, etc., for exchange, of reasonable length, are inserted free in this column, if they do not partake of the nature of ordinary advertisements. The notices should be written on post-cards, addressed "Editorial Department, 17, Bloomsbury Square, W.C."*]

WANTED.

Literature.

Prantl and Vine's 'Botany,' Attfield's 'Chemistry,' 'British Pharmacopœia' (1885). Must be in fair condition; cheap.—C. P. Roberts, Llys Caradoc, Criccieth.

Maisch's 'Materia Medica,' Paris' 'Pharmacologia,' Wills' 'Materia Medica,' Cooley's 'Cyclopædia,' Walley's 'Veterinarian's Conspectus.'—J. Donald, High Street, Wigton, Cumberland.

OFFERED.

Shop Fittings.

Mahogany Circular Soda-Water Stand, triangular base, marble top, shelves with holes, good condition, 55*s.* Beut Case, 2 ft. 3 in., sloping shelf, mirror back, 32*s.* 6*d.* Ditto, 3 ft. 6 in., glass cracked, three velvet lined trays, 30*s.* Homœopathic Case, 10*s.* 6*d.* Two Handsome Specie Jars, 3 ft. 2 in., mahogany stand, £7.—Cocks, Pharmacist, Torquay.

Two 3-gallon Carboys, with cut glass stoppers, 17*s.* 6*d.* the pair.—Hazlitt, Chemist, Bury.

Photographic Apparatus.

Morley's Stereoscopic Camera, leather bellows, flap shutter, two spare fronts adaptable for single lens up to half plate, three double dark slides, leather case and well-made tripod, pair Grubb's B stereo lenses and a 5 by 4 doublet by Lawley, Waterhouse stops, nearly as new, five printing frames. Price, for cash, £6.—Cocks, Pharmacist, Torquay.

Miscellaneous.

Four dozeu 6*d.* Mason's Wine Essences, wrapper slightly soiled, what offers; and several patents; list sent.—C. M. Robinson, Chemist, Attleborough, Norfolk.

Cushion-tyred Safety Bicycle, hardly soiled. Cost £10 last August, sacrifice £5 10*s.*—Mawhood, 138, High Street, Bromley, Kent.

Literature.

For disposal, good copy Bartou and Castle's 'British Medical Botany,' with coloured figures of all the species; cloth bound, scarce, cheap.—Davies, "Chestnuts," Gordou Hill, Eufield.

Works on Materia Medica by Muter, Wills, Thorowgood, Scorsby-Jackson, and Squire's 'Companion'; on Chemisty by Attfield, Luff, and Roscoe, Jones' 'Practical Course,' Prantl and Vine's 'Botany,' and the B.P.—James Grant, Wigton, Carlisle.

Trade Marks Applied For.

[From the *Trade Marks Journal.*]

No. 186,087.—WASHES for plants and trees. E. A. White, Limited. Beltring Paddock Wood, Kent, March 8, 1895. Device: A leaf being washed with "Spimo."

No. 186,118.—A DISINFECTING BLEACHING FLUID.—Henry Pilkington and Co., Bridge Street, Church, Lancashire, March 11, 1895. Device: A bee-hive with wording on a label. The essential particular is the Bee-Hive device.

No. 185,183.—SALTS OF NATURAL MINERAL WATERS for human use medicinally, but not including medicated lozenges, and not including an goods of a like kind to medicated lozenges.—The Æsculap Bitter Water Company, Limited, 51, Farringdon Street, London, January 26, 1895. Device: A coat of arms and the word "Æsculap."

SUPPLEMENT

TO THE

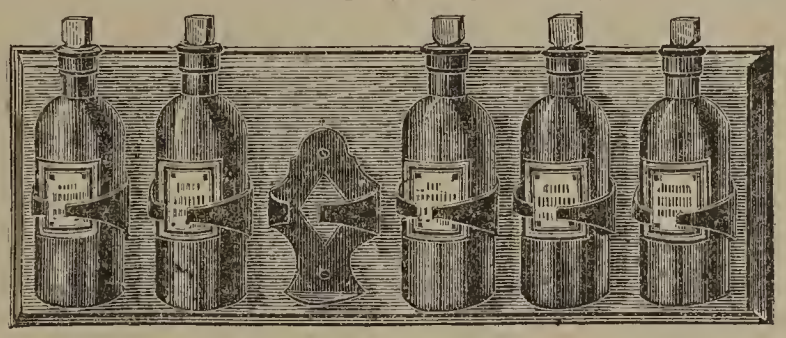
PHARMACEUTICAL JOURNAL.

Contents of Supplement.

Trade Notes i
Personal Notes i
Market Report ii
Exchange iv
Patent Office Business iv
Diary of the Week iv

Trade Notes.

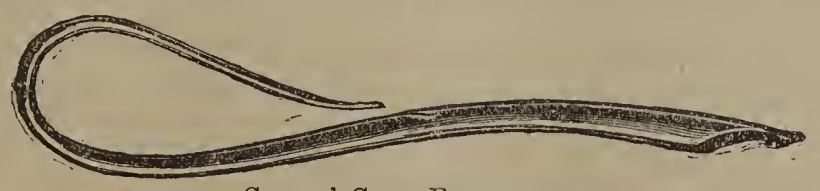
MESSRS. D. BUTCHER and SON, Blackheath, London, S.E., have hit upon an excellent idea in devising the "Primus" Bottle Clip. This is made of stout sheet steel, and holds bottles of all sizes, from 4 oz. to 20 oz. It replaces shelves with great advantage, is easily fixed to any wall by means of nails or screws, and will be found a great convenience for the support of bottles in all cases. For the dark-room it is indispensable, preventing a bottle being knocked over in the dark, but it is also especially useful on board ship, or in shops or offices where space is limited. Bottles can be removed and replaced with the greatest ease, the clip having sufficient spring to receive the bottle comfortably. In putting the bottle up the bottom of same should be placed on the foot first and then pressed between the springs. Price 1*s.* 6*d.* per set of three, packed in neat box. The "Primus" Bottle Rack consists of a neat, well-made substantial board, varnished and moulded on the edges, with six "Primus" Bottle Clips



"PRIMUS" BOTTLE CLIPS.

attached, ready for fixing to any wall. Price 4*s.*, complete in card box. The same firm supplies the "Primus" Indestructible Labels for reagents. They are not affected by water or acids, and are sold in sets of fifty, contained in neat tin boxes, at 1*s* per set.

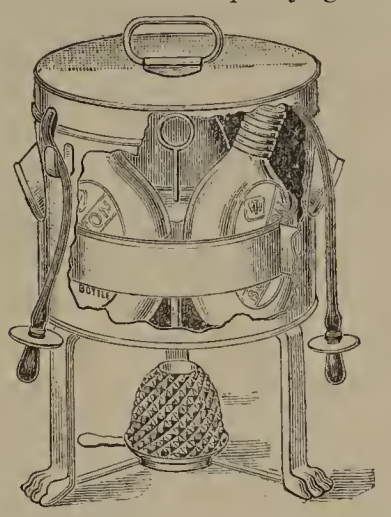
MR. FRED COATES, chemist and druggist, New Barford, Nottingham, has registered a useful and portable little Cork Extractor, which instantly and perfectly removes corks from



COATES' CORK EXTRACTOR.

bottles and bungs from jars. Chemists will appreciate it when they have to extract a cork cut off close to the bottle, dispensers will find it indispensable, and it is certainly about the handiest little tool for these purposes one can possibly possess. The extractors are stocked by all druggists' sundriesmen, and are retailed at 9*d.* and 6*d.* each, according as they are plated or not.

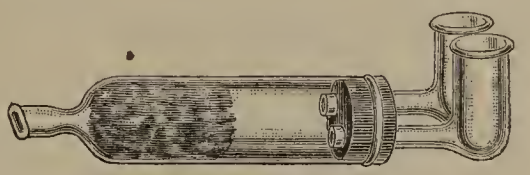
MR. WILLIAM TOOGOOD, Heddon Street, Regent Street, W., is sole wholesale agent for Reid's Infant's Food Warmer (patent No. 25,268). The chief advantages of using this are that disturbed nights are reduced to a minimum, and chills prevented; being always ready, the child is not kept crying for food;



REID'S FOOD WARMER.

no warming-up or pouring is required; it is a thoroughly practical apparatus, and cannot get out of order; and finally, being a complete outfit in itself, it is by far the cheapest Food Warmer in the market. It is sold at 7*s.* 6*d.* complete.

MR. TOOGOOD also sends a specimen of Stainer's Chloride of Ammonium Inhaling Pipe (registered No. 250,397), of which he is the sole manufacturer. The instrument, whilst perfectly effective, is exceedingly simple in construction. It consists of a glass cylinder about



STAINER'S INHALING PIPE.

4 inches long, with a mouthpiece at one end and two bowls at the other, the stems of which pass through a rubber cork. When in use it is held in the hand as an ordinary pipe. A sponge inside the apparatus is wetted so as to fit closely, 2 drops of ammonia (½ B.P. strength) are dropped upon absorbent material in one bowl, and 2 drops of B.P. hydrochloric acid in the other. The vapour is then inhaled by the mouthpiece and exhaled by the nostrils. Packed in a box containing a bottle each of acid and ammonia, and instructions for use, the inhaling pipe is retailed at 3*s.*

CURANILLO, LIMITED (late Norton and Co.), have removed to larger and more convenient premises at 26, Clerkenwell Road, E.C., in consequence of increased business.

Personal Notes.

MR. HENRY GARNETT, pharmaceutical chemist, was married on July 17, to Miss Alice Hitchings.

DR. M. ARMAND RUFFER, Director of the British Institute of Preventive Medicine, has now recovered from the attack of diphtheria, which was incurred whilst experimenting on the antitoxic treatment of that disease.

MR. CHARLES MANN LUXMOORE, pharmaceutical chemist, has passed the examination for the degree of D.Sc. (Chemistry) of the University of London. Mr. Luxmoore has for some time past been working in the Pharmaceutical Society's Research Laboratory.

MR. CLEMENT GUEST, youngest son of the late John Caldecott, of Chester, was married on the 16th inst. at St. Paul's, Onslow Square, by the Rev. Alfred Caldecott, M.A., to Frances Eleanor, only daughter of the late Samuel Scott, of Whitelands, Chelsea.

PRIVATE C. E. SAUNDERS, 3rd Middlesex R.V., eldest son of Mr. Chas. Saunders, chemist, Highgate, secured the 140th place in the Three Hundred in the competition for the Queen's Prize at Bisley last week. In the second stage he shot very steadily for a place in the Hundred, but failed to repeat the success that attended his efforts in 1893.

MR. R. CLAY SUDLOW, the well-known manager of Messrs. Burroughs, Wellcome and Co., entertained the heads of departments and other members of the Snow Hill Staff at dinner at the Holborn Restaurant on Thursday, July 18. Dinner was fixed at the early hour of 5.30, in order to allow the company ample time to inspect the Indian Exhibition. After the toast of Mr. Sudlow's health had been briefly proposed by Mr. Kirby and enthusiastically drunk, and a very excellent little dinner duly concluded, the party adjourned to Earl's Court and thoroughly enjoyed itself in the beautiful gardens and stately and artistic courts and colonnades of Kiralfy's latest marvel. The guests, eleven in number were, Messrs. Kirby (Assistant Manager), Astill, Davies, Dowdeswell, Griffiths, Linstead, Prevost, Reichert, Smith, Stevens, and Wood.

MR. ALEXANDER FRASER, Chemist, Edinburgh, was married to Jessie, eldest daughter of Mr. Wm. Drummond, 6, Arnot Hill Gardens, Falkirk, at Grahams Road United Presbyterian Church, Grahamstown, on the 22nd inst., by the Rev. Thomas Taylor, assisted by the Rev. Archd. Bell, Dean, Free Church, Edinburgh.

Partnership Dissolved.

MESSRS. CANDY AND ROBINS, chemists and druggists, Market Place, Wantage, inform us that the partnership carried on by them is now dissolved, and the business will be conducted by Mr. Henry Robins on his own behalf.

MARKET REPORT.

[*Specially compiled for the Pharmaceutical Journal.*]

Chemicals and Drugs.

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

THE CHEMICAL MARKET.

LONDON, JULY 25, 1895.

Since our last report there have been but few changes in the Chemical Market, and these may be briefly summarised. Crystal carbolic acid is fractionally lower, but other varieties are unchanged. Citric acid is practically unchanged, but is a trifle firmer in second hands. Chrysophanic acid is very firm and scarce at advanced rates. Tartaric acid is dull of sale. The most important change has been the continued demand for cream of tartar, the prices of which have been considerably advanced. Full details will be found below of the various articles of interest:—

ACID CARBOLIC.—A fair amount of business generally is reported, but quotations for *crystal* acid are a trifle lower. Present prices are as follows:—*Crystals*, 34° to 35° C., 5d.; 39° to 40° C., 5⅝d.; 39° to 40° C. (*detached crystals*), 6⅝d. per lb. *Crude*: Unchanged, 60 per cent. still offers at 1s. 6d., with 75 per cent. at 1s. 9d. per gallon. *Liquefied*: Quiet at 1s. per gallon for 95 per cent. *Cresylic*, 11d. per gallon.

ACID CHRYSOPHANIC.— Very firm, and makers' quotations have been further advanced. The price now asked is 15s. per lb.

ACID CITRIC.—Fairly steady, but the amount of business doue has not been very extensive. Maker's prices are unchanged at 1s. 1¾d., but in second hand it is somewhat firmer, and 1s. 1½d. is now asked.

ACID TARTARIC.—No change has occurred in this, and the demand has been fairly good, at steady rates: *English* manufacturers still ask 11¼d. per lb., whilst *foreign* brands of acid, both in *crystal* and *powder*, offer at 11d.

AMMONIA SALTS.—*Carbonate*: The price is maintained at 3½d. to 3¾d. *Liquor*: Unchanged at 3d. to 3¼d. *Sal Ammoniac*: The *best* quality still offers at 39s., with *seconds ditto*, at 37s. *Sulphate*: Remains dull of sale at a further small decline in value. Grey, 24 per cent. now offers at £9 12s. 6d.

ASHES.—Canadian *Potashes* are unchanged at the late rates of 37s. 6d., whilst best *pearlashes* offer at 23s.

ARSENIC.—Supplies are still small, and holders continue to ask 15s. 6d. to 16s. for best white *powder*.

BLEACHING POWDER—Unchanged with a good demand. On the spot £7 10s. to £7 15s. is asked, whilst in Liverpool it is variously quoted at £7 to £7 10s. on rails or *f.o.b.*, according to variety.

BORAX.—There is no change to record. In second hands it offers at 18s. to 18s. 3d. for *crystals*, with *powder* at 18s. 6d. to 19s. Syndicate prices are maintained at 20s. and 21s. respectively.

CREAM OF TARTAR.—This has been a very firm market since our last report, and a considerable advance has occurred. For *German* brands of *powder*, 75s. is now asked, showing an advance of fully 1s. Holders of best white *French crystals* ask 73s.

COPPER SULPHATE—Firmer. Holders now ask £16 for the best makes, with other brands at £15.

POTASH SALTS.—*Bichromate:* Unchanged at 4⅝d. to 4¾d. *Chlorate:* Quiet at 4⅞d. on the spot, whilst in Liverpool it is dull of sale at 4¾d. *Permanganate:* Unchanged at 54s. for small crystals; large *ditto* quote at 59s. *Prussiate:* Quiet at 8¼d. on the spot. In Liverpool 8d. is asked.

QUICKSILVER—Steady. Importers maintain the prices at £7 5s., aud in second hands it still offers at £7 4s. 6d.

SALTPETRE — Unchanged. British *refined* still offers at 22s. 6d. to 23s. 6d. on the spot. In Liverpool the price is 22s. 6d. in kegs, and 23s. in barrels.

SODA COMPOUNDS.—*Bicarbonate*: The price in London is £7 5s. in kegs. From Liverpool it is quoted at £6 15s. in kegs, and £6 5s. in casks. *Caustic*: 70 per cent. is unaltered at £8, with 60 per cent. offering at £1 less. *Crystals*, 38s. *Hyposulphite:* Dearer at £7 5s. to £7 10s. per ton in Liverpool. *Nitrate:* *Ordinary* quotes at £8 6s. 3d. on the spot, with *refined* at £8 7s. 6d.

TAR DISTILLATION PRODUCTS.—*Benzole*: 50 per cent. is unchanged at 11d., whilst 90 per cent. is 1d. lower, being offered at the same price. *Creosote*: Unchanged at 1⅛d. per gallon. *Toluol*: 1s. 1d. per gallon. *Crude naphtha*: 30 per cent. at 120° C., 5d. per gallon. *Pitch:* Dearer at 38s. per ton *f.o.b.* *Tar*: Steady at 10s. 6d. to 11s. per barrel, according to quality.

THE DRUG MARKET.

LONDON, JULY 25, 1895.

Business in the Drug Market duriug the last week can only be described as very slack, and at the sales to-day little inquiry was shown. Cape aloes sold freely at somewhat lower rates, whilst Socotrine are firmly held at steady rates. Ammoniacum and benzoin are very dull of sale, whilst only a few bales of cardamoms were offered. Cascarilla was iu large supply and sold freely at steady rates. Colocynth and copaiba are very firm. Rio ipecacuanha was in fair supply, and sold at fully steady rates, whilst Carthagena root is dearer. Beeswax was largely offered, and selling at fairly steady rates. There is little alteration in any of the essential oils or alkaloids. Full details will be found below:

ACACIA.—In moderate supply to-day, and the only parcel sold consisted of 9 cases of medium hard pale gum from Suez, which sold without reserve at 80s. Bold *Turkey* sorts were bought in at 57s. 6d., the price asked being 55s. and small ditto at 30s. A parcel of 33 cases of pale *Trieste* gum was bought in, prices ranging from £7 10s. down to 40s.

ACONITE.—No inquiries. A parcel of 10 bags of fair *Japan* root was bought in at 25s. The price is 22s. 6d.

ALOES—In moderate supply only. *Socotrine* was bought iu at 65s. to 75s. per cwt. for fair to good softish. A parcel of 20 boxes of good brown *Curaçao* was bought in at 40s. to 45s. *Cape* was in good demand, and 39 cases of newly imported aloes sold freely, but at somewhat lower rates, the prices realised being 23s. 6d. for good hard, 21s. 6d. to 22s. 6d. for slightly drossy and dull mixed, and 19s. 6d. for dull grades. A few cases of another parcel consisting of fine hard sold at 25s. *Zanzibar* aloes in skins were all bought in.

AMMONIACUM—Very dull of sale, and no business was done to-day, although a considerable amount was offered. Good blocky almonds were bought in at 35s.; seedy drop, 30s. to 32s. 6d.; very seedy gum, 24s. to 28s., with drossy grades at 19s.

ANISEED.—A considerable amount of *Russian* seed was offered to-day, but all was bought in at the rate of 27s. 6d. per cwt. Twenty-five bags of *Spanish*, from Alicante, were bought in at 25s. to 31s., but a parcel consisting of 16 bags from Naples sold freely at 23s. to 23s. 6d.

ANISEED (STAR).—A parcel of *Japan* seed was bought in at 30s., and the *Chinese* were withdrawn.

ANNATTO SEED.—Only 8 bags were offered. These were *Coconada* seed of good bright colour, and were bought in at 3½d. per lb.

ARECA NUTS.—No enquiries. Fair *Ceylon* were bought in at 13s.

ASAFŒTIDA.—Only 29 cases were offered, and did not elicit a bid.

BENZOIN.—Dull of sale. *Siam*: A case of fine loose almonds was bought in at £25, a bid of £18 being refused. Bold drop gum in block, part loose, was bought in at £18. *Sumatra*: The only lot sold consisted of 6 cases of good seconds, with bold almondy centres and slightly false packed sides, which sold for £8 5s. *Palembang*: A parcel of drossy "thirds" sold at 13s. Fair almondy seconds was bought in at 42s., aud fair almondy gum in tins at 40s.

BUCHU.—A few bales of somewhat yellowish *round* leaves, but good quality, sold at 2½d. The remainder were bought in at 3¼d. Dull *long* leaves were quite unsaleable, being all bought in at 7d.

CALUMBA.—Dull of sale. Good bold yellow root was bought in at 18s., smaller ditto at 16s. yellowish sorts at 15s., ordinary brown at 12s.

CAMPHOR (CRUDE).—Steady, but owing to the scarcity of offers, little business has resulted. At the close there are buyers of *Japan*, July to August shipment, at 165s. per cwt. At the drug sales to-day a parcel of 90 tubs of old *Japan* sold at 175s.

CAMPHOR (REFINED).—There is no change in the position of this article, and *English* and *French* refiners quote *bells* and *flowers* at 1s. 9½d. in 10 cwt. lots, with *squares* at 1s. 10½d. and proportionate rates.

CANADA BALSAM.—Two casks of fair quality were bought in at 1s. 5½d.

CANELLA ALBA.—This has not been shown very recently, and 18 bales offered to-day sold freely at 23s. to 26s. for good quality medium to bold quill.

CANNABIS INDICA.—No inquiries. Brownish stalky tops were bought in at 2d., and very dusty tops at 3d.

CANTHARIDES. — Fine bright unbroken *Sicilian* flies offer at a parity of 3s. per lb., *f.o.b.* Messina. At the sales to-day 4 casks of *Russian* were bought in at 2s. 6d., and 17 casks of fair quality *Chinese* flies at 1s. 2d.

CARDAMOMS.—In small supply only, and the only lot sold consisted of medium brownish *Ceylon-Mysore*, which fetched 1s. 6d. per lb.

CASCARA SAGRADA. — Dull of sale. Fair bark of good colour was bought in at 20s. The spot price is about 18s.

CASCARILLA.—In good supply, and in brisk demaud. A single bale of good bold silvery bark sold at 48s.; the remainder of this parcel, consisting of small bark, with some stalk, sold at 27s. Another parcel of 67 bales sold at prices ranging from 35s. 6d. down to 24s.

CASSIA FISTULA.—Nice bold pods from *Jamaica* sold at 14s., which shows a lower rate.

CANARY SEED.—At the sales on Weduesday, *Mogador* seed sold at 42s. per 464 lbs.

CINCHONA.—The monthly sales were held on the 23rd inst., when 1837 packages were offered, against 1711 at the preceding sale. Most of the bark consisted of Indian and Ceylon, and generally speaking, competition was fairly brisk, the prices realised showing fully last London sale rates. The average unit remains unchanged at ⅝d. per lb. The prices paid were as follows:—*Ceylon. Succirubra:* stem chips 1⅛d. to 1½d.; shavings, fair to good, 1⅝d. to 2⅞d.; common, ½d. to 1d. *Officinalis*: Chips and shaviugs, ordinary to fair, 1¼d. to 1⅞d.;

good, 2½d. to 2¾d. *Ledger*: Stem chips, 1⅝d to 2⅜d. *Indian. Red chips*, ¾d. to 1¾d.; fine quill, 5⅜d.; stout, part rencwed, 2¾d. *Officinalis*: 1¾d. to 2⅝d. All the *Java* was bought in. *South American* sold at 3⅝d. to 4⅝d. *African* sold at 1⅛d. to 2⅛d. At the drug sales to-day *Carthagena* bark was bought in at 8d. to 9d., and *Succirubra* at 1s. 6d.

CLOVES.—At the spice sales, a small amount only of *Zanzibar* was offered, ordinary dark sold at 2⅜d.; good bright pale were bought in at 3½d. For delivery, the market in Zanzibar is quiet, and prices are lower. Sales have been made at 2½d. down to 2⅞d. for arrival August to October.

COCAINE—Unchanged. The current quotation for 100-oz. lots in tins varies from 14s. 6d. to 15s., with smaller quantities at proportionate rates.

COCA LEAVES. — Sales privately of broken *Truxillo* leaves of fair greenish colour have been made at the steady rate of 11d.

COLOCYNTH.—*Turkey* is in small supply. To-day 3 cases of fair apple were bought in at 2s. 6d. per lb. The price asked is 2s. 3d. per lb.

COPAIBA.—Steady, but dull of sale. To-day 4 casks of good pale *Maranham* were bought in at 1s. 10d. per lb.

CORIANDER SEED.—*East Indian* seed is in large supply but dull of sale, all being bought in at 8s. 6d. A parcel of *Mogador* was bought in at 22s., with sweepings at 5s.

CROTON SEED. — Twenty-three bags were offered to-day, and met with a very good demand, all being sold at 30s. to 40s. according to quality.

CUBEBS.—Absolutely no inquiries, although largely offered to-day. The only lot sold consisted of a few bags of *Bombay* berries, which realised 30s. to 32s. 6d. Best quality *Singapore* berries were bought in at 55s., other grades at 45s. to 50s.

CUMIN SEED.—*Mogador* seed was bought in at 28s. to 30s.

CUTTLEFISH. — 20 bales of fair quality *Bombay* sold at 1¼d. per lb.

DILL SEED.—20 bags of *Bombay* seed were bought in at 14s. 6d.

DRAGONS BLOOD.—None was sold to-day. Good bright lump was bought in at £13, medium ditto at £9 to £10, down to £6 5s. for dark saucers.

ELEMI GUM—Freely offered, but meets with no enquiries. To-day fair to good pale gum was bought in at 27s. 6d. to 30s.

ERGOT OF RYE—Steady at low prices. To-day 15 bags of slightly weevily *Spanish*, which had been recently sifted, sold at 7½d. per lb.

FENNEL SEED.—*Turkish* seed was bought in at 25s. Twenty bags of fair bright *Bombay* seed sold at 16s. per cwt.

GALANGAL.—No enquiries. Six bales from Bombay were bought in at 15s.

GAMBOGE.—Slow of sale. Ordinary lump *Saigon* sold at £6, and drossy broken pipe at £7 15s. Fair broken pipe was bought in at £10 5s. to £10 10s.

GENTIAN.—Fifteen bales of fair root sold at the steady rate of 14s. 3d.

GLYCERINE.—Steady. *Schering* quotes finest quality double distilled, of 1·260 s.g., at 56s. per cwt.

GUAIACUM.—Eight cases of drossy pickings sold at 3¼d. Good gum of fair fracture was bought in at 1s. to 2s. 6d.

HONEY.—New *Jamaica* was in considerable supply, and sold at steady rates, good bright liquid fetching 25s., other qualities 21s. to 23s. 6d. *Chilian* was all bought in at 22s. to 32s., and *Californian* and *Australian* was all withdrawn.

INSECT POWDER.—Steady. Good quality *Dalmatain* powder from cultivated flower offers at 72s. per cwt.

INSECT FLOWERS.—Samples of the new crop are now being shown, and at prices which for open and half closed flowers show a considerable advance on the old rates. The quotations are as follows:—Open flowers, 56s.; half closed ditto, 86s. 6d; and closed cultivated ditto, 99s., *c.i.f.*, per cwt.

IPECACUANHA. — Privately *Carthagena* (Columbian) continues to advance in price, and 4s. 6d. has been paid for good quality. At the sales to-day it was bought in at 5s. per lb. *Rio* (Brazilian) root realised fully steady to slightly dearer prices. Good round annulated root fetching 5s. 5d. to 5s. 6d.; fair ditto 5s. 2d. to 5s. 4d.; damaged 5s. 1d, A parcel of good *Johore* root from Singapore was bought in at 7s.

JALAP—Steady. Eleven bales of good sound Vera Cruz root sold at 11d. per lb.

KINO.—Five cases of astringent gum in tears were bought in at 50s.

KAMALA.—Two cases were sold at 8½d. per lb.

KOLA.—Undried nuts sold at 6½d. *West Indian* dried nuts fetched 8d. to 11½d.

LIQUORICE.—In small supply. To-day 24 bales of unpicked root were bought in at 8s. per cwt.

LIME JUICE.—Three puncheons of *Jamaica* sold at 1s. 3d.

MENTHOL—Remains dull of sale at 13s. 6d. to 13s. 9d. on the spot for good white *crystals*. To-day 2 cases of *Japan* were bought in at 17s.

MYRRH GUM—Quite unsaleable. All was bought in to-day at the rate of 80s. for native picked gum, 55s. to 65s. for dull gum, and 25s. to 30s. for pickings.

NUX VOMICA.—The only lot sold to-day consisted of 16 bags of *Ceylon* nuts which fetched 4s. to 5s. per cwt.

OILS (ESSENTIAL).—Our correspondent at Messina, writing under date of July 20, reports as follows upon the produce of this district:—*Bergamot*: A considerable rise in value has taken place during the last week. Fine quality essence is extremely scarce, and the prospects for next season indicate higher value. *Sweet Orange*: The amount of essence offering is very small, but this has led to no advance of importance, as the demand is only slack. Still, it is not probable that the present low prices will be repeated next season. *Lemon*: Firm at the prevailing low prices. A much more hopeful tone exists on the market generally. *Lemon juice*: Stocks remain heavy, but holders are firm at prices now ruling, which are lower than have existed for some years.

OILS (Essential).— *Star Aniseed*— Remains dull of sale at 6s. 2d. to 6s. 3d. on the spot. *Cassia*: Very scarce on the spot. Holders ask 5s. 3d. for 70 to 75, and 5s. 6d. for 75 to 80 per cent. oil. *Cinnamon*: Bought in at 6d. *Cedarwood*: Bought in 1s. 1d. *Citronella*: The spot price is Is. 4d. per lb. For delivery it is quoted at 1s. 2d. to 1s. 3d. *c.i.f.* according to package. *Lemon Grass*: Dull of sale at 1⅝d. *Peppermint*: *H. G. Hotchkiss'* oil is very firm. To-day 6 cases sold at 11s. 1½d. *Cocking's* oil was bought in at 6s. 9d., the price being 6s. 3d. *Japan* oil showing 40 per cent. of menthol is steady at 7s. 6d., with *dementholised* at 5s. 6d. per lb. *Rose* bought in at 4d. to 4¾d. *Wintergreen* bought in at 6s. 3d. *Rosemary*: Finest *Dalmatian* oil is quoted at 146s. *c.i.f.* per cent.

OILS (FIXED) AND SPIRITS.—*Castor*: *Italian* is unchanged. Extra fine quality, tasteless oil, offers at 30s. 6d. *c.i.f.* per cwt. *Calcutta*: Reports advise a firm market, with prices tending higher. To-day 100 cases of No. 1 oil were bought in, the limit being 2⅜d. per lb. *Cotton*: Dearer, and there is a firmer tone generally in the market. *Refined* oil is now quoted at £17 15s. to £18s. 5s., according to brand and package. *Ceylon* is steady at £22 10s., and *Cochin* is somewhat firmer at £24 to £24 10s. *Linseed* has been declining in price, but at the close is firmer. On the spot £21 5s. to £21 7s. 6d. is the price for oil in barrels. *Olive*, unchanged. *Syrian* quotes at £33, and *Spanish* at £37. *Rape*: Firmer, and the spot quotation for *refined* oil is now £22 5s. to £22 10s. *Turpentine* has been a very weak market at a fall. At the close it is firmer, and 20s. 7½d. is the price for *American* spirit. *Petroleum*: Steady. American oil is worth 5⅞d. to 5⅛d. *Water white* 6½d. to 6¾d, and *Russian* 5⅝d. to 5¼d. per gallon.

OIL (COD LIVER).—There has been no change in the position of this article, but stocks of new oil are very low, and there is practically no *Finmarken* oil offering. At present *Isdahl* quotes fine new season's *Lofoten* oil at 170s., and *Finmarken* summer oil at 150s. per barrel of 25 gallons.

ORANGE PEEL.—No enquiries. Thin cut *Maltese* peel was bought in at 9d. to 10d., coarse dark ditto at 4d., and quarters at 4d.

ORRIS ROOT.—Steady at late rates. *Florentine* root offers at 71s. 9d. for good sorts, with best selected at 76s., *c.i.f.* To-day, 7 bags of good sorts were bought in at 70s. Dark untrimmed root was sold at 33s. to 35s. 6d.

PERU BALSAM.—Steady, but slow of sale. To-day, 2 cases of genuine balsam were bought in at 9s.

QUASSIA.—Thirty tons sold without reserve at 77s. 6d. to 82s. 6d.

QUINCE SEEDS.—A single bag sold at 8d. per lb.

QUININE SULPHATE—Remains quite neglected, any sales which have occurred having no importance. Nominally the quotations for *B & S* and *Brunswick* remains unchanged at 1s. per oz. At the drug sales to-day 1000 ozs. of *Whiffen's* brand were offered and bought in, the limit being 1s. 1d. per oz.

RHATANY.—Bought in at 4½d. to 8d.

RHUBARB.—Very slow of sale. To-day only a few cases were sold. Bold flat *Canton* sold at 1s. 3d., subject, and rough flat ditto at 7½d. Two cases of flat *Shenshi* sold without reserve at 1s. 4d., and a case of small trimmings at 10d.

SARSAPARILLA.—Jamaica sold freely at 1s. 2d. to 1s. 3d. per lb. *Guayaquil* sold at 8½d. to 9¼d. for damaged quality. *Honduras* was bought in at 1s. 1d. to 1s. 3d. *Mexican* was bought in at 4d.

SENEGA ROOT — Rather firmer. All the root offered to-day was bought in at 1s. 5d. to 1s. 6d. for good quality. The spot price is now 1s. 4d. per lb.

SENNA.—*Alexandrian* was all bought in. The ordinary grades of *Tinnevelly* sold freely at 1d. to 2½d. for dark to ordinary, and damaged at ½d. The better qualities were bought in at 2¼d. to 5½d. *Pods* sold at 2¼d.

SERPENTARY.—Five bales were bought in to-day at 1s. 6d., the price required being 1s. 4d.

SHELLAC.—Generally the market is firm, although only moderate sales have occurred. Privately *T. N. Orange* has been selling at 124s. to 126s. for medium to good fair, and *A. C. Garnet* at 105s. for fair free. At the sales on Wednesday, when supplies were but small, fine *Orange* was all bought in, but *TN* sorts sold at an advance of about 2s. *Garnet* was all bought in. *Button*: Ordinary *B L*, 1 sold at 120s.

SQUILLS.—None was sold in auction. Privately fair quality, slightly brown, sells at 2½d., and white quality at 4d. per lb.

THYME SEEDS.—Bought in at 9s. 6d. per cwt.

TOLU BALSAM.—None was sold to-day, all being bought in at 1s. 7d. to 1s. 8d. per lb.

TURMERIC—Dull of sale. At the sales on Wednesday, damaged *Bengal* sold without reserve at 6s. 3d. to 7s. 3d. *Madras* was all bought in, including bold finger at 10s. At the Drug Sales, 50 bags of *Madras* were bought in at 10s., the limit being 10s.

WAX (BEES).—*New Jamaica* wax sold at the steady rates of £7 17s. 6d. to £8 5s. *Madagascar* was bought in at £6 17s. 6d. to £7 5., *Australian* at £7 to £7 5s., and *Mogador* at £5 10s. to £6.

Exchange.

WANTED.

Literature.

'Pharmaceutical Journal,' February 23, 1895.—Full price will be paid by the Secretary, 17, Bloomsbury Square, London, W.C.

Appliances.

Half gallon, and "Enterprise," Tincture Presses; also Drug Mill, and Iron or Bell Metal Mortar.—Particulars to C. M. Robinson, Chemist, Attleborough, Norfolk.

OFFERED.

Literature.

'Pharmaceutical Journal,' strongly bound in half calf, 27 volumes, from 1841 to 1868. Take 1s. per volume.—Rogerson, Old Pharmacy, Bradford.

Martindale, 2nd and 3rd editions. 1s. 3d. each, post free.—C. M. Robinson, Chemist, Attleborough, Norfolk.

Attfield's 'Chemistry,' Watt's 'Inorganic Chemistry,' Will's 'Practical Botany,' Whitla's 'Pharmacy'; latest editions.—H. L. Attenborough, 46, Hill Road, Wimbledon.

'Religio Medici,' 1640, reprint 1894, 5s.; 'Medulla Medicinæ,' 1756, 2s. 6d.; 'Edinburgh Dispensatory,' 1810, 2s. 6d.; 'London Dispensatory,' 1826, 2s. 6d.; 'Pharmacopœia Londinensis,' 1805, 2s. 6d.; ditto, Phillips' edition, 1851, 2s.; Ganot's 'Physics,' 5s. Postage extra.—Franklin Chalmers, Clifton Dispensary, Bristol.

Books for Students. Bentley's 'Manual,' last edit., 10s.; Wills' 'Lecture Notes,' new, last edit., 3s. 6d.; 'Additions to B.P.,' 1890, new, 9d.; Stirling's 'Org. Materia Medica,' 1s. 3d.; Slater's 'Qualitative Analysis,' 1s. 10d.; Thornton's 'How to Analyse,' 9d.; Stirling's 'B.P. Equations,' 10d.; Oliver's 'Elementary Botany,' 1s. 6d.; Squire's 'Companion,' 1886, 4s. 6d.; Wills' 'Autograph Prescriptions,' 1s.; Roscoe's 'Chemistry,' 1878, 1s. 2d.; Valentine's 'Tables for Qual. Analysis,' 1s. 6d.; Cooke's 'Structural Botany,' 8d.; Anthon's 'Cæsar,' books 1. to VII. in one vol., 1s. 3d.; Tully's 'Latin Grammar,' 9d.; Hamblin Smith's 'Arithmetic,' 1s. 9d.—W. Tildesley, Wokingham.

Photographic Apparatus.

Will exchange new compact ½ plate mahogany camera (Eine lens), double rack extension, conical bellows, reversing back, double dark slide, folding tripod, all well made and very light, for ¼ plate hand camera by good maker.—J. Hughes, 39, Beaumont Street, Liverpool, S.

Photographic camera, 13 by 18 c.m., good lens, 3 double dark slides, stout canvas case, tripod stand, 2 printing frames. Price £2 10s.—Parilond, 76, New Bond Street, W.

Appliances.

Steam Jacketed copper pan, 110 gallons, with all fittings, strainer, etc. £30.—Moss, 13, Station Road, Ilkeston.

Miscellaneous.

Several Dobson's Black-Leg Drinks; Chapman's Cattle Oils; wrappers mostly in good condition, a few soiled: what offers?—Blinkhorn, Chemist, Salisbury.

Humber Diamond Frame Model Safety, Bown's bearings, Perry's chain, hollow tubes, balls all over, weight 30 lbs., latest non-slipping detachable tyres, pneumatics, sound, sent on approval; sell £6 15s.—Pharmaceutical Chemist, 77, Welbeck Street, London, W.

Ross's Highest Class Microscope, with compound mechanical stage and sub-stage, 2 in., 1 in., ⅔ in., and ¼ in. objectives, three eyepieces, including Kelner's orthoscopic, and large number of costly accessories, in two mahogany cabinets, equal to new, with 100 expensive slides, cost over £60; price £26.—Halford, Chemist, Hockley, Birmingham.

LIVERPOOL MARKET REPORT.

[*From our Special Correspondent.*]

JULY 25, 1895.

GINGER.—One hundred bags *Monrovian* sold at 25s. per cwt. in store; 20 bags *Cochin* at 37s. 6d. in store.

KOLA NUTS.—Ten baskets of fresh changed hands at 5d. per lb.

HONEY.—About 300 barrels *Chilian Pile X* have been sold during the week at 32s. 6d. per cwt.

BEESWAX.—Thirty-six packages *Sierra Leone* disposed of for £7 per cwt. in store. Forty-five sacks *Chilian* reported at £7 12s. 6d. to £8 10s. per cwt.

CASTOR OIL.—All varieties in little demand, notwithstanding the preseut low prices. "Good seconds" Calcutta offering freely from quay at 2 1/32d. to 2 1/16d. per lb.; Madras, 1 31/32d. to 2d. per lb.; first pressure Marseilles, 2d. to 2 1/32d. per lb.

OLIVE OIL.—Very steady market, but not much business passing, aud only in moderate request at £30 10s. to £38 10s. per tun.

COTTON-SEED OIL.—Tone of market very flat and sale sluggish. Prices have dropped slightly siuce last week, and now stand at 17s. 6d. to 18s. per cwt., both for Liverpool refined in export barrels aud for American.

LINSEED OIL—A shade easier. Liverpool makes in export casks quiet at 22s. 6d. to 23s. per cwt.

PALM OIL.—Tone steadier. *Congo* £19. *Lagos* "spot" and near, £20 5s. per ton.

TURPENTINE—Somewhat easier. Spot selling in buyer's favour at 21s. 9d. per cwt.

PETROLEUM—Remains unchanged at 6¼d. to 8½d. per gallon for *American*, and 6d. for *Russian* refined oil.

Patent Office Business.

APPLICATIONS FOR PATENTS.

[From the *Illustrated Official Journal (Patents).*]

No. 12,633.—An improved rest or bracket for steam kettles used in hospitals for bronchial ailments. July 1.

No. 12,759.—An improved process for preserving organic, and more particularly alimentary substances and apparatus therefor. July 2.

No. 12,841.—Improvements in babies' feeding bottles. July 3.

No. 12,860.—Improvements in trusses for hernia. July 3.

No. 12,924.—Improvements in respirators. July 4.

No. 13,057.—An improved pestle and mortar whereby both time and labour can be saved. July 6.

No. 13,201.—An improved paraffin emulsion. July 9.

No. 13,417.—An improvement applicable to feeding-bottles. July 12.

Trade Marks Applied For.

[From the *Trade Marks Journal.*]

No. 187,212.—CHEMICAL SUBSTANCES prepared for use in medicine and pharmacy. Henry Daubeney Brandreth, 22, Hamilton Square, Birkenhead. April 25, 1895. Word: "Cuirass."

No. 187,423.—A MEDICATED PREPARATION for destroying corns, for human use. Joseph Johnston Ferguson, Cann Hall Pharmacy, 143, Cann Hall Road, Leytonstone, Loudon, N.E. May 3, 1895. Device: A rat biting a head of corn and wording on a label. The essential particular is the device.

Diary of the Week.

[*Notices for insertion under this heading should reach the Editor on or before Wednesday.*]

MONDAY, JULY 29.

British Pharmaceutical Conference (*Bournemouth*).
Executive Committee at the Hotel Mout Dore, at 6 p.m.
Reception and Conversazione, at 8.30 p.m.

TUESDAY, JULY 30.

British Pharmaceutical Conference.
Sessions of Conference.
Excursion to Swanage.
British Medical Association (*London*).
General Meeting and Conversazioue.

WEDNESDAY, JULY 31.

British Pharmaceutical Conference.
Sessions of Conference. Garden Party, Smoking Concert, and Drawing Room Concert.
Federation of Local Pharmaceutical Associations (*Bournemouth*).
Executive Meeting at the Hotel Mont Dore.
British Medical Association.
Meetings of Sections, Musical Promenade, and Illuminated Evening Fête.
Society of Chemical Industry (*Leeds*).
General Meeting and Conversazione.

THURSDAY, AUGUST 1.

British Pharmaceutical Conference.
Excursion to Lyndhurst and the New Forest.
British Medical Association.
Meetings of Sections and Annual Dinner.
Society of Chemical Industry.
Excursions and Annual Diuner.

FRIDAY, AUGUST 2.

Federation of Local Pharmaceutical Associations, 9.30 a.m.
Second Annual Meeting, at the Hotel Mont Dore, Bournemouth.
British Medical Association.
Meetings of Sections and Conversaziones.
Society of Chemical Industry.
Excursion and Smoking Concert.

SATURDAY, AUGUST 3.

British Medical Association.
Excursions.

Late Advertisements.

Assistants Wanted.

SOUTH AFRICA.—Qualified ASSISTANT wanted for Cape Town. Young man, quick and accurate Dispenser. Must be steady aud have good appearance. Three years' engagement. 2nd class passage paid. Apply, with full particulars of previous experience, to QUALIFIED, the "Pharmaceutical Journal" Office, 5, Serle St., W.C.

AT once, JUNIOR or IMPROVER. In-door. Countrymau seeking London experience preferred. State age, height, and salary to W. W., 166, North-eud-rd., West Kensington, London, S.W.

Business for Disposal.

A NON-ADVERTISING Dentist, in good practice, with a Family Retail and Dispensiug BUSINESS, W., will sell the Retail, or both. Good house in excellent repair, long lease. Pleasantly situated in a populous and respectable neighbourhood. Present hands 18 years. For particulars write, PHARMACY, care of Hodgkinson, Preston & King, Bishopsgate St. Without.

SUPPLEMENT

TO THE

PHARMACEUTICAL JOURNAL.

Contents of Supplement.

Market Report i
Company Business ii
The Conference in Wessex iii
Society of Chemical Industry vii
The British Medical Association ix
Exchange xii
Diary of the Week xii

MARKET REPORT.

[Specially compiled for the Pharmaceutical Journal.]

Chemicals and Drugs.

[The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.]

THE CHEMICAL MARKET.

LONDON, AUGUST 1, 1895.

The more important features of our report this week can be briefly summarised. Carbolic acid is quiet all round, whilst tartaric and citric acids are unchanged in price. Chrysophanic acid is very firm at the advance noted last week. Cream of tartar remains a very firm market, and a considerable amount of business has been done at steady rates to an advance. Copper sulphate is dull of sale at easier rates. Full details will be found below of the various articles of interest.

ACID, CARBOLIC.—The makers' report a quiet market, with practically no change in prices. The current quotations are as follows:—*Crystals*, 34° to 35° C., 5d.; 39° to 40° C., 5⅝d.; 39° to 40° C. (*detached crystals*) 6⅝d. per lb. *Crude:* Unchanged. Sixty per cent. is quoted at 1s. 6d., with 75 per cent. at 1s. 9d. per gallon. *Liquefied:* Dull of sale at 1s. per gallon for 95 per cent. *Cresylic*, 11d. per gallon.

ACID, CITRIC.—Steady, and a fair amount of business has been done at unchanged rates, but the demand is not very extensive. Makers' prices are unchanged at 1s. 1¾d., and in second-hands, holders ask 1s. 1½d.

ACID, CHRYSOPHANIC.—Remains very firm, and makers now ask 15s. to 15s. 6d. per lb., according to quantity.

ACID OXALIC.—The long standing price is unaltered, and makers continue to quote at 3⅝d. net *ex* rails.

ACID, TARTARIC.—Steady, without much business passing. The *English* makers still quote at 11¼d. per lb., whilst *foreign* brands of acid, both in *crystal* and *powder*, offer at 11d.

ACETANILIDE.—Makers quote at 1s. 1½d. to 1s. 2d. on the spot. From New York a quiet market is reported at somewhat irregular rates. There are sellers at a parity of 1s. 2½d. to 1s. 4d., but few buyers.

AMMONIA SALTS.—*Carbonate*: Dull of sale at 3½d. to 3¾d. *Liquor*: Unchanged at 3d. to 3¼d. *Sal ammoniac*: *First* quality still quotes at 39s., with *seconds* at 37s. *Sulphate*: A very flat market, and the current rate is lower than last week. At the close £9 10s. would be accepted for grey 24 per cent.

ASHES.—Canadian *potashes* still quote at 37s. 6d., with best *pearl ashes* on offer at 23s.

ARSENIC.—Very firm, and the price is steadily maintained at 15s. 6d. to 16s. for best white *powder*.

BLEACHING POWDER.—There is a steady demand for this at unaltered rates. On the spot it is quoted at £7 10s. to £7 15s., whilst in Liverpool it varies from £7 to £7 10s. on rails or *f.o.b.*

COPPER SULPHATE.—A weak market and prices have fallen. At the close, however, it is firmer, and ordinary brands quote at £5.

CREAM OF TARTAR.—A very strong demand continues, and last week's high rates still hold with 1s. more asked for *powder*, and at the close *German* brands quote at 75s. to 76s., whilst holders of fine white *French crystals* ask 73s.

POTASH SALTS.—*Bichromate*: Unchanged at 4⅝d. to 4¾d. *Chlorate*: Dull of sale at 4⅞d. on the spot, in Liverpool it offers at 4¾d. *Permanganate*: Unchanged at 54s. for small, with 59s. asked for large *crystals*. *Prussiate*: Lower at 8d. on the spot. The Liverpool price is still 8d.

QUICKSILVER—Firm. The importers' price remains £7 5s., and second hand holders are very firm at £7 4s. 6d.

SALTPETRE.—A quiet market. British *refined* offers at 22s. 6d. to 23s. 6d. on the spot. In Liverpool the price varies from 22s. 6d. to 23s. according to package.

SODA COMPOUNDS.—*Bicarbonate*: the spot price is still £7 5s., and in Liverpool it remains £6 15s. in kegs, and £6 5s. in casks. *Caustic*: 70 and 60 per cent. are unchanged at £8 and £7 respectively. *Crystals*: 38s. ex-ship. *Hyposulphite*: Scarce at £7 5s. to £7 10s. in Liverpool. *Nitrate*: Ordinary is lower at £8 5s. on the spot, with *refined* at £8 7s. 6d.

TAR DISTILLATION PRODUCTS.—*Benzole*: Firm, and 50 per cent. is quoted at 11¼d, with 90 per cent. at 11½d. per gallon. *Creosote*: 1⅛d. per gallon. *Toluol*: 1s. 0½d. per gallon. *Crude naphtha*: 30 per cent. at 120° C., 5d. per gallon. *Pitch*: Firm at 38s. per ton, *f.o.b. Tar*, 10s. 3d. to 11s. per barrel, according to quality.

WOOD NAPHTHA.—*Solvent* is worth 2s. 9d. per gallon.

THE DRUG MARKET.

LONDON, AUGUST 1, 1895.

The near approach of the holidays, and so many of the brokers and buyers being away at this time of the year affects business, which is generally dull. Caffeine is fairly steady, and other alkaloids are unchanged. Glycerine is again tending higher. Ipecacuanha is very firm, steady rates being paid for both Brazilian and Columbian root. The camphor market has again received attention, and advanced prices have been paid for delivery. No change has occurred in the refined article as yet. The essential oils, anise and cassia, must both be reported dearer, but other prices show little alteration.

CAFFEINE—Steady. On the spot it can be bought for 25s. to 26s., whilst the makers quote 20s. to 22s. for delivery August September.

CAMPHOR (CRUDE).—The market is very firm, and large sales have been made for arrival at steadily advancing rates. On Monday, *Japan* sold at 170s. *c.i.f.* June-August shipment, and *China* was quoted at 162s. 6d. to 165s. *c.i.f.*, but no sales were made. Since then, however, there have been sales of *Japan* at a large advance, and the market is very strong.

CAMPHOR (REFINED).—There has been no change in the position of this article, although in the face of the position of the crude camphor, an advance is probable. The second-hand stock is much reduced, and little can be bought under 1s. 9½d. *English* and *French* refiners still quote *bells* and *flowers* at 1s. 9½d., with square at 1s. 10½d., and proportionate rates.

CHAMOMILES.—New *Belgian* flowers are on a steadily falling scale, being quoted at 60s. nominally on the spot, and for delivery in a few days, 57s. 6d.

COLOCYNTH—Remains very steady. *Turkey* quotes at 2s. 3d. to 2s. 4d. for fair apple, and there is not much offering. A strong market is reported from New York, fine *Trieste* quoting at a parity of 2s. to 2s. 1d., with *Spanish* at 1s. 3d.

CLOVES—In good demand privately, and at the auctions on Wednesday *Zanzibar* sold at 2⅜d. for fair, with good bright at 2⅞d. For delivery there have been some sales at firm rates, but arrival sales have been but small, owing to the firmness of holders.

GLYCERIN—Dearer. *Schering's* finest quality, double distilled, has been advanced 5s. per cwt., and now quotes at 61s.

INSECT POWDER.—Fine *Dalmatian* powder quotes at 72s. 6d. per cwt.

INSECT FLOWERS.—New *Dalmatian* flowers quote as follows:—Open, 56s. per cwt.; half-closed, 86s. 6d.; closed, 99s. per cwt. *c.i.f.*

IPECACUANHA — Very firm. *Carthagena* (Columbia) root is in poor supply, and 4s. 6d. has been paid privately during the week for good, first-class damaged root, whilst *Rio* (Brazilian) root has been selling at fully last sale rates.

MENTHOL—Remains freely offered at 13s. 3d. to 13s. 6d. per lb. for good white, dry *crystals*.

MORPHINE.—Quotations for 1000-oz. lots are unchanged at 4s., with smaller wholesale quantities at 4s. 2d. to 4s. 3d. *Crystals*, 2d. per oz. more.

OILS (ESSENTIAL).—*Star Aniseed*: A very strong market, with probability of much advanced prices. On the spot 6s. 5d. has been paid during the week, and holders now ask 6s. 6d. to 6s. 7d. *Cassia*: Very firm on the spot, and prices have been much advanced. Holders now ask 6s. 3d. for 70 to 75 per cent. oil. Of fine quality oil, testing 80 per cent., there are practically no offers, and it is very scarce and firmly held on the spot. *Citronella*: Is again somewhat dull of sale at 1s. 4d. on the spot for oil in tins or bottles, with 1s. 4½d. asked for oil in drums; arrival terms remain 1s. 3d. to 1s. 3½d. *c.i.f.* respectively. *Lavender*: The price for new *Mitcham oil* will be known in a few days. It is expected to be about 30 per cent. higher. *Lemon Grass*: Dull of sale at 1⅝d. *Peppermint H. G. Hotchkiss'* oil quotes at 10s. 3d. on the spot. *Japanese* oil testing 40 per cent. of menthol is worth 7s. 3d. on the spot, with *Wayne County*, 8s. 6d., and *dementholised*, 5s. 3d. to 5s. 6d.

OILS (FIXED) AND SPIRITS:—*Castor* (*Italian*).—Extra quality tasteless oil remains at 30s. 6d. per cwt. for 20 case lots. *Cotton*: Firm. *Refined* oil is now quoted at £18 to £18 5s. according to brand and package. *Coco-nut*: Steady, at unchanged rates. *Ceylon* quotes at £22 to £22 10s., with *Cochin* at £24 to £24 10s. *Linseed* is somewhat firmer. At the close £21 7s. 6d. to £21 10s. is the spot price for oil in barrels. *Olive*: Unchanged. *Syrian* quotes at £33, with *Spanish* at £37. *Rape*: Unchanged, the spot price for refined oil remaining £22 5s. to £22 10s. *Turpentine*: Fairly steady. At the close *American* spirit quotes at 20s. 6d. to 20s. 7½d. *Petroleum*: Steady. *American* oil is worth 5⅞d. to 5 15/16d. *Water white*: 6½d. to 6¾d., and *Russian*, 5¾d. per gallon. *Petroleum Spirit*: *American*, 9d. to 9¼d., with *deodorised*, 9½d. to 9¾d.

OIL (COD-LIVER).—There is no change to report in the position of this article, and *Isdahl's* brand of *Lofoten* oil quotes at 170s., with *Finmarken* summer oil at, 50s. nominally. There is

but little offering, and there is said to be only about 3000 barrels in the Norwegian stock. From New York a brisk market is reported, and it is confidently expected that prices will be considerably advanced shortly.

Otto of Rose.—Nothing is as yet known as to the price of the new season's product, but it is certain to be higher, as there is no old stock left. It is stated that the crop of Otto of Roses this year will be 465 to 470m metricals, equal to about 69,750/70,500 ozs. Turk. The crops of the last six years are represented by the following figures :—

M. metricals.			Ozs.
1894.....385	equal to about		57,750 Turk.
1893.....380	,,	,,	57,000 ,,
1892..... 280	,,	,,	42,000 ,,
1891.....460	,,	,,	69,000 ,,
1890.....500	,,	,,	75,000 ,,
1889.....550	,,	,,	82,500 ,,

Opium.—The demand for *Turkey* is somewhat slow, but quotations are firm. Best selected offers at 11s. 6d.; seconds, 10s. 9d.; "druggists," 7s. 6d. to 9s. *Persian* is unchanged, but very firm at 12s. to 12s. 9d.

Orris Root—Offering at somewhat easier rates. *Florentine* quotes at 71s. 6d. for good sorts, with ordinary selected at 74s.; chips and shavings at 67s. 6d. *Veronese* root quotes at 55s. for large bold, all *c.i.f.* per cwt.

Peru Balsam—Remains dull of sale at 8s. 9d. to 9s., genuine balsam of direct import.

Quinine Sulphate.—This market has again been quite devoid of interest, and quotations, which are only nominal, remain at 1s. 0½d. for *B. & S.* and *Brunswick*.

Seeds—*Canary*—At the sales, *River Plate* sold at 33s. 6d. to 34s. *Turkish* and Mogador were bought in at 42s. and 42s. 6d. respectively. *Caraway*: Fine seed of the new *Dutch* crop offers at the very firm rate of 30s. per cwt. *c.i.f.*

Soy—Steady, but in slow demand only. Fair *China* offers at 1s. 0½d. per gallon.

Wax (*Bees*).—Prime yellow *Tuscan* wax quotes at 144s. *c.i.f.* per cwt. *Japan* is dull of sale. At the sales on Tuesday, 50 cases were bought in at 28s. for good *Squares*.

NEWCASTLE-ON-TYNE CHEMICAL REPORT.

Our correspondent writes us on the 31st ult. as follows:—"The Tyne market still continues very quiet, and few products only can be considered as being in really good demand. The continued rumours of further combinations in the trade have a decided tendency towards maintaining present prices, and may possibly even yet cause an advance. Bleaching powder is somewhat quiet, except for export. Caustic soda in fair request and firm. Seda crystals slightly easier.

Current quotations are :—Bleaching powder, soft-wood casks, £7 per ton nett on rails, and £7 5s. per ton net, *f.o.b.*; hard-wood casks, £7 5s. and £7 10s. per ton nett. Caustic soda, white, 76 to 77 per cent., £9 5s. to £9 10s. per ton nett; 70 per cent., £7 10s. to £7 15s. per ton nett. Soda crystals, 35s. to 37s. 6d. per ton nett. Recovered sulphur, £3 17s. 6d. per ton nett. Oxalic acid, 3¾d. per lb. nett, any port. Pure white sulphate of alumina, £4 per ton nett for crushed in bags, with allowance for loose lumps and slabs. Silicate of soda 140° Tw., £3 7s. 6d. per ton nett; 100° Tw., £3 per ton; 75° Tw., £2 7s. 6d per ton nett; brown lump, £4 7s. 6d. per ton nett; green lump, £4 5s. per ton nett. Precipitated, 96 to 98 per cent. Carbonate of barytes, £8 per ton nett. Soda ash, 48 per cent., £3 12s. 6d. per ton nett. Hyposulphite of soda very firm, and demand strong, ⅞ cwt. casks, £6 2s. 6d. per ton nett, and for 1 cwt. kegs, £6 17s. 6d. per ton nett. South Durham salt, 9s. to 9s. 6d. *f.o.b.*, Tees.

LIVERPOOL MARKET REPORT.

[*From our Special Correspondent.*]

August 1, 1895.

Canary Seed.—Turkish has dropped to 39s. to 40s. The new crop for forward shipment is 37s. Hemp Seed.—130 bags of Chilian sold *ex* quay at 32s. per 336 lbs. Kola Nuts in good demand at prices ranging from 5½d. to 6d. for dried, and fresh 5d. in store. Carnauba Wax.—Yellow, 125s. to 132s. 6d., "grey," 112s. 6d. Castor Oil.—French, first pressure, 2d. to 2 1/32; Calcutta, *ex* quay, same; Madras, 1 31/32d. to 2d. Olive Oil from £31 to £32 for Candia, and £30 10s. to £31 10s. for Levant; Spanish, £34 10s. to £35 10s. Cotton-seed Oil.—18s. 6d for both Liverpool and American refined oil. Linseed Oil.—22s. 6d. to 23s. per cwt. for Liverpool makes. Palm Oil.—Lagos, £20 7s. 6d. to £20 5s.; soft oils and hard oils, £18 15s. Petroleum.—Russian, 6d.; American, 6¼d. to 8½d. Spirit of Turpentine.—21s. 6d. per cwt. Ammonia Salts.—Sal ammoniac, £39; first quality, £37. Sulphate is £9 12s. 6d. *f.o.b.* Liverpool. Potash Salts.—Chlorate, 4¾d. per lb.; Bichromate, 4⅝d.; Prussiate unchanged; Cream of tartar, 74s. best white. Soda Salts.—Caustic soda, £8 for 70 per cent.; £6 15s. to £7 for 60 per cent. crystals; £2 10s., *f.o.b.*; Bicarbonate, £7; Nitrate, 8s. 1½d. to 8s. 4½d.; Sulphate, £2 10s.; Bleaching powder, £7 5s. per ton nett cash. Copperas.—Lancashire, 37s. per ton. Sulphate of Copper.—£15 10s. per ton *f.o.b.*

IMPORTATION OF INDIAN AND PERSIAN OPIUM INTO CHINA.

A recently-issued consular report, in commenting upon the remarkable decrease in the amount of opium imported into Amoy, in China, during the last year, gives some interesting particulars regarding the consumption of this drug. Until recently large consignments of Bengal, Persian, and Malwa opium found their way to this port, but producers are now handicapped from a variety of reasons. Tehang and the surrounding districts produce steadily increasing quantities, which are shipped to Amoy without any great restrictions being imposed in the way of duty, nor is care taken to prevent the sophistication of the high-priced Indian and Persian opiums with the inferior native production. If to this be added the high export duty which is levied on Malwa opium in Bombay, and the fact that the crop in Persia was a comparative failure last year, it can easily be seen how favourable are the conditions commercially for the successful production of native opium. Another reason which has militated against the importation of Indian and Persian opium, is that large quantities of morphine, to the amount sometimes of 800 ozs. per month, are now imported into Amoy, and the use of this alkaloid is, to a certain extent, replacing opium. After making due allowance for the amount used medicinally, there remains a large proportion for which victims to the morphine habit are accountable. Medical opinion has shown that this habit is more injurious than opium smoking, as, although persons addicted to morphine injection are able to abstain from the opium pipe, yet on ceasing to use the alkaloid, opium itself is indulged in to a greater extent than ever. The amount and value of the opium produced in the neighbourhood of Amoy has increased largely during the last year, and seems likely to do so. It is produced from the seeds of the Indian poppy, and although somewhat similar in appearance to the Bengal drug, is inferior in smell and for smoking purposes.

Company Business.

Bourne Brothers and Co., Limited.—Registered by A. V. Stevens, 4, Trafalgar Square, S.W., with a capital of £2000 in £1 shares (1988 preference and 12 ordinary). Objects: To adopt a certain agreement to manufacture, sell, and deal in indiarubber, guttapercha and gums of every description for mechanical, medical, domestic and other purposes, and also to manufacture, sell, and deal in drugs, chemicals, etc. The directors are A. V. Stevens, H. B. Bourne, and W. F. Bourne. No qualification or remuneration specified.

Philip Barraud and Co., Limited.—Registered, with a capital of £3000 in £5 shares, by Blount and Co., Fitzalan House, Arundel Street, W.C. Object: To enter into an agreement for the acquisition by purchase of the business of photographers and photographic artists, as now carried on by Barrauds, Limited, at Liverpool, and to carry on and extend the said business.

Taylor, Son and Co., Limited.—Registered by Jordan and Sons, Limited, 120, Chancery Lane, W.C., with a capital of £5,000 in £1 shares. Objects: To acquire certain inventions relating to improvements in the manufacture of sanitary towels, accouchement sheets, hospital pads, and other like articles for absorbing discharges, in accordance with an agreement made by this company with Richard Ecroyd and others, and to carry on the business of manufacturers of and dealers in wadding, cloth, etc., and of powders, lotions, ointments, salves, medicinal, and other preparations, etc. Registered office: 105, Thornton Road, Bradford, Yorkshire.

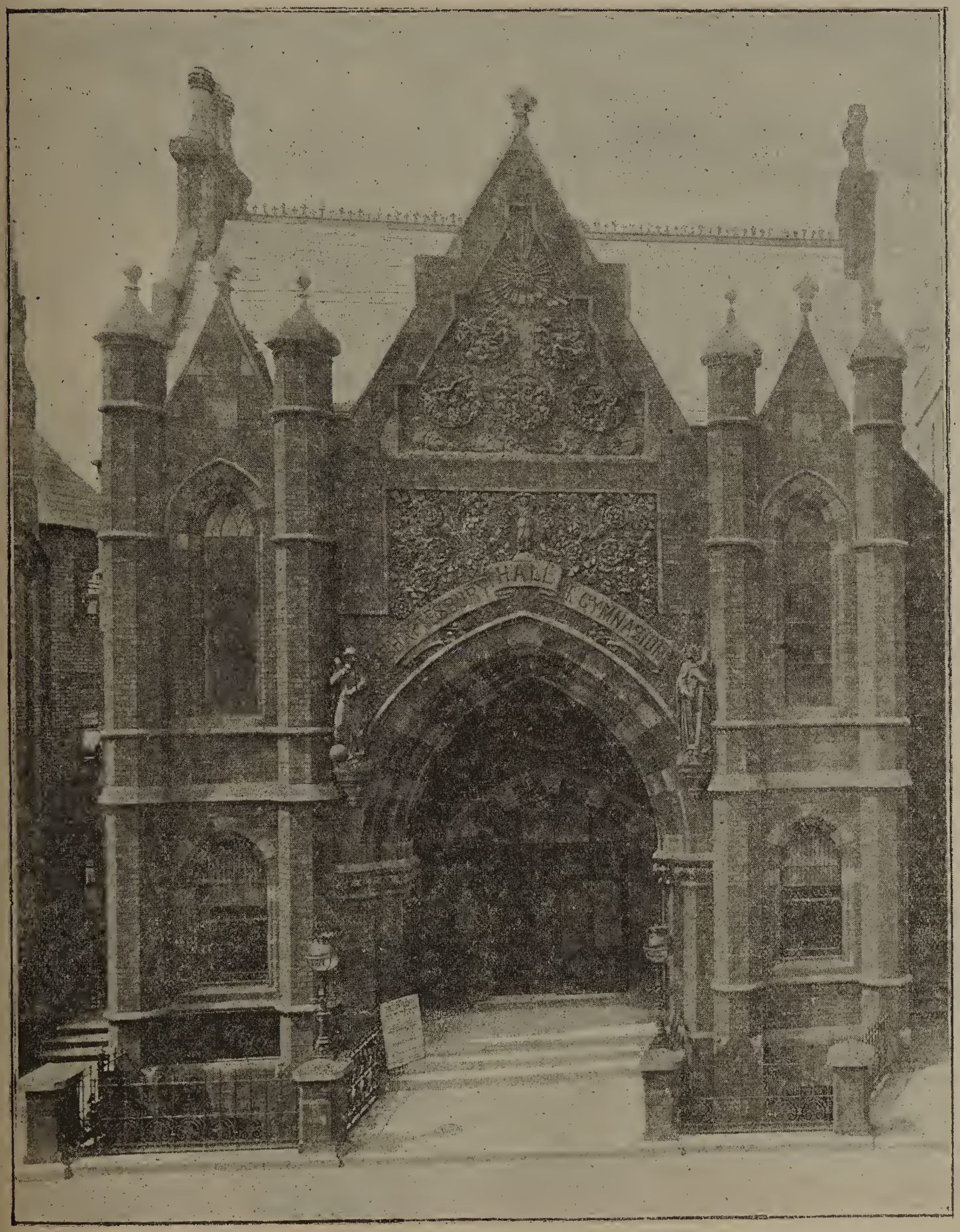
S. F. Goss, Limited.—Registered on July 13 by Harwood and Stephenson, 31, Lombard Street, E.C., with a capital of £20,000 in £10 shares. Objects: To acquire and carry on the business of chemists and druggists, drysalters, etc., as now carried on by S. F. Goss (the old company) and the liquidator thereof; to enter into agreements with the said old company, with S. F. Goss, and W. C. Hobbs, and to carry on the said business in all its branches. Registered office: 460, Oxford Street, London, W.

Rebman Publishing Company, Limited.—Registered on July 11 by Waterlow and Sons, Limited, London Wall, E.C., with a capital of £20,000 in £1 shares. Objects: To acquire and carry on the business of a medical and general publisher and agent, bookseller, and lymph dealer as now carried on by Francis J. Rebman at 11, Adam Street, Strand, W.C., and to carry on the business of surgical and scientific instrument makers, medicine, drug, and lymph manufacturers and dealers. Registered without articles of association. Registered office: 11, Adam Street, Strand, London, W.C.

Christian Science.—The following interesting reply was returned to a circular letter soliciting subscriptions to a certain medical journal (*Pacific Drug Review*):—Fairbault, Minn., Feb. 22nd, 1894.—Your copy of the ——— Journal come, and the letter to, askin me to send fifty cens and git it fur a yeer, I dont need no jurnals. When I git a tuff case, I go off iuter sum secrit plase and tell the lord all about it and wate for him to put inter my minde what ter do. Thats bettern jurnals and skylopeds and such. If we hed more lord trustin doctors and less colleges weed fare better. The lord noes morn all the doctors, and if we go to him for noledge it ill be bettern jurnals naterally in the lord.—A Christiau Docter. (*Dublin Journ. Med. Sci.*, after *Amer. Pract. and News.*

THE CONFERENCE IN WESSEX.

Visitors to the British Pharmaceutical Conference of 1895, arriving at Bournemouth on the Saturday preceding the day of opening, had good reason to fear that the proceedings would be marred by untimely bad weather, but all forebodings on this account were effectually dissipated before tho actual time of assembly. Possibly, however, the unpropitious aspect of affairs had some ill effect, for the attendance was far from reaching the point that might have been anticipated, bearing in mind the town and district to be visited. Other meetings on the same days also had a certain influence in this respect, but at the outset it must be said that those who could have been present and were not have every reason to regret their neglect. The arrangements at headquarters were admirable, the papers few and mostly brief, and the programme of excursions, etc., was exceptionally well planned. Add to this that the members of the Local Committee were distinguished by their attention to points of detail that are easily overlooked, and that they were hospitable to a degree, and nothing more should be needed to convince readers that the Conference of 1895 has proved a decided success. The actual opening ceremony was, of course, preceded as usual by a reception of members and their friends by the President of the Conference, and Mrs. Martin. This took place in the large hall connected with the Winter Garden at the Mont Dore Hotel, and was followed by a conversazione. Objects of interest were exhibited, but received only scant attention, much greater interest being taken in the fine musical programme, which was succeeded by a much appreciated dance.



Shaftesbury Hall, where the Sessions of Conference were held. From a Photograph by Debenham & Gould.

The first day of the Conference was accompanied by the most favourable conditions as regards weather, and the visitors, after assembling in full force to listen to the presidential address, dispersed in great measure to take a more or less extended survey of their surroundings. Meanwhile the members intent upon business, dispatched the various items upon the agenda with commendable celerity, and just before one o'clock there was a general gathering in the grounds of the Hotel Mont Dore, where photographs were taken of the party. Several negatives were exposed, and it is understood that the results are extremely satisfactory.

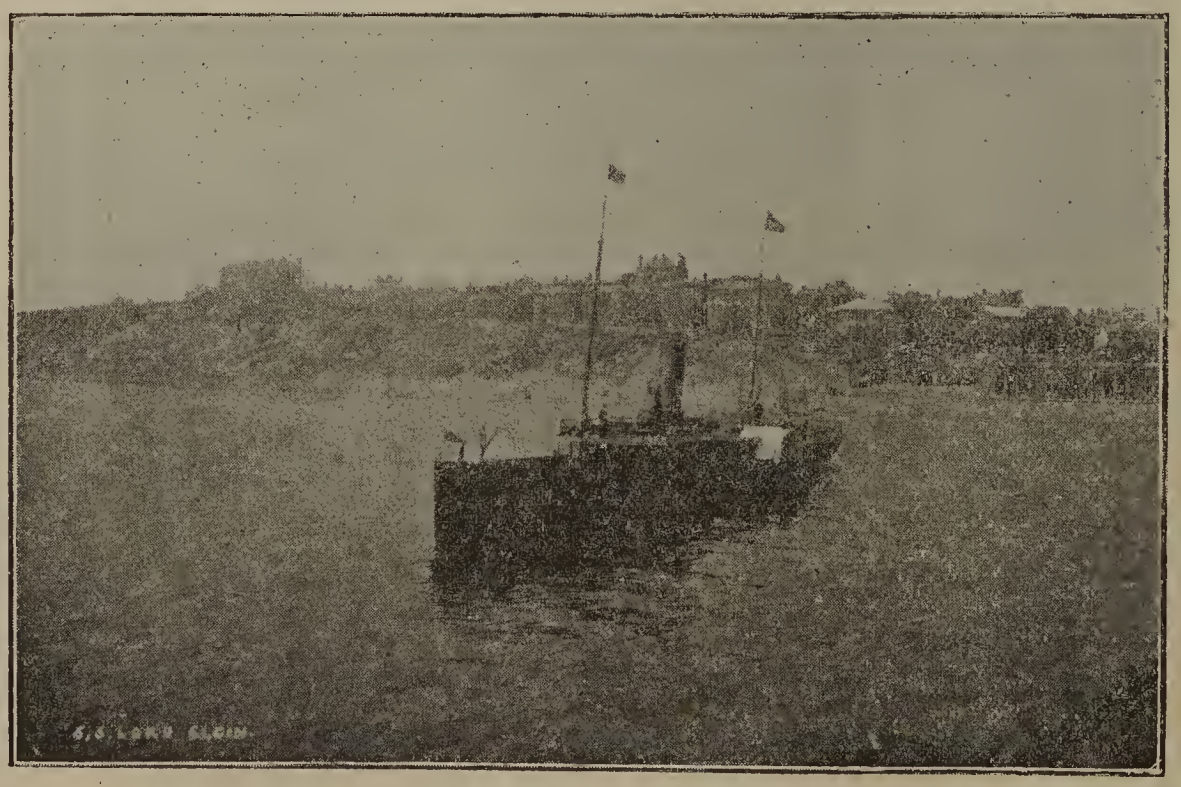
Luncheon was then served in the hotel, and Mr. Bridge took advantage of the opportunity to announce that there would be a special concert by Godfrey's military band in the Winter Gardens that evening, under the direct patronage of the members of the Conference.

During the afternoon, those for whom business possessed no attractions again sought amusement in various directions until about four o'clock when, the labours of the day being ended, everyone boarded the s.s. "Lord Elgin" for the excursion to Swanage. The sea was delightfully smooth, and the weather perfect for the trip. Tea was served on board, and after a comparatively brief run, the party arrived at its immediate destination.

Swanage Bay and Landing Stage. From a Photograph by Messrs. Debenham & Gould.

Swanage, formerly Swanawic, Sonwic, and Swanwich, is about seven and a half miles by water from Bournemouth, and situated on the south of the bay to which it has given its name. According to a local guide book, by the way, this is a beautiful stretch of "blue" water that has been likened to "a miniature Bay of Naples." The town is a rambling place, consisting practically of one street about a mile long. It possesses no charm as a place of residence, beyond its proximity to the sea and several places of interest, but appeared nevertheless to be crowded with visitors.

On the north of Swanage Bay are the twin rocks, Old Harry and his Wife, with the Bollard Down sloping gently to the sea, whilst, on the south, Peveril Point separates it from the smaller bay of Durlestone. The chief objects of interest in the town are the Parish Church, dedicated to St. Mary, with an interesting twelfth-century tower; the Town Hall, erected in 1882, the handsome exterior of which, by Sir Christopher Wren, originally formed the front of the Mercers' Hall in London; the Mowlem Institute with its reading rooms, library, and collections of local antiquarian objects; and Wesley's Cottage, where the great Nonconformist stayed when he came to preach to the quarrymen.



S.S. "Lord Elgin" in Bournemouth Bay. From a Photograph by Messrs. Debenham & Gould.

The principal business of the town has always been in connection with the local quarries, which are very numerous. Many churches and public buildings have been built with stone from this place, and Purbeck marble, with it beautiful coloured veins, has been used with great effect for shafts and columns in cathedrals. A writer in the *Daily News* thus refers to the town "Quiet little out-of-the-way Swanage, that sleeps a melancholy sleep nine months out of the twelve, and just opens its eyes for the remaining three to blink at its crowd of visitors, has, it is believed, slept its last sleep, and another of the scarcely known lovely corners of England will be rampaged over by the 'Arrys of civilisation, and then doubtless the quarries will be thrown open and their customs become obsolete; but at present they exist as we have described them, and to all who really care for primitive old-world customs and queer ways, we say go to Swanage before the railway demon engulfs it, where the women still believe that a ride on a donkey's back to four cross-roads, or wearing a bit of hair clipped from the cross on a donkey's shoulders, is an infallible cure for whooping-cough, and where the men rule themselves and believe themselves to be quite outside the regulations and laws of ordinary humanity."

Durlestone Bay lies to the south of Swanage, and on Durlestone Head, at an elevation of about 150 feet above the sea level, is "Durlestone Castle," which is fitted up as a restaurant. A sun-dial is let into the south wall of this building, and lower there are large slabs, on which various statistics of universal interest are tabulated, whilst on an elevation below the Castle stands a Portland stone globe, measuring 10 feet in diameter and weighing 40 tons, so placed as to represent the earth correctly poised. On it are shown the continents in slight relief, with the rivers and oceans; and stone benches are placed at intervals round the globe in positions indicating the eight points of the compass, with the direction clearly lettered upon them. From the globe a path leads down through a tunnelled entrance into one of the caves of Tilly Whim. These caves are said to have been much

used in olden times by smugglers. A short distance to the west of this spot stands the new lighthouse, erected at a height of 160 feet above the sea level, and throwing out a light that can be seen twenty-five miles away.

Farther westward rises St. Aldhelm's Head, the summit of which is nearly 450 feet above the sea, and is crowned by an ancient Norman chapel.

Studland Bay and village are also within easy reach of Swanage, and about a mile from Studland is the "Agglestone," a huge block of sandstone weighing over 400 tons. It is 19 feet high and 36 feet wide, and rests on the top of a mound some 90 feet high.

Various other places serve as attractive objects for rambles from Swanage, Corfe Castle being that of greatest interest. Originally known as Corres-geate, a fortress has existed here from early Saxon times, and at one time constituted a royal residence.

It was here that Edward the Martyr was basely murdered at the instigation of his stepmother, Elfrida. As narrated by William of Malmesbury, "King Edward, being hunting in a forest neare the sea, upon the south-east coast of the countie of Dorset, and in the Isle of Purbecke, came neare unto a fair and stronge Castell, seated on a little river called Corfe, wherein his mother-in-law, Elfrida, with her sonne Ethelred, then lived. The king, ever bearing a kinde affection to them, being so neare, would needs makes known soe much by his personal visitation, which having resolved, and being, either of purpose or by chance, singled from his followers, he rode to the Castell gate. The Queene, who long had looked for an opportunitie, that, by makeing him awaye, shee might make way for her own sonne to the Crowne, was glad the occasion now offered itself; and therefore, with a modest and humble behaviour, she bade him welcome, desiring to enjoy his presence that night. But hee, having performed what hee purposed, and doubting his companie might find him misseing, told her that hee now intended, on horseback, to drink to her and his brother in a cuppe of wine, and soe leave her; which, being presented unto him, the cuppe was no sooner at his mouth, but a knife was at his back, which a servant, appointed by this treacherous woman, stroke into him. The King, finding himself hurt, set spurs to his horse, thinking to recover his companie; but the wound being deep, and fainting through the losse of much blood, he felle from his horse, which dragged him by one foot hanging in the stirrup, until he was left dead at Corfe Gate. Anno Dom. 979."

The castle is supposed to have been destroyed by the Danes, and was in all probability rebuilt in the time of William the Conqueror. Down to the time of the Commonwealth, it has been the scene of many historic events. At present, however, nothing remains of the building but ruins, standing on a lofty eminence to the north of the town, and forming a prominent object in the landscape from a considerable distance. In 1645 the castle was attacked for the last time by Sir Thomas Fairfax, and through the treachery of an officer of the garrison, it fell into the hands of the Parliamentary forces. By the order of the Parliament the fortress was dismantled, the towers and walls being undermined, and blown up with gunpowder. The gateway is flanked on either hand by the ruined towers, the masonry of which is riven asunder from the upper part of the gateway by the tremendous force of the explosion.

Tilly Whim Caves, Swanage. From a Photograph by Messrs. Debenham & Gould.

Christchurch. From a Photograph by Messrs. Debenham & Gould.

Returning from Swanage about seven o'clock, the visitors were left to their own resources for the rest of the evening, but experienced no difficulty in entertaining themselves in a satisfactory manner, the special performance in the Winter Gardens, by Godfrey's band, being particularly appreciated.

The second day of the Conference commenced under less favourable circumstances than the former day, rain persisting for some time. Fortunately, however, it ceased before noon, so that the arrangements for the garden party in the grounds of the Hotel Mont Dore were not checked. There was quite a brilliant assemblage on the lawn by five o'clock, and amidst music, flowers, and fragrant pine trees, the hours passed only too swiftly. Later, the usual smoking concert took place in the Winter Gardens, Mr. Michael Conroy once more occupying the chair, and, simultaneously another concert afforded pleasure to the lady visitors assembled in the drawing room at the Hotel Mont Dore. The proceeding did not terminate until long after midnight.

The excursion to the New Forest started early on Thursday morning, under the best possible auspices. The weather was magnificent, and everyone in the best of spirits. The coaches, on leaving the Conference headquarters, drove through the town along the Christchurch Road, passing Boscombe and Pokesdown. Where the road crosses the railway at the latter place, on looking down the line to the right, the first view of Christchurch Priory was obtained, whilst on the left there was a view of St. Catherine's Hill and the woods about Lord Malmesbury's house of Heron Court. The road crosses the river Stour at Iford Bridge, whence Hengistbury Head, commanding the mouth of the Christchurch River, was visible on the right. The low neck of land connecting the head to the mainland is defended by earthworks and a ditch cut across from river to sea, and was doubtless a place of strength in early times. The ancient town of Christchurch or, as it was known in old times, Twyneham—a name bearing reference to its position between the two rivers, Avon and Stour, whose waters here unite and discharge into Christchurch Bay—was then entered. The town's present name is derived from the splendid Priory the picturesque ruins of the apartments of the constable of the old castle of Christchurch. They are somewhat remarkable for the fine slender circular shaft of the Norman chimney, undoubtedly one of the earliest in England, and behind on a mound rises the massive remains of the keep. The ruined castle, backed by the noble church, with the river and green meadows as foreground, formed, as seen from the bridge, one of the most beautiful pictures during this drive. The first halting place was at the "Cat and Fiddle," a hostelry about six hundred years old. The pretty village of Hinton and the seat of Sir George Meyrick were then passed, and in about forty minutes more the Forest was reached, passing Holmesley, named after the holme or holly bushes which grow in plenty, and obtaining views of Boldre Wood and Markash on the left of the road. Presently a spot was reached in the Forest where provision had been made for luncheon. The meal was served, under the superintendence of Mr. Kneese, the experienced manager of the Hotel Mont Dore, in most excellent style. Several speeches, brimming over with wit and humour, were afterwards delivered, and no one wished them unsaid. Starting again, the coaches passed Emery Down and

Lyndhurst. From a Photograph by Mr. Short.

for secular canons, founded by Edward the Confessor. The church was rebuilt by Bishop Flambard and converted by Baldwin de Redvers into a regular Augustinian Prior about 1150. It is impossible here to describe this superb triumph of the Norman builder; nothing can exceed the beauty of the various architectural features of the building, which deserves a long and careful inspection. There can be little doubt, says Shore in his history, that it was a holy place to which pilgrims would be attracted, where the holy beam was to be seen, and the legend was told of the strange and wonderful workman who laboured assiduously without pay or reward, and during the building of the church made the beam fit after it had been found too short. A church which was built by the aid of a divine carpenter, and consequently named Christchurch, could not fail to attract worshippers from distant parts. With the religious revival in England which followed the Norman settlement came the establishment of hospitals for the sick, infirm, and poor, and here was established a leper hospital.

Close to the river Avon, where the bridge crosses, were seen Boldre Wood, with its beautiful beeches and ancient oaks, and coming out over Bratley Plain, passed Picket Post, and so into Ringwood, where tea was served.

The ancient town of Ringwood is full of interest, dating back to early Saxon times. Tostig, the brother of Harold, held the manor of Ringwood, and it was near to the town, in a field still called Monmouth's Close, that the Duke of Monmouth was discovered when a fugitive after the rising in the west. After tea the drive was continued down the Avon valley past Bistern, where tradition tells that a dragon was killed by a knight who set pans of milk to attract it, past Sopley, with its church standing on an artificial mound of prehistoric age and sanctity. On the right was seen St. Catherine's Hill, with its tumuli and Roman camp, and the remains of St. Catherine's Chapel, telling of successive races who have worked at the building of modern England. A quick run through Christchurch and home then brought the visitors to their starting-point, at the head quarters of the Conference, and so the proceedings of the thirty-second annual meeting ended.

SOCIETY OF CHEMICAL INDUSTRY,

ANNUAL MEETING IN LEEDS.

The fourteenth annual meeting of the members of the Society of Chemical Industry was opened in the Yorkshire College at Leeds on Wednesday, when Mr. T. E. Thorpe, B.Sc., LL.D., Ph.D., F.R.S., the president, occupied the chair, and there was a large attendance, among those present being Mr. Thomas Tyrer (president elect), the Mayor of Leeds (Alderman Gilston), Mr. C. F. Tatley (chairman of the Yorkshire section), Mr. H. R. Procter (hon. secretary of the Yorkshire section), Mr. R. Reynolds, Mr. Thomas Fairley, Dr. Dreyfus, Mr. David Howard, Mr. E. Harford, Mr. A. N. Stoker, Mr. E. Rider Cook (hon. treasurer), Mr. B. E. R. Newlands, Professor Smithalls (Yorkshire College), and a number of other gentlemen.

The Bournemouth Road, near Lyndhurst. From a Photograph by Mr. Short.

After the Council Meeting, which was held in the Council room of the College, an adjournment was made to the Chemical Lecture Theatre, where the general meeting was held.

After the usual formal proceedings with regard to the reading of minutes and appointment of scrutineers, the Secretary (Mr. C. G. Cresswell) read the report of the Council, which stated that the number of members on the register was now 2892 as compared with 2828 at the last meeting. Having paid a tribute to the memory of Dr. C. R. Alder Wright, Mr. William Topley, Mr. S. M. Burroughs, and Mr. E. B. Coxe, of America, whom death had removed from their midst, the report went on to say that the excess of revenue over expenditure amounted last year to £178 10*s.* 2*d.* as against £574 17*s.* 9*d.* in 1893. For this diminution the increase in the size of the Journal was responsible. The compilation of the collective index from the beginning of the Journal to the close of the current year, which was now in the hands of Mr. Renant, would entail a further outlay of about £1000. No new section had been formed during the year, but several of those already existing, notably that in New York, showed greater activity. A suggestion having been made that a premium should be given to those who rendered conspicuous help to technological chemistry, this had been approved by the Council, and a medal, the design of which was being prepared under the direction of the President and Sir Jno. Evans, would in future be given. The Society had also contributed to the international fund for the erection of a statue to Lavoisier.

Mr. Cook, the hon. treasurer, having satisfactorily answered a question as to where the £1000 referred to was to come from,

Professor Smithalls moved the adoption of the report, which was seconded by Dr. Lewkowitsch, who considered the money spent on the Journal as perfectly justifiable from the point of view of the commercial man. All that they had done was to increase their expenses so as to increase the usefulness and output of their plant. They would be repaid for the outlay by compound interest, and they could easily make up the decrease if each member tried to win new members for the Society.

The report having been adopted unanimously,

Mr. Rider Cook presented the financial statement. The receipts, he said, amounted to £4962, including a balance brought forward of £245. The expenditure came to the same amount, including a balance of £339 carried forward. The principal item of expenditure was £3048 11*s* 7*d.*, the editorial and printing expenses of the Journal. The balance of revenue over expenditure was only £178 10*s.* 2*d.* It was felt that the Society had now reached something like its maximum of members unless some fresh effort was made, and so the Council was giving its attention to the prevention of further increase in the expenditure.

Mr. Richard Reynolds moved a vote of thanks to Mr. Cook for his statement and for his services during the year.

Mr. George Ward seconded the motion, which was adopted unanimously.

Mr. Cook, in acknowledging the compliment, said, like a great many men who were getting on in life, he found that chemistry was getting ahead of him. So that now knowing very little about chemistry he had to be content to give the Society the benefit of the business knowledge which he had acquired.

The new officers were elected as follows: President, Thos. Tyrer. Vice-Presidents, Thos. Fairley, Boverton Redwood, Sir H. E. Roscoe, M.P., F.R.S., Prof. T. E. Thorpe, F.R.S. Ordi-

nary members of Council, R. Le Neve Foster, Douglas Herman, C. C. Hutchinson, Ivan Levinstein, J. S. McArthur, Sir Robert Pullar. Hon. Treasurer, E. Rider Cook. Hon. Foreign Secretary, Ludwig Mond, F.R.S.

The President's Address.

The President, who met with a most cordial reception, then gave his annual address:

After tracing the growth of the Society, and adverting to the value of its Journal, he alluded to some of the more notable features connected with the technology of chemistry which had marked the past and recent years. Alluding to gas-making, whose extinction was predicted some years ago, Dr. Thorpe said threatened manufactures, like threatened men, sometimes lived long. So many industries were now dependent upon the gas manufactory that it was like a town with many staple trades, each of which acted and reacted upon the prosperity and development of others. This very potentiality, indeed, afforded the strongest assurance of its continued existence, and with each fresh economy in production, with each new application as a source of power, with every new discovery in the use to which the countless products of distinctive distillation of coal could be put, the industry acquired a new lease of life. The tendency of modern life was more and more to turn night into day, and "Light, more light" was the ever constant cry. At the present moment the question of enrichment was engaging the attention of every gas engineer. This enrichment might be effected by three methods. (1) By causing the gas to take up the vapour of volatile hydrocarbons. (2) By mixing the coal gas with oil gas obtained by decomposing oils by heat. Or (3) by mixing the coal gas with carburetted water gas made by decomposing oils in heated chambers whilst subjected to a current of water gas. The idea of carburetting coal gas with volatile hydrocarbon vapour was, of course, not new. About forty years ago the late Dr. Lethby sought to put this idea into practice, but without success. The hydrocarbons he employed were far from uniform in character, and they were of very different degrees of volatility, and of varying illuminating value, so that after the gas had passed through or over the enricher for some time the more volatile portions having been evaporated, the residual hydrocarbon was more likely to decrease than increase the illuminating value of the gas. In the Maxim-Clarke process this difficulty was obviated by using a light spirit of fairly uniform composition which was volatilised into the gas as required, and there was little doubt that if benzole continues at its present price it would constitute the best and cheapest enricher that could be obtained. The fall in the price of oils, which took place a few years ago, naturally gave an impetus to the manufacture of oil-gas and to its utilisation for the purpose of enrichment. Enrichment by oil gas had been largely adopted in Scotland and many English works, and most gas managers who had given the process a fair trial had abandoned the idea of returning to cannel, as oil gas was not only far cheaper, but it was more easily worked, and the illuminating value of the gas as sent out was more under control. A serious drawback to the employment of carburetted water gas was that it contained 30 per cent. of carbon monoxide; and although the Board of Trade has not yet taken any steps to limit the amount of carburetted water gas that might be mixed with coal gas for distribution, there could be no question that its use was attended with great risk. To anyone acquainted with the poisonous action of carbon monoxide the distribution of so deadly an agent into our houses would be viewed with serious apprehension. If the public mind once realised this danger, the gas industry might suffer a blow from which, with the electric light on its flank, it would not readily recover. Wöhler's discovery of the carbides of the alkaline earths, and of the mode of their decomposition by water after lying dormant for many years, seemed about to bear fruit. We had in calcium carbide, which was now being produced on a relatively large scale by means of the electric furnace, a ready means of producing large quantities of acetylene of a high degree of purity. This substance could be made to burn, under proper conditions, so as to produce a flame of extraordinary luminiferous value and character. It remained to be seen what practical application could be made of this fact. Unfortunately acetylene is hardly less dangerous to breathe than carbon monoxide. Should either of these gases ever come into general use in connection with gas lighting some more stringent tests as to the character of our gas-fittings and mode of distribution would have to be insisted upon, or the public health would suffer. In connection with the subject of destructive distillation the President alluded to the great improvements in the construction of continuous stills. Although tar had many virtues, tar works, he said, were not usually regarded with much favour by those who happened to live near them. Hence the Lennard process, which obviated the nuisance incident to intermittent work, would no doubt be warmly welcomed by the sanitary authorities. The application of electrical energy to the decomposition of alkaline chlorides either for the production of chlorine or of alkali, or of both products, had been made the subject of many patents. The great majority of these processes had been still-born, and even of those which were stimulated into vitality the existence had been but short and feeble. With, however, a sounder knowledge of the conditions under which success was alone possible, the problem was once more attracting the attention of technologists and the chemical world were watching with great interest the results of two or three electrolytic processes which were now being worked out on a large scale. He described several of these processes. The learned professor went on to say that in view of the repeated warnings that in our chemical industries we were falling behind our continental competitors, it was satisfactory to note that in at least one important manufacture we were more than able to hold our own.

In the manufacture of glycerin, and he might include the manufacture of explosives in which nitro-glycerin was a basis, our neighbours were left far behind in the race. As they were aware, large quantities of glycerin were now made from waste soap lyes, and since 1890 chemically pure glycerin had been prepared from this source in Leeds. We were now not only independent of the Continental supply of glycerin, a matter of some concern to us so long as such explosives as cordite had to be relied upon for national defence, but we were able to teach our friends the enemy how to make their dynamite and to supply them, if necessary, with the material for the purpose. In this connection it might be noted that there was one other product, and the wool-scourer, which had for some time attracted the attention of technologists, but which as yet had not been utilised to any satisfactory extent, namely, wool-fat. Considering the enormous quantities of this material which were now wasted in this district alone, it was to be hoped that the problem of extracting and utilising it more profitably would soon be solved.

The manufacture of edible fats had now assumed large proportions, and however much they might sympathise with agriculturists under the long-continued depression which had overtaken them it was useless to shut their eyes to the fact that the trade in so-called factitious butters had acquired a recognised position in commerce. It might, however, be satisfactory to those persons who shuddered at the sound of the word "margarine" to know that the amount imported into this country had been steadily decreasing for some years past. For the six months ending June 30th of this year the quantity was 448,187 cwt. For the corresponding period last year it was 602,049cwt., for that of 1893 it was 629,242cwt. On the other hand, the amount of butter imported had steadily increased. During the six months ending June 30, 1893, it was 1,208,204cwt., during the same period in 1894 it was 1,340,784cwt., whilst in 1895 it was 1,456,690cwt. In other words, whereas the amount of margarine imported in 1893 was more than half that of butter, in 1895 it was less than one-third. It had been alleged that large quantities of margarine passed through the customs under a false declaration at the port of entry. He was in a position to say that such was not the case. The false declaration, if any, was to the consumer, and the remedy for this rested with the local authority under the powers conferred by the Adulteration of Food and Drugs Act.

Coming to the chemistry of textiles, Dr. Thorpe referred to the resuscitation of an old process which originated with John Mercer many years ago by which the calico printer is now able to imitate the so-called "crepons" of the weaver. The process consisted in the local application of a strong solution of caustic soda, which had the effect of giving the fabric the characteristic crinkled appearance. The attempts which had been made to introduce soluble gun-cotton as a silk substitute had been so far successful that the substance was now employed in association with wool or cotton fibres, the former giving the lustre and the latter the strength. Beautiful as the material was, it might be questioned whether its use was not attended with risk. Some time since the application of nitro-cellulose for textile purposes was altogether prohibited in some Continental countries. He next alluded to the

activity which characterises the discovery of new coal tar colours and to the numerous scientific investigations which had thrown light upon the chemical constitution of colouring matters or had suggested new synthetical methods.

On the chemical side of photography no very striking new departures had been made during the past twelve months. The main advances had been from the optical sido and in photo-mechanical proccsses. Considerable improvements had been made in the manufacture of the most rapid dry plates, and both in certainty of action and in keeping qualities they were but little behind the slower plates. Advance had also been made in the preparation of so-called iso-chromatic or colour-sensitive plates. The firm of Lumière Brothers, of Lyons, had placed on the market plates which were far in advance of anything hitherto commercially obtainable. The use of such plates had given a considerable impetus to the three-colour processes of photography in natural colours. Important advances had also been made in printing out papers, and the English papers especially left little to be desired both as to quality and cost. Among the more noteworthy of recent additions to our stock of developers were the aromatic amido compounds and phenol deratives, as amidol, metol, glycin, and para-amidophenol. Attempts to connect the action of organic developing agents with chemical constituents had not been wholly successful, although certain broad generalisations were possible. It appeared that for an aromatic organic substance to act as a developer it must contain at least two hydroxyl or two amidogen groups, or one of each, in its molecule. With regard to the so-called photography in natural colours the most satisfactory results from a practical point of view were obtained by what was known as the three-colour process. There was doubtless great room for development, but the researches of Vogel, Eder, Valenta, Hubl, and others had done much to show the way, and it might be predicted that before another year came round a notable advance would have been witnessed. Dr. Thorpe impressed upon those devoted to the higher branches of photography the absolute necessity of a good preliminary training in physics and chemistry. The more science put into photography the more rapid and certain would be its development. A good laboratory training and some familiarity with the habits and methods of scientific research would dispel many doubts and hasten action.

The principles of a science must be known before that science could be intelligently applied. The experience of a quarter of a century as a teacher had convinced him that we in England had yet to realise all that was thus implied. There was certain to be a rude awakening before very long from the optimism which dreamed that things would go on in the future as in the past, and that energy, capital, and all that was comprised in the phrase "business aptitude" were the sole factors of success. Our manufacturing supremacy in so far as it was dependent on science was not going to be sustained by these things. It was rather to the setting aside of a few, selected on the principle of the survival of the fittest, and trained to think and to apply the knowledge gained in class rooms, books, and laboratories that we must look for our salvation. All those industries which depended upon science depended upon the existence and development of such places as the Yorkshire College. By development he meant the creation of a school of research in which young men, no longer haunted by the dread of impending examinations, might have time and opportunity to give exercise to the spirit of inquiry, and to strengthen their intellectual powers in attempting to enlarge the boundaries of science. One of the greatest object-lessons in so-called technical education was to be seen on the banks of the Rhine at Ludwigshafen. He recalled the vivid impression made upon him by the sight of the wonderful works of the Badische Anilin and Soda Fabrik with the well-equipped laboratories, the like of which was not to be seen in any educational establishment in the world, and the scores of university trained chemists at work on problems of chemical industry needing the highest skill and knowledge for their solution. And this place was only one of many such in Germany. It was only by the practical recognition of this spirit in our chemical schools and laboratories that chemistry could progress, or that the arts which were dependent on the application of chemical principles could flourish.

At the conclusion of the President's address a cordial vote of thanks was accorded to him on the motion of Mr. Tyrer (President-elect), seconded by Mr. C. F. Tatley (Leeds).

Professor Thorpe having acknowledged the compliment,

On the motion of Mr. Fletcher, seconded by Dr. Kohn, Messrs. Theobald Brothers and Miall were reappointed auditors at a salary of £10 a-year.

Mr. W. F. Reid moved, and Mr. Gibson seconded, the reappointment of Mr. Rider Cook to represent the Society on the Imperial Institute Committee, and then

On the motion of Mr. Newlands, seconded by Mr. Christal, it was resolved to hold the next annual meeting in London.

Professor Thorpe then moved, and Dr. Howard seconded, a cordial vote of thanks to the authoritics of the Yorkshire College for having placed that building at their disposal, and this having been uanimously adopted,

The Mayor of Leeds gave the members a cordial welcome to the city, and hoped that Leeds, with its varied industries, would not prove an altogether unprofitable place for their meeting.

The business proceedings then came to an end, and members were afterwards shown over the various departments of the College, where they were also entertained to luncheon.

In the afternoon different manufactories and places of interest were visited, and in the evening his Worship the Mayor entertained the members at a conversazione.

THE BRITISH MEDICAL ASSOCIATION.

The Annual Museum.

The sixty-third annual meeting of the British Medical Association has been held in London this week, and the usual exhibition, or "Museum," has been held in connection with the gathering. For this purpose the examination hall of the conjoint board on the Victoria Embankment has been utilised to accommodate those which are connected directly or indirectly with pharmacy, whilst some of the rooms in King's College are occupied by shows more relating to surgery and hospital work. A falling off in the number of exhibitors is noticeable, for whereas some 130 were represented last year, on this occasion the number does not exceed 100, and this is mainly attributable to the excessive charges for space which the Museum Committee see fit to make. Some references to the principal exhibits may be of some interest to our readers.

The best position in the main room has been secured by Burroughs, Wellcome and Co., and good use has been made of the space allotted to them. The general arrangement of the stand is tasteful and distinctive, the whole being surmounted by a statue of Mercury, and this exhibit naturally attracts a visitor's first attention. The chief prominence has been given to a collection of historical medicine chests, which derive peculiar interest from their use by the most famous explorers. To commence with one used by David Livingstone, we pass on to the well-known Stanley case, the "Rear Guard" case used by the late Surgeon-Major Parke in the Emin Pasha relief expedition, and the Rowland case, used in travels through Thibet and the Himalayas. In each instance, although the tabloidal contents have been exposed to the most trying extremes of temperature, ranging from the intense cold of the hills to the heat of the monsoon weather, or to the deadly swamps of the Congo, naturally associated with malaria, no deterioration is perceptible, and their disintegrating and medicinal properties are unimpaired. Here are also shown the medicine chest used by the late Wilkie Collins and a compact medicine belt designed for the use of Captain Stairs in his Katanga Expedition by Mr. Wellcome. Within the last few weeks Julius Price, the artist journalist, started for the wildest parts of Western Australia equipped with a B.W. medicine chest, and a case, which accompanied him through a journey of 33,000 miles in the Arctic Regions, Siberia, China, and America is shown. After noticing the cap worn by Stanley in Africa and some interesting relics of Jenner, the discoverer of vaccination, we notice that of the various tabloids prominence is given mainly to those of organic remedies of animal origin. This firm has identified itself prominently with the manufacture of these products, and the list includes representatives of all the known varieties. A good show is made of ophthalmic tabloids, including all the combinations in general use, and in addition an arrangement of testing types and a chromatic dial for detecting colour blindness is prominent. The display of soloids, and every variety of tabloid, is complete, but does not call for special mention. A notable feature of this exhibit is the prominence given to the manufacture of the anti-diptheritic serum, the difficulties of which would appear to have been thoroughly

tackled. The firm claims to have been the first private firm to prepare liquid serum for general supply in this country. The dry variety of the serum is in the form of brilliant scales, which are claimed to be non-hygroscopic and possessed of indefinite keeping properties under normal atmospheric conditions. The show of every variety of medicine cases, fitted with tabloids for the pocket or travelling, is very striking, and embraces presentation cases of gold, silver, and silver-gilt, down to a curiosity in the shape of a tiny case hardly more than an inch square in size, which holds 500 doses. The rest of this stand is occupied by a selection of the various B. and W.'s specialties in pharmacy and surgery, and the synthetic remedies for which they are agents.

Fairchild, Bros., and Foster, of New York, represented by Burroughs, Wellcome and Co. in this country, have an adjacent position to them, and make the most of it. Giant bottles of zymine, pepsine, peptogenic milk-powder, and glycerinum pepticum, form an effective background, and in the centre the preparation of humanised and peptonised milks and digestive junkets is demonstrated at intervals. The preparation employed for the latter purpose is one recently introduced under the name of pepsencia. It is a liquid preparation of the stomachs of the calf and pig, and as it contains the curdling and digestive ferments, makes a more satisfactory curd than rennet alone. Panopeptone seemed an unfamiliar name, and we find on inquiry it is made from whole wheat and lean beef by predigestion, concentration, and sterilisation, and contains in an easily assimilable form the nutriment of both varieties of food. Peptogenic milk-powder has been introduced recently for the preparation of humanised milk, by mixing with stated proportions of milk, water, and cream.

Allen and Hanburys (Limited), Plough Court, Lombard Street, London, have a very fine exhibit to the right and left of the main entrance. On the right an excellent display of the pharmaceutical preparations is made, the stand being draped in dark blue velvet. Naturally, prominence is given to their various preparations of malt, in the form of bynin, bynol, and compounds of these preparations, as well as to a tempting display of all kinds of jujubes and pastilles. A new form of feeding bottle seems to us to possess decided advantages. It is what might be called bent boat-shape, no tubing being used, and the teat, which can be readily turned inside out to clean it, fits directly on one end, whilst the other is closed by a rubber plug, which is withdrawn when the bottle is cleaned; by this means a good stream of water can be run through, and perfect cleanliness is ensured. It retails at a very moderate figure. Prominence is given to the power of disintegrating readily, which the tabellæ made by this firm possess; insoluble preparations, such as sulphur, falling away in a flaky form after being placed in water for a few seconds only. Chrisma, a well-known variety of white paraffin, has been used as a basis for preparing various antiseptic ointments, which are put up in capsules, the medicaments employed including carbolic acid, "izal," mercuric chloride, and boracic ointment. A fine show of "hazel bloom," A. and H.'s preparation of *Hamamelis virginica*, "izal" in all its shapes and forms, and the now well-known Malted Food and Mother's Milk Food claim attention before we turn to the surgical instruments, which form such an important branch in the business of this firm. Here the display of hypodermic syringes of all kinds is very complete, and some improvements in tongue depressors and tonsil guillotines are shown. The atomiser introduced by this firm for use with chrismaline and the powder insufflator claim attention, as well as Johnson's urine-test cabinet.

Parke, Davis, and Co., 21, New Audley Street, W., have a tastefully-arranged exhibit, where prominence is given to their various forms of pepsine in both scale and powdered form, ranging from 1·1000 to 1·15,000 test. Considerable space is occupied by the series of fluid extracts made by this firm, and Mosquera products in the shape of coca essence (a kind of liqueur), beef juice, jelly, and cocoa are also shown. During the week the members of the Association have been invited to visit their offices and laboratories in Mayfair for inspection.

The most noticeable feature about Ingram and Royle's exhibit is the prominence they give to the "Big Rapids" water, a powerful alterative. The dose of this is unusually small, being only one teaspoonful. The firm have only just taken up the agency for it. They also show "Æsculap" water for the first time.

Carnrick and Co., Limited, Hart Street, Bloomsbury, W.C., in conjunction with the Maltine Manufacturing Company, show their various combinations of peptonoids, as well as maltine, in all its forms.

The Sanitas Company (Limited), Bethnal Green, E., have secured a good position adjacent to Allen and Hanbury's, and "Nature's only disinfectant" in all its forms is seen to advantage in great variety. Their manager drew our attention more particularly to the pocket disinfector, which was described four weeks since in the *Pharmaceutical Journal*. Sanitas is by no means the only disinfectant shown, as various forms of creosote and carbolic acid have often to be supplied by this Company when filling contracts to various public bodies.

Camwal have a really fine show of their mineral water in syphons and bottles; as well as model syphons varying in size from about 2 inches up to 3 feet in length. They give special prominence to the series of fruit syrups which has been much extended, and seems to be appreciated by their customers.

Armour and Co., 59, Tooley Street, E.C., have not a very prominent exhibit, and it is chiefly devoted to their well-known forms of pepsin. Still, prominence is given to vigoral, which is a combination of their beef extract and powdered beef fibre, and their manager informed us that the winner of the 100 miles cyclists' road race last week adopted it exclusively during the contest. Thyroid and thyroid tablets are also shown, and beef extract flavoured with "cerebos" is dispensed to the visitors.

Salamon and Co. (Limited), Rainham, Essex, confine themselves to chloroform and ether, for which they have a reputation amongst the profession.

Cooper and Co., 80, Gloucester Road, South Kensington, have a very creditable exhibit. Prominence is chiefly given to their preparation of quinine salicylate, but Finot's cachet apparatus seems to possess some special claim to notice, although the general method of working it seemed more complicated than for other machines which are in general use. The cachets have this advantage, that although the diameter is relatively small, they have a considerable depth, and contain a much larger amount of powder than at first sight would seem probable. They can be had in various colours, and stamped with the names of the medicine or by means of the apparatus, the latter operation can be carried out automatically.

Idris and Co., Limited, Pratt Street, Camden Town, N., devote a considerable amount of space to exhibits from their chemical and bacteriological laboratories. Thus a portion of a Berkefeld filter is shown in order to disprove the statement that bacteria will penetrate completely through it when grown under favourable conditions. Hydrometers constructed to show to the fourth decimal place attract our notice, and the various forms of apparatus which facilitate the frequent determinations of CO_2 and alkalis necessitated in the every-day work of this factory. The firm manufacture their own syphon tops, and portions of the tin ingots are shown, as well as the means adopted in the system of pipes to avoid metallic contamination. A good show of microscopes, polariscopes, and spectroscopes gives the visitor a favourable impression of the care with which this firm manufacture their products. The rest of the space is occupied by a display of aerated waters and syphon bottles, and a model of the Idris factory.

Adjacent to Idris and Co. the Viking Food and Essence Company, 33, King's Road, St. Pancras, N.W., show their preparations of beef tea and beef juice, karn (or beef bouillon), as well as other invalid delicacies.

The Apollinaris Co., Limited, in addition to a good show of the water from which they derive their name, give particular prominence to the Friedrichshall water from the new spring. They distribute an interesting reprint from the *St. James's Budget* of a visit to the Apollinaris Spring.

Arnold and Sons, West Smithfield, London, show a number of improvements in surgical instruments, the more important being hypodermic syringes, hæmorrhoidal clamp, vaginal douche, and a new form of urethral knife.

Savory and Moore, New Bond Street, London, have a good exhibit of their well-known digestive products and foods, as well as some drugs in the compressed form, which do not call for especial notice.

Duncan, Flockhart & Co., South Canongate, Edinburgh, give prominence to the "Baumol" superfatted soap, for which they are agents. They also show a general pharmaceutical exhibit, including their make of chloroform and an extensive assortment of capsules.

The Aylesbury Dairy Company have one of the most interesting exhibits in the building. A portion of it is fitted up as a laboratory, and demonstrations are given of the rapid determination of fat in milk by Gaber's acido-butyrometric method. This process involves the use of Grætner's gyrostat, and by its use the fat determination of a milk may be considerably expedited. In addition to this, there are various operations required in milk,

butter, and water analysis, including the detection of the various preservatives in milk. The other section of this exhibit is devoted to a prominent show of humanised and peptonised milk and cream, Muffler's sterilised food, and koumiss.

Southall, Bros., & Barclay, Birmingham, are in evidence with their sanitary towels and similar specialties, as well as a neatly arranged exhibit of materia medica and herbaria specimens, with microscopic slides.

As is usually the case, Down Brothers, 5–7, St. Thomas Street, S.E., have the largest show of surgical instruments, and a bare enumeration of the innumerable novelties would occupy too much space. We can only say that their exhibit fully sustains their reputation.

The Cebebos Salt Company, 134, Upper Thames Street, E.C., are very much in evidence, not only at their own stand but also by supplying their condiment for the use of visitors tasting Armour's preparations. The salt bids fair to become popular now, and in appearance and taste is similar to ordinary table salt. The same Company also show a Cerebos baking powder, which is also stated to contain the mixed bran phosphates.

Condal water is generally well known to chemists, and its composition is eminently suitable where a gentle aperient is required, the proportion of magnesium sulphate to sodium sulphate being but small.

Whilst on the subject of mineral waters, it may be said that there is a very good exhibit of Johannis water, and for those who like a non-medicated water, which is naturally aërated, this deserves attention.

Brand and Co., Mayfair, W., show every variety of invalid specialties, and their numerous delicacies being at the service of visitors, it is needless to say are much appreciated. Next to them Thomas Christy and Co. have a prominent exhibit. Here Mr. Yahn draws our attention to the various drugs and preparations with which this firm has been associated since their introduction into this country. They include menthol, cocaine, kola, etc. The N.W.K. Adeps Lanæ has a prominent place here, as well as a series of fluid extracts of these new drugs, of which this firm are the importers.

F. Steans and Co., Detroit, U.S.A., exhibiting in conjunction with J. Christy and Co., have some interesting pharmaceutical products, the more important being Dike's pepsin. This is a well-made article, being readily soluble, non-hygroscopic, and free from smell. The wine of cod-liver oil, which is stated to contain 25 per cent. of pure cod liver oil, as represented by its active constituent, has met with a favourable reception from the profession, and what but recently would have seemed a pharmaceutical impossibility, seems to have been satisfactorily solved.

A good old pharmaceutical house is represented a few steps further on, where we will come to the exhibit of Willows, Francis and Butler, 101, High Holborn, W.C., and it is satisfactory to note that the products of this firm show them to be thoroughly abreast with the times. In a chat with Mr. Butler concerning the return to use, in a new form, of the medicines of bygone days, the special knowledge required for the preparation of these animal extracts was exemplified, but the firm in question are well qualified for the work, as the increasing demand for their preparations testifies. In addition, a bold show is made of the liquor calcis iodinatæ, a well known specialty of this firm.

C. J. Hewlett and Son, Charlotte Street, E.C., have a display which worthily represents the well-known pharmaceutical products of this firm, including their series of mixtures. In addition they give some prominence to apparatus and tests for wine analysis, and have a well mounted collection of microscopical slides illustrating various pathological subjects.

Jeyes' Sanitary Compounds Company, 43, Cannon Street, in addition to their usual series of disinfectants, give great prominence to a series of synthetic compounds, including migrainine—antipyrine—caffeine citrate—lysidinc (a solvent of uric acid), which is recommended in place of lithia and piperazine, and carniferine—an iron salt of phosphocarnic acid. These are all made by Meister Lucius and Bruening. A pamphlet drawing attention to nosophen, antinosine, and endoxine, which are iodine compounds recommended as iodoform substitutes, is widely circulated amongs the profession.

The Liquor Carnis Company has not a very prominent position, but their stand has much of interest. Prominence is given to virol, the preparation of marrow, fat, eggs, and malt extract, introduced to take the place of cod liver oil, and morrol, a similar preparation, but containing ox-marrow in place of fat and eggs. In addition there are diagrams which indicate the digestibility of virol compared with similar preparations; another which gives the result of its comparative analysis; and a third demonstrating the perfect emulsification of the fat contained in it.

One hardly expects to see many novelties exhibited by J. F. Macfarlan and Co., their chloroform and ether being quite sufficient to keep them permanently in the mind of the medical profession; but we find that they have recently introduced a sulphur cone, which has some distinctive advantages. It has been extensively adopted by many of the sanitary bodies in the kingdom, and is supplied to the trade on favourable terms. The style in which the carbolised sutures and ligatures are put up has been improved so as to obviate the leakage to which the bottles are very liable.

Arthur and Co., 69, Berners Street, W., have a very varied assortment of goods on show; too varied, in fact, for us to notice beyond saying that this firm seems to lay itself out for carrying out any suggestions made to them by medical practitioners, which are likely to be of medical or pharmaceutical utility.

W. Martindale's exhibit attracts a great amount of notice from medicos, to whom the name is almost a household word, and every preparation which is of interest, although only temporarily, seems to find a place there. A very convenient form of box for pills which spoil by exposure to light is one of the novelties shown. It is made of vulcanite with a screw cap, and allows only one pill at a time to escape from it. The various preparations of epidermin, and the antiseptic tooth dentifrices—chloratefrice and salicifrice—also claim attention.

Warrick Brothers, 18, Old Swan Lane, confine themselves to the various combinations of jelloids. The manager informed us many medical men had expressed their satisfaction at the results they had obtained from their use.

B. Kühn gives special prominence in his exhibit to papair and allied preparations. The fruit seed and dried juice of *Carica papapa* are of interest as well as a papain-pepton. Besides this, several synthetic products in the shape of diuretin, exalgine, and ferroyprine are shown. The style in which Bengué's ethyl chloride and "anestile" are put up has been considerably improved. The latter holds its own for use in minor operations and dental work. The corrosive sublimate papers introduced by Balme are likely to become popular. The sublimate is kept in a soluble form impregnated in slips of paper, and when one of these slips is soaked in water for a few minutes the solution is formed. They have the strength printed on them in bold red lettering and undoubtedly will help to mimimise accidents.

Unusual, and somewhat unexpected, pressure on our space compels us to postpone further reference to the museum exhibits.

OBITUARY.

Fisher.—On July 25, Francis Dixon Fisher, Pharmaceutical Chemist, Grantham. (Aged 55.) Mr. Fisher was a life member of the Pharmaceutical Society of Great Britain. For several years he was a member of the Grantham Town Council, and had the honour of occupying the civic chair during 1878–79—the year before the extension of the borough. He qualified as a Justice of the Peace in 1881, and for a number of years was one of the most regular attendants on the borough Bench. Mr. Fisher's keen perceptive faculties and his well-balanced mind fitted him especially for this responsible position. He took particular interest in the administration of the Elementary Education Act. Mr. Fisher was also a prominent Freemason, being a member of the Doric Lodge, No. 362. He has worthily filled the chair, and for some time acted as treasurer of the Lodge. He was a strong Churchman. He also acted as a sidesman of the parish church, and was likewise a Commissioner of Income Tax.

Forbes.—On July 23, James Wallwork Forbes, Chemist and Druggist, Bolton. (Aged 72.) Mr. Forbes had been a member of the Pharmaceutical Society of Great Britain since 1876, and was a regular attendant at the British Pharmaceutical Conference. It appears, from a local newspaper report, that Mr. Forbes, whilst making his way downstairs, slipped and fell to the bottom, where he was found next morning unconscious by the housekeeper, having hurt his spine. In many respects the deceased gentleman was a remarkable character, and he will be missed by a large circle of friends. Before he was 25 years old he was in business for himself in Bolton, but subsequently, for some twelve years, he was dispenser to the late Dr. Rothwell, J.P., an old schoolmate of his, though ultimately he resumed business on his own account.

Exchange.

[*Notices of books, apparatus, etc., for exchange, of reasonable length, are inserted free in this column, if they do not partake of the nature of ordinary advertisements. The notices should be written on post-cards, addressed "Editorial Department, 17, Bloomsbury Square, W.C."*]

WANTED.

Literature.

'Pharmaceutical Journal,' February 23, and July 13, 1895.—Full price will be paid by the Secretary, 17, Bloomsbury Square, London, W.C.

Two-grain pill machine. State lowest price (carriage paid).—A. M. Shepherd, Rose Street, Aberdeen.

OFFERED.

Shop Fittings.

Mahogany Circular Soda-Water Stand, triangular base, marble top, shelves with holes, good condition, 55*s*. Bent Case, 2 ft. 3 in., sloping ⌈shelf, ⌈mirror back, 32*s*. 6*d*. Ditto, 3 ft. 6 in., glass cracked, three velvet lined trays, 30*s*. Homœopathic Case, 10*s*. 6*d*. Two Handsome Specie Jars, 3 ft. 2 in., mahogany stand, £7.—Cocks, Pharmacist, Torquay.

Photographic Apparatus.

Morley's Stereoscopic Camera, leather bellows, flap shutter, two spare fronts adaptable for single lens up to half plate, three double dark slides, leather case and well-made tripod, pair Grubb's B stereo lenses and a 5 by 4 doublet by Lawley, Waterhouse stops, nearly as new, five printing frames. Price, for cash, £6.—Cocks, Pharmacist, Torquay.

Four Kombi Cameras fitted 25 exposures, never used, not long in stock, 2 printing frames for ditto, developing powders, photo enlargement pamphlets. What offers.—Kombi, 358, High Street, Chatham Intra, Rochester.

Apparatus.

For sale, six pairs Savar's Tooth Fxtraction Forceps and Gum Lancet, quite new, price, 20*s*.—Hornby, Salford Royal Hospital, Manchester.

Trade Marks Applied For.

[From the *Trade Marks Journal*.]

No. 187,427.—Medicated Soap for human use, Lever Brothers, Limited, Port Sunlight. near Birkenhead. May 4, 1895. Device: A female propping up clothes-line, and the words "Sunlight Soap," etc. The essential particulars are the device and the word "Sunlight."

No. 187,435.—A Medicine for human use for the cure of neuralgia and similar ailments.—William Mottram, 95, Fleet Street, London, E.C., May 4, 1895. Word, "Napine."

No. 187,931.—Medicinal Preparations for human use.—Mayfield Archibald Lilly, 35, Colston Street, St. Augustine's, Bristol, May 30, 1895. Word, "Kanyer."

No. 188,046.—Chemical Substances prepared for use in medicine and pharmacy, but not including medicated soap, and not including pills, and not including any goods of a like kind to any of these excluded goods.—Holmes Samuel Chipman, 54, Margaret Street, Sydney, New South Wales, June 7, 1895. Word, "Minerva."

No. 188,223.—A Toilet Cream for the skin.—J. and E. Atkinson, 24, Old Bond Street, London, June 17, 1895. Word, "Aoline."

No. 185,856.—Medicinal Beverages for human use.—The Flitwick Chalybeate Company, 63, Borough High Street, London, S.E., February 26, 1895. Word, "Wikko."

Patent Office Business.

Applications for Patents.

[From the *Illustrated Official Journal (Patents)*.]

No. 13,622.—Improvements in or relating to spraying apparatus. July 16.

No. 13,680.—A new or improved absorbent and antiseptic neck-tie or cravat. July 17.

No. 13,681.—Tonic preparations of golden syrup and treacle. July 17.

No. 13,710.—Improved apparatus for the production of local anæsthesia. July 17.

No. 13,758.—The automatic closer for stoppered bottles during sterilisation of contents. July 18.

No. 13,819.—An improved medicine for the cure of pneumonia and worms in the throats of sheep and cattle. July 19.

Specifications Published, June 29.

Labelling Bottles, etc. (Miller, H. J.)—Instead of being labelled as usual, toilet, pharmaceutical and other bottles contain a small float, from which hangs a tablet or label suitably inscribed. The invention is intended to prevent removal of a label or its replacement by another. No. 11,517 of 1894.

Hernia and other Trusses (Wing, A. G.).—The pads of trusses are formed of small conical, cylindrical, or other shaped projections of india-rubber on a backing of sheet india-rubber or like material. The part of the body on which the pad rests is thus ventilated. No 14,197 of 1894.

Bottles (Truemann, R. S., and J. C.).—The neck of the bottle is formed with a double rim, a passage or passages extending into the inside of the bottle from the trough which is formed between the rims. Any liquid which runs down outside the inner rim after pouring is thus received by the trough and returned to the bottle. No. 14,552 of 1894.

Medicine for Indigestion (Darby, L. J.)—The medicine contains the following ingredients mixed in stated proportions and in a stated manner:—American mandrake root, powdered rhubarb, powdered bark, carbonate of soda, hiera-piera, oil of peppermint, cayenne pepper, and brandy. No. 16,711 of 1894.

Herbal Application for Children (Gouk, I. J.)—For children who are teething, a sachet, containing a mixture of the dry powdered leaves of *Viscum album* and *herba verbena*, is secured at the pit of the stomach or elsewhere. No. 7488 of 1895.

Personal Notes.

Mr. H. J. Chaney, of the Standards Department, Board of Trade, will represent the British Government at the Sexennial Conference of the International Committee on Weights and Measures, to be held at Paris, on September 6.

Professor Ramsay has been elected a correspondent of the Paris Academy of Sciences.

Mr. M. A. Lawson, the Government Botanist to the Madras Presidency, and Director of the Cinchona Plantations. on the Nilgiris, will shortly retire from government service.

Sir Julian Goldsmid has been elected Vice-Chancellor of the University of London, in succession to Sir James Paget, Bart.

Diary of the Week.

[*Notices for insertion under this heading should reach the Editor on or before Wednesday.*]

Tuesday, August 6.

Pharmaceutical Society of Great Britain.
Benevolent Fund Committee.
Finance Committee.
General Purposes Committee.

Wednesday, August 7.

Pharmaceutical Society of Great Britain, at 11 a.m.
Council Meeting.

Trade Notes.

We have just been favoured by Messrs. Evans, Sons and Co., Hanover Street, Liverpool, with an advance copy of their price list for August, an issue marking a new departure on the part of this enterprising house. For the first time the printing of this "Prices Current" has been executed on the firm's premises by their own staff and under their own supervision, the result being a compendious, clearly printed, well-arranged and up-to-date list, extremely creditable to all concerned in its production.

New Books and New Editions.

[*Publishers are invited to forward full particulars of new publications, including price.*]

Mathematical Note Book. Specially prepared for the use of Pupil Teachers, Scholarships, and Certificate Candidates. By G. T. Vine. Post 8vo, pp. 88. Price 2*s*. (Simpkin, Marshall and Co., London.)

A Junior Course of Practical Zoology. By A. M. Marshall and C. H. Hurst. Fourth edition. Post 8vo, pp. 516. Price 10*s*. 6*d*. (Smith and E., London.)

Late Advertisements.

Assistants Wanted.

AT once, an experienced Assistant, good address, for light Retail, Dispensing and Prescribing business. Must be energetic and capable. State full particulars as to height, age and salary, &c. Wilson Metcalfe, Pharmaceutical Chemist, Chelmsford. Vacancy also for an Apprentice.

A DISPENSER for a private Dispensary. Hours 6 till 10.30 p.m., and Sundays 6 till 9 p.m. Must be quick and accurate, a good penman, and have good recommendations. Apply by letter, stating age and salary expected, to B., 55, Kingsland Rd., N.

JOHANNESBURG. — Qualified Assistant wanted, about 25 years of age. One who has had some experience of Wholesale work preferred. Must be steady, and not afraid of work. Apply, stating full particulars, to E. M., care of John Murdoch & Co., 52, Leadenhall St., E.C.

ASSISTANT Manager required for a good business of the W. Coast of South America. Beautiful climate. Must be energetic, steady. Qualified. One with knowledge of Spanish or French, and able to invest £1000 or more (for which proportionate share will be given with option of acquiring later on up to one-half) preferred, but not essential. Good prospects for a suitable man. Personal interview, but first write with details and references, &c., to C. J. S., 13, Upper Bedford Place, London, W.C.

SUPPLEMENT

TO THE

PHARMACEUTICAL JOURNAL.

Contents of Supplement.

Federation of Local Pharmaceutical Associations i
The British Medical Association..... i
Patent Office Business iii
Market Report..... iv
Practical Optics for Chemists vi
Exchange viii
New Books and New Editions..... viii

FEDERATION OF LOCAL PHARMACEUTICAL ASSOCIATIONS.

The second annual meeting was held at the Hotel Mont Dore, Bournemouth, at 10 a.m., on Friday, August 2, 1895, Mr. H. Kemp (Manchester Association) in the chair. After the minutes of the previous meeting had been read, the Secretary reported what had been done during the past year, and stated *inter alia* that fourteen associations had responded favourably to the letters sent out asking them to connect themselves with the scheme, whilst fourteen others had not replied; the latter including three or four which have practically ceased to exist. One association had written declining to be connected with the Federation.

The balance-sheet showed that a sum of £3 1s. 5d. was owing to the Treasurer for expenses incurred from the initiation of the movement to the present, for printing, postages, and hire of room at Oxford. The report and statement of accounts having been adopted, on the proposition of Dr. Symes (Liverpool Association), seconded by Mr. W. H. Gibson (Brighton Association), the Secretary was instructed to collect subscriptions from the affiliated associations and repay the Treasurer his disbursements.

Mr. Kemp then addressed the delegates at some length, and dwelt especially upon the need for an emphatic decision there and then whether they should proceed with the work they had taken up or allow it to die out. Personally, he was as much possessed with the possibilities of a federation as ever he was, but he wished to point out that the probabilities of it becoming a power for good were remote, except greater activity were shown, and a more real desire for mutual good evineed. He had been much disappointed with the coldness with which the scheme had been received in some quarters, although he believed that it might in some measure be accounted for by an impression which had unfortunately got abroad that a part of the work to be undertaken was counter to that of the Pharmaceutical Society. Nothing could be further from the intentions of the promoters, and speaking for himself, as a loyal adherent of the Society for more than twenty years, he was convinced that it would be quite futile for them to attempt to engage in work antagonistic to the Pharmaceutical Society, whilst on the other hand they might in many ways prove useful to it. If the assumption had its origin in certain inflammatory speeches made at the inception of the Federation, he wished to point out that those speeches did not emanate from friends of the movement, and did not receive their approval. Up to the present time their idea had been to elicit opinions from others rather than to press their own upon them; to say to them, "If you believe that good can come out of a federation join us and give us the benefit of your views—assist us in formulating a plan of operations and a code of rules." He did not desire to depress them with prophecies of failure, but rather to impress them with the necessity for taking a definite line of policy and acting upon it, of each delegate and each association doing his and its share towards making the Federation a medium of success to all. He concluded his remarks by indicating work which might be undertaken at once, and ways in which he thought such work should be done, especially in reference to a new Pharmacy Bill, to the recognition of pharmacy in the compilation of a National Pharmacopœia, as well as to matters of a more commercial character, and said: They had now arrived at a point when, if they wished to go forward, they must get to business, and it was for the delegates present to express their wishes in the matter.

Mr. R. D. Gibbs (Midland Association), whilst expressing himself somewhat disappointed with the tone of the Chairman's remarks, said he thought the Federation was capable of great development, and urged that as the preliminaries of devising and providing the machinery had been got over, it would be unwise to turn back now. He felt sure that much good work might be done.

Mr. Gibson said he thought the Chairman had not intended to discourage them, but rather to stimulate them to good work. He was convinced there was much to be done by combination of efforts, and should certainly vote for going ahead.

A general discussion followed, Dr. Symes, Mr. Park (Plymouth), Mr. Guyer (London Assistants'), Mr. Thompson (Midland), and other gentlemen present taking part in it, and each in turn offering suggestions for the advancement of the cause and emphasising the remarks from the chair regarding their attitude towards the Pharmaceutical Society.

The Chairman then asked, "Is it your pleasure, gentlemen, that we proceed with the prosecution of this work?" An affirmative and unanimous response being given, the delegates at once proceeded to the consideration of the proposed rules, which were finally adopted in the following amended form:—

RULES.

1. That this Association shall be called "The Federation of Local Pharmaceutical Associations of Great Britain."

2. That it shall consist of representatives from all properly constituted and subscribing Local Pharmaceutical or Chemists' Associations in England, Scotland, and Wales. That each Association shall have the right to appoint one delegate.

3. That the objects of the Federation are:—

(*a*). To establish more intimate communication and co-operation between Local Associations.

(*b*). To advise and assist in the promotion of Local Associations.

4. That a Chairman and Secretary shall be appointed annually.

5. That every Local Association shall pay an annual subscription of ten shillings.

6. That the annual meeting be held in the same town and during the same week as the annual meetings of the British Pharmaceutical Conference. Five delegates shall form a quorum.

7. These rules shall not be altered except at an annual meeting, and then only after fourteen days' notice has been given.

Certain proposals were made for communication to the Local Associations, and after these had been adopted, Mr. Kemp was reappointed Chairman, and Mr. Thompson, having intimated that his business engagements would prevent him holding the office of Secretary any longer, Mr. Guyer was elected in his stead.

A vote of thanks to the Chairman brought the proceedings to a close.

THE BRITISH MEDICAL ASSOCIATION.

The Annual Museum.

Extreme pressure upon our space last week compelled us to defer a description of some of the most important exhibits. Some account of the more prominent features of these will be found below.

Lorimer and Co., Britannia Row, Islington, N., had a prominent display of their various specialties, most of which are of direct pharmaceutical interest. Some prominence was given to their preparation of oxide of magnesia, sold under the name of "lac magnesia," the advantages claimed for it being that it will keep indefinitely, and the magnesia will remain perfectly diffused through the liquid. Being agreeaby sweet it is readily taken by children. "Dermoplastin" is the name applied to an ointment composed of vaselin, zinc oxide, bismuth, and boric acid. It is specially recommended for all cases of skin troubles, especially those arising from eczema and acne. In this exhibit chief prominence was given to the well-known compound syrup of the hypophosphites, which has now been before the profession some years, and still holds its ground. Another important item is their infants' food, to which an analysis as compared with human milk is appended. The extent of the ground covered by this firm in their manufactures was shown by displays of capsules, eachets, coated pills and pilules, and capsuled horse balls, whilst in addition, iodised oil and witch hazel extract elaimed the visitors' attention.

Evans, Lescher, and Webb, 60, Bartholomew Close, E.C. — The preparations shown by this firm were typical of their well-known specialties. Needless to say Montserrat lime juice and cordial were very much in evidence, and also Savaresse's eapsules in great variety. In addition, a series of fluid extracts reminded the visitor of the attention devoted to this class of preparation, as well as specimens of citrate of magnesia and saline, both of the latter being now leading lines. The plan adopted by this firm of sending out powders in tin canisters is to be eommended, especially for such drugs as coriander, fœnugreek, and

ginger, which if kept in paper are likely to deterioriate.

It was satisfactory to find the old-established firm of Leslies, Limited, Bond Court House, Walbrook, E.C., well represented, and able, as we learnt from their manager, to contend with the keen competition from across the water. Of late, special attention had been paid to the manufacture of rubber plasters in various forms, and the article now turned out seems satisfactory, both in quality and price. Recent additions to the firm's list are adhesive plaster on reels, mustard plasters, elastic bandages, and a prominent display was made of fibrine dressing, the absorbent power of which is said to be much greater than that of cotton wool.

The British Castor Company, Ltd., 47, Victoria Street, Westminster, S.W., was represented by a display of Mitchell's tasteless castor oil. The process by which this oil is obtained was fully described in the issue for May 11, in the last volume of the *Pharmaceutical Journal*. Certainly it is the only medicinal castor oil on the market drawn in this country, and in taste and therapeutic action realises all that Mr. Mitchell, the patentee of the process, claims for it.

Robinson and Sons (Limited), Wheat Bridge Mills, Chesterfield, and 55, Fann Street, E.C., had a representative display of surgical dressings, and also showed the bandage shoot introduced and patented by Reynolds and Branson of Leeds, which was described in a recent issue of the Journal. Of their own manufactures, the most novel is the cellulose wadding. This is a sterilised product of white pitch-pine, and is said to possess absorbent properties far superior to cotton wool. It can be used with any antiseptic whose combination with it is indicated. It is, perhaps, needless to say that the "Stag" brands of cotton wool and lint, so well known all over the country, were to the fore in various sized packages from 1 lb. downwards, and samples were distributed to any medical man who enquired for them.

R. W. Greef and Co, 3, Eastcheap, E.C., were mainly represented by the various synthetic products for which they are agents in this country, but in addition they showed Byk's liquid pepsin, which has attained some repute in Germany. The same makers' brands of salicylic acid and sodium salicylic have received favourable reports from the medical press, the former of which is said to be identical physiologically and chemically with that prepared from wintergreen oil. An interesting addition to their exhibit, which is not included in their list, was notified to us by their manager. It is the anti-venomous serum prepared after the formula of Dr. A. Calmette, who has devoted a large amount of time to the investigation of the various serpent venoms of the world. Of the rest of this exhibit mention can only be made of the phenacetin, sulphonal, salipyrin, and dulcin manufactured by Riedel, of Berlin, the purity being guaranteed in each case, the saccharins of Gilliard, P. Monnet, and Cartier, and airol, an odourless substitute of iodoform having the composition of a gallate of bismuth iodide.

The plank on which the Catley Abbey Natural Seltzer Water Co. fix their claim to attention is that the Company's springs are the only natural ones known to exist in the British Isles. We have not tried the water, but it is said to have a pleasant taste, and to be suitable for general consumption as well as for those of a gouty tendency. A certificate of analysis shows its chief constituents to be sodium chloride and bicarbonate.

S. Kutnow and Co., 66, Holborn Viaduct, W.C.—This firm again exhibited their Effervescent Carlsbad Powder, which seems to have advantages over the ordinary form with which we are familiar. The disagreeable taste of the sodium sulphate is effectually masked, and the effervescent form is in itself a recommendation, and will advance its claims for use as a gentle aperient suitable for the use of ladies and children. The anti-asthmatic powder and cigarettes made by the same firm are stated to be devoid of lobelia and *Datura tatula*, and are specially recommended for catarrhal, influenza, and ordinary colds.

The feature of the Malto-Peptone Company's show was the prominence given to their malto-peptone malt extract jelly in combination with cod-liver oil. It is claimed for this preparation that it is readily taken by children and invalids and leaves little nausea behind. Malto-peptone malt extract which is the basis of all the preparations of this firm is said to contain all the active constituents of malted barley, not only the diastase, but also the nitrogenous and mineral matter being present.

Francis Newbery and Sons did not figure as exhibitors on their own account, but as agents for W. R. Warner and Co. As might be expected, their display was characterised by the elegance of style which is conspicuous in the "get-up" of all their preparations. Effervescent preparations were well represented, both in the granular and tablet form, the more important combinations being bromo-soda, bromo-lithia, and antalgic saline. Ingluvin in its various forms, and cascara and coca in all their guises were to the fore. The pill industry, which forms such an important branch of the firm's output, was represented by a creditable display of every variety of coating, including the granules and parvules. Hypodermic tablets, under the name of lentifoms, also had their place.

Price's Patent Candle Company, Limited, Battersea, S.W., had nothing of special novelty in the way of soaps, but they have devoted much attention to night-lights, of which they have a saleable series under the names of the "New Patent" and the "Royal Castle." In addition, the various brands of nursery, sanitary, and glycerin soaps, as far as appearance goes, sustain the reputation of the firm. Needless to say, there is also a good display of glycerin in various sized bottles.

The Standard Malt Extract Co., Ltd., 23, Billiter Street, E.C., had a stand filled with the malt extract alone, and in combination with 25 per cent. of cod-liver oil. In addition, the liquid malt extract was represented. These three preparations constitute the staple products of the firm, but the Company also show "diastol," which is claimed to be pure liquid diastase. It is malt extract from which the carbo-hydrates have been removed.

H. Silverlock, 92, Blackfriars Road, is a name well known to the medical profession, and a desire was evidenced in the exhibit to be thoroughly up to date. The various books and sundries shown were of interest not only to the practitioner but to the pharmacist. They included Silverlock's series of visiting lists for 1896, Hardwicke's 'System of Bookkeeping,' and the 'Clinical Clerk's Guide to Urine Testing,' but a bare enumeration would occupy too much space.

Bovril, Limited, 30, Farringdon Street, E.C., had a general exhibit of their specialties, including Bovril in all its forms and the series of emergency foods, illustrative of those prepared for the Nansen, Jackson-Harmsworth, and Wellman Expeditions. In addition, the show included Vril food (a preparation of milk, cereals, and phosphates) and Kudos cocoa.

It should be mentioned that Messrs. Hertz and Collingwood, Sussex Place, E.C., who were not represented in the museum itself, had a "show" on their own account in the Savoy Hotel, and some hundreds of the members of the British Medical Association availed themselves of the firm's invitation to taste the Laurent-Perrier "Sans-Sucre" champagne. There was also a display of Rosbach table water, Franz Josef water from the new spring, Levico water, and Jensen's cod-liver oil. Visitors were asked to take sample bottles of the well-known Coca-tonic Champagne and a new tonic wine introduced by the firm under the name of "Jerezcona," a cinchona wine, of which the vehicle is a full-bodied sherry.

Oppenheimer, Son and Co. (Limited) have exhibits both in the central room and in the Victoria Rooms, Savoy Hotel. Palatinoids, soluble hypodermics, and other well-known preparations supplied by the firm are exhibited in the former place, whilst at the Savoy the Oppenheimer-Sambon collection of medical, surgical, and pharmaceutical antiquities is displayed.

BRITISH MEDICAL ASSOCIATION.

Some little criticism has been offered upon the circumstance that, though the British Medical Association is holding its annual meetings in the metropolis, the presence of so distinguished a body is ignored by the Corporation of the City of London. It has been pointed out that last year, at Bristol, and in 1893, at Newcastle-on-Tyne, the Association received the most generous hospitality at the hands of the local municipal authorities, and that this is quite in accordance with precedent. On the other hand, it is complained that in the City of London, where the Shahzada was but recently entertained, the Association has not been officialy recognised. An investigation of the facts seems, however, to entirely dispose of any suggestion of civic discourtesy. It appears that long before the visit of the Shahzada was contemplated—and that visit surely stands apart as possessing international importance—the Lord Mayor received a letter from Sir J. Russell Reynolds, the President of the British Medical Association, with reference to the meetings which are now being held. According to the records of the Court of Common Council that letter was on January 17 last referred to the City Lands Committee, of which Mr. Edward Lee is chairman, and apparently at about the same time a similar communication with regard to the meetings of the Geographical Congress, which had been received from Sir A. Fairbairn, was referred to the same body. At all events, on March 14 last, the City Lands Committee submitted a report to the Common Council, in which they expressed regret that they could not recommend the court to give a favourable response to these communications. Their

recommendation undoubtedly was based upon the condition of the City finances, coupled with the fact that an application had also been received in respect of a third congress, and that if one body was entertained the others must be similarly treated. Probably, indeed, the City would have been compelled to spend not much less than £10,000 upon the three congresses, whereas the cost of the entertainment of the Shahzada, taking as it did the form of a *déjeuner*, was kept well within £1500.

In the case of the British Medical Association, application was subsequently made for the use of the Guildhall, a request which the Corporation willingly granted, on the condition that the Association furnished the necessary expenses ; but there was apparently some hitch in this regard, as Sir John Lubbock wrote at a later stage, thanking the Corporation for their courtesy and intimating that the proposed function at the Guildhall had been abandoned. From these facts it is apparent that the British Medical Association was not only dealt with in precisely the same way as two other congressional bodies, but that it was not the fault of the City Corporation that the Guildhall was not placed at its service. After all, it is a matter entirely within the discretion of the members of the Corporation as to the amount which they shall spend upon entertainment, more especially when it is noted on the one hand that the estimate of the City Lands Committee for the current year shows a probable deficit, and on the other that the Corporation, during the recent campaign in favour of unification, has been freely charged with exercising extravagant hospitality. It is to be remembered, too, that in provincial boroughs the opportunity of extending a civic welcome to distinguished bodies of men occurs but comparatively rarely. In London, however, the foregatherings of scientific and other institutions are invariably frequent. Perhaps when "tenification" becomes an accomplished fact the burden now cast upon the City Corporation may in some measure be relieved.—*Daily Telegraph.*

Patent Office Business.

Applications for Patents.

[From the *Illustrated Official Journal.*]

No. 13,952.—Improvements in or relating to deodorising, disinfecting, perfuming, and the like. July 22.

No. 14,025.—Improvements in packings for surgical dressings and other goods. July 23.

No. 14,026.—Improvements in saturators or vaporisers. July 23.

No. 14,062.—Improved manufacture of teething appliance for children. July 23.

No. 14,094.—A box of antiseptic dressings and other articles required by lying-in women. July 24.

No. 14,232.—A new and improved method of applying a lubricant fluid to the hair. July 26.

No. 14,305.—Improved antiseptic and disinfecting compounds applicable also for washing sheep and other animals, and for other purposes. July 27.

Specifications Published July 6.

Electro-deposition of zinc (Heathfield, R., and Rawson, W. S.).—For plating iron, steel, and other metals with zinc or an alloy of zinc, the metal is cleaned chemically and coated with mercury by electro-deposition. A coating of zinc is afterwards deposited from the ammonio-chloride or other salt, and a second coating of mercury may be afterwards applied. Ammonia is added at intervals, to partly neutralise the acid liberated during the deposition. By using anodes of suitable composition, alloys containing zinc may be deposited upon the articles. No. 5537 of 1894.

Electro-deposition of aluminium (Gomess, A. F. B.).—The inventor states that the metal may be deposited electrolytically, using an E.M.F. of 4 to 10 volts, from a solution of a double tartrate of aluminium and an alkali, or the ordinary tartrate of aluminium may be used, and an alkaline chloride, bromide, or iodide may be added. For depositing alloys of aluminium, a salt of the metal to be alloyed, is added to the bath. No. 7205 of 1894.

Preserving food (Bake, T. H. L., and Leverett, H. A.).—Meat, fish, etc., is placed in a vessel filled with acidulated water and having its lid closed by a water seal, and nitrogen or other inert gas is passed in, while a valve is opened to permit the water to escape. On closing the inlet and outlet valves, the food is sealed up in the gas, which is said to preserve it during a long period. The vessel is cleansed with boracic or salicylic acid before use. No. 13,587 of 1894.

Derivatives of paramido-phenyl-carbonic acid (Newton, H. E., communicated from the Farbenfabriken, formerly F. Bayer and Co.).—After referring to the work of Mering (*Therapeutische Monatschefte*, December, 1893) on the derivatives of paramido-phenol, the inventors describe the properties and preparation of a number of ethereal salts of paramido-phenyl-carbonic acid, having a "favourable" action similar to that of phenacetine and suitable for therapeutical uses. No. 15,348 of 1894.

Antiseptics (Johnson, J. Y., communicated from von Heyden, F.)—Neutral antiseptic substances free from poisonous, corrosive, or caustic action, are obtained by acting, by means of "phosgen," upon the substitution product obtained by replacing one of the hydrogen atoms of phenol, with methyl, or the nitro group (NO_2) or a halogen. The method of preparation is described in the specification, ten compounds being referred to. They are solid, crystalline, colourless, and almost odourless and tasteless, insoluble in water, but soluble in alcohol and ether. The inventor describes them as "carbonates" of the various substitution products mentioned. No. 15,361 of 1894.

Cyanogen compounds (Drehschmidt, H.).—In order to more completely separate the cyanogen contained in coal-gas, etc., than is done at present by the iron oxide used for absorbing sulphur compounds, the inventor replaces the iron oxide by a mixture of certain proportions of oxide of iron, manganese, or other metal and oxide of magnesium, calcium, or like metal, precipitated together by suitable means from solution. Double cyanides are thus produced in a condition suitable for the preparation of cyanogen compounds. No. 16,149 of 1894.

Alkaline cyanides and ferrocyanides (Kraemer, G.).—Consists in utilising carbazol or the residues containing carbazol obtained in the enrichment of crude anthracene, as the source of nitrogen. The carbazol or residue is first fused at a low temperature with caustic soda or potash, and the sodium or potassium carbazol thus obtained is heated to bright redness, either by itself, or with caustic soda or potash, or carbonate of soda or potash, powdered iron being added when the ferrocyanide is required. No. 16,529 of 1894.

Alkaline bichromates (Beylikgy, M. W.).—These compounds are obtained by a modification of the ordinary method of roasting chrome iron ore with lime and caustic alkali. The inventor uses sufficient lime to form a silicate with the silica in the ore and to produce a double chromate of lime and potash, which is readily soluble. Sometimes felspar is used as a source of both the lime and the alkali. The lime may be removed from the chromate by various means, one of which consists in converting it into an insoluble soap with oleic or other fatty acid. Such an acid has the power of removing sufficient of the base to produce a bichromate. The latter is separated by crystallisation from the solution, and the former is re-obtained by treating the lime soap with acid. No. 9558 of 1895.

Specifications Published July 13.

Bottle stoppers (Rudolph, H.).—The invention relates to a "lock-lever" arrangement, to which the cap or external stopper is fixed, and by which it is secured air-tight, on turning down a hinged tongue. No. 7986 of 1895.

Bottles (Maggi, J.).—At the uppermost part of the body of the bottle a trough is formed to receive any liquid which may run down the neck on pouring. No. 8446 of 1895.

Benzo-sulphonimides and their derivatives (Johnson, G. W., communicated from von Heyden, F.).—Benzo-sulphonimides are obtained from toluene-sulphonamide by oxidation by electrolysis. The sulphonamide is dissolved in water in presence of a caustic alkali or calcium, or barium hydrate, and an electric current is passed in. The oxygen thus liberated acts upon the amide, and the imide produced is precipitated from the solution by means of hydrochloric acid, and filtered. The precipitate is treated with soda solution, which dissolves out the benzo-sulphonimide. This is reprecipitated by addition of hydrochloric acid. The halogen, or nitro-derivatives of the imides may be similarly produced. No. 8661 of 1895.

Syringes (Evens, A.).—For surgical use, syringes are made of glass or other tubes to whose ends the cap carrying the nozzle, and that through which the rod of the piston works, are ground. These caps are held in place by eyeleted metal strips extending from end to end of the syringe, and having holes or eyelets which receive pins on the caps. No. 9867 of 1895.

Specifications Published July 20.

Preserving food (Sutherland, D. A.).—Fresh food is preserved in tins or in chambers by being kept in an atmosphere of carbonic acid gas under a suitable pressure. The inventor describes a vessel having an inwardly-opening valve for admission of the gas after the food has been sealed up. No. 15,558 of 1894.

Soldering aluminium, etc. (Thompson, W. P., communicated from Nicolai, O.).—Refers to patent No. 4980 of 1894, and relates to a "solder" for aluminium or its alloys and for other metals. It consists of a haloid salt of cadmium or zinc mixed with sodium chloride. No. 17,820 of 1894.

Medicinal compound (Pragnell, T.).—For gout, rheumatism, sluggish liver, etc., the inventor employs a mixture of ginger, Armenian "bowl," liquorice, rhubarb, magnesia, carbonate of soda, sugar, and sulphur. No. 8829 of 1895.

Suspensory bandage (Eichhorn, G.).—A special form which is said to prevent injury to the person during riding, jumping, etc., is described. No. 10,219 of 1895.

Dental plates (Spyer, J.).—To insure more perfect adherence of the plate to the palate of the wearer, the hard indiarubber plate is covered on the upper side with a sheet of a composition of gutta-percha and gum tragacanth dissolved in carbon bisulphide or chloroform. No. 10,288 of 1895.

Smithsonian Institute Awards.—A Central News telegram from Washington, dated Wednesday, says: A detailed list of awards made by the Senate of the Smithsonian Institute, yesterday, has now been furnished. In addition to the awards to Lord Rayleigh and Professor Ramsay (London) and M. De Varigny (Paris) the following are interested: Honourable mention and silver medals—Herr G. L. Madson (Copenhagen) and Mr. F. A. Russell (England). Mention and bronze medals—Drs. Franz Carl Oppenheimer and Jesse Loewy (both Berlin), Mr. H. S. Maxim (Kent), and M. Deboraux Dex Debos (Rouen). Mentions—Mr. E. C. C. Daly (London), Drs. Viault (Bordeaux), Marcus (Berlin), Magelssen (Norway), and Cohen (Leeds), and Professors Geissler (Bonn), Duclerq (Paris), and Nees (Copenhagen).

MARKET REPORT.

[*Specially compiled for the Pharmaceutical Journal.*]

Chemicals and Drugs.

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

THE CHEMICAL MARKET.

London, August 8, 1895.

Since our last report the chemical market has been devoid of important features, and a holiday tone chiefly characterises it. Carbolic acid is a firm market, and prices are generally advanced. Chrysophanic acid is very firm, whilst tartaric and citric acids are unchanged in value. Cream of tartar continues a very firm market without any change to report. Potash compounds generally are dull of sale, especially chlorate, and soda compounds are unchanged.

Acetanilide.—From New York a fairly steady market is reported, with moderate sales at a parity of 1s. 2d. to 1s. 3d. per lb.

Acid, Carbolic.—The market is firm, and a steady amount of business has taken place at a general advance in price. The current quotations are as follows:—*Crystals*, 34° to 35° C., 5¼d.; 39° to 40° C., 5¾d.; 39° to 40° C., (*detached crystals*), 6¾d. per lb. *Crude*: Firm. 60° is now quoted at 1s. 6½d., with 75° at 1s. 10d. per gallon. *Liquefied* Steady at 1s. per gallon for 95 per cent. *Cresylic*: Dearer at 11½d. per gallon.

Acid, Chrysophanic.—A very firm market, and *English* makers of acid quote at 15s. 0d. to 15s. 6d. per lb., whilst *foreign* brands are worth 16s. per lb.

Acid, Citric—Steady, and a fair amount of business has been done at unaltered rates. Makers' prices are maintained at 1s. 1¾d., whilst second-hand holders ask 1s. 1½d.

Acid, Tartaric—In good demand, without any alteration in the quotations. *English* makers still quote 11¼d. per lb., whilst for *foreign* brands of acid, both in *crystal* and *powder*, 11d. is asked.

Aloin.—Reports from New York state that, notwithstanding a temporary scarcity, it can still be bought at a parity of 2s. 3½d. to 2s. 6d., the latter figure being the more reliable.

Ammonia Salts.—*Carbonate* unchanged at 3½d. to 3¾d. per lb. *Liquor* selling at 3d. to 3¼d., less 5 per cent. *Sal ammoniac: First* quality still offers at 39s., with *seconds* at 37s. *Sulphate*: A dull market, and the current quotation is again lower. At the close grey 24 per cent. quotes at £9 7s. 6d.

Ashes.—Canadian *potashes* still quote at 37s. 6d., whilst best *pearl ashes* offer at 23s.

Arsenic—Remains very firm and in poor supply. *Lump* is quoted at 29s., with best white *powder* at 15s. 6d. to 16s.

Copper Sulphate.—A steady market, without any great amount of business doing. At the close ordinary brands quote at £15.

Cream of Tartar.—The firmness of this market continues, without any alteration in price. At the close *German* brands of *powder* quote at 75s. to 76s., with best white *French crystals* held for 73s.

Phosphorus.—Firm, at 2s. 1d. for *sticks* and 2s. for *wedges*.

Potash Salts.—*Bichromate* unchanged at 4⅝d. to 4¾d. *Chlorate*: A flat market, and on offer at 4¼d. on the spot. In Liverpool it is quoted at the same rate. *Permanganate*: Dearer at 55s. to 56s. for small, with 59s. to 60s. asked for large *crystals*. *Prussiate*: Dull of sale at 8d. on the spot, and in Liverpool it offers at the same figure.

Quicksilver—Steady. Importers maintain their prices at £7 5s., whilst in second hand it offers at £7 4s. 6d.

Saltpetre — Unchanged. British *refined* offers at 22s. 6d. to 23s. 6d. on the spot. In Liverpool the price varies from 22s. 6d. to 23s. according to package.

Soda Compounds.—*Bicarbonate*: £7 5s. remains the price on the spot, whilst in Liverpool it is quoted at £6 15s. *Caustic*: 70 per cent. is quoted at £8, with 60 per cent. offering at £1 less. *Crystals*: 38s. *ex* ship. *Hyposulphite*: Steady at £7 5s. to £7 10s. per ton in Liverpool. *Nitrate*: *Ordinary* is unchanged at £8 5s., with *refined* at £8 7s. 6d.

Sulphur.—Steady. In Liverpool *flour* is very firm at £7 10s. per ton. *Roll* is quoted at £5 5s., and *recovered* at £3 17s. 6d. in bags, and £4 5s. in barrels.

Tar Distillation Products.—*Benzole*: 50 per cent. is unchanged, being quoted at 11¼d, whilst 90 per cent. is lower, and quoted at the same rate. *Creosote*: Dearer at 2d. per gallon. *Toluol*: 1s. 0½d. per gallon. *Crude Naphtha*: Dearer at 5½d. per gallon for 30 per cent. at 120° C. *Solvent Naphtha*: 90 per cent. at 190° C., 1s. per gallon. *Pitch*: 38s. per ton, *f.o.b.* *Tar*: 11s. 6d. per barrel (*crude* is quoted at 1⅞d., and *refined* at 2¼d. per gallon). *Wood Naphtha*. 60 to 80 is quoted at 1s. 0½d. per gallon 95 to 160, 1s. 3d. per gallon. *Solvent*: 2s. 9d. per gallon.

THE DRUG MARKET.

London, August 8, 1895.

In the drug market a very quiet week must be reported. The holidays have, to a certain extent, interfered with business, and certainly affected to-day's sales, which passed off very quietly. A comparatively small catalogue was offered, and a good proportion was bought in. Aloes were in small supply only, but the parcels offered mostly found buyers. Of benzoin, a large amount of Siam was shown, and a fair proportion of this found buyers. Of the various alkaloids, caffeine is rather firmer, but no change is to be noticed in any other. Ipecacuanha was in large supply, and the majority found buyers at fairly steady, but somewhat irregular rates. Of cardamoms no very fine lots were offered, but medium grades sold at steady rates. Refined camphor has been advanced in price, and the market in the crude article is very firm. Of the essential oils the only ones to claim attention are cassia, anise, and bergamot, all of which must be reported dearer. Full details will be found below:—

Acacia.—A moderate amount was offered to-day, but met with few enquiries. The only lot sold consisted of 5 bales of amber *Turkey* sorts from Suez, which were bought at the cheap rate of 39s. 6d. A parcel of 22 packages of *Trieste* gum was bought at prices ranging from £7 10s. for good medium pale, down to 30s. for small sorts. Small *Cape* sorts were bought in at 30s.

Aloes.—No *Cape* was offered to-day. A parcel of *Zanzibar* aloes in skins sold freely at prices ranging from 40s. for good softish, down to 21s. for ordinary drossy ditto. Another parcel consisting of 100 boxes of *Curaçoa* all sold, the prices ranging from 17s. 6d. for fair hard, down to 11s. 6d. for very drossy ditto. *Socotrine* meets with no enquiries. To-day 32 kegs were all bought in, fair softish being held for 65s., and medium ditto for 50s.

Ammoniacum.—Very dull of sale, but firmly held. To-day only 26 cases were offered and bought in, good blocky almonds at 35s.

Annatto Seeds.—Largely offered to-day, but none was sold. Good bright *Madras* seed was bought in at 4½d. per lb.

Asafœtida.—A parcel of 20 cases was offered to-day. Of these 1 case consisting of good free pinkish gum sold at 43s.

Benzoin.—*Siam* gum was largely shown to-day. A parcel of bold almonds in block was bought in at £9 to £10, but smallish almonds in block sold freely at rates ranging from £5 17s. 6d. to £6 15s., and siftings in block also sold at 41s. Bold almonds part loose and part in block were bought in from £19 to £25. Of *Sumatra* gum, 10 cases, consisting of good almondy seconds, slightly false packed, sold at £8 10s.; fair seconds were bought in at £6 10s. to £7. *Palembang*: None was sold. Fair seconds in tins were bought in at 37s. 6d. to 45s., and ordinary seconds at 26s.

Buchu—Very firm. To-day 6 bales of fair *round* greenish leaves sold at 3½d. Genuine *long* leaves were bought in at 6d. for dull narrow.

Caffeine.—To-day this is firmer, and quotations rule at 26s. on the spot, whilst for delivery, August to September, the makers quote 22s. per lb.

Calumba Root.—The only lot offered to-day consisted of 34 bales of medium yellow sorts. These were bought in at 18s.

Camphor (crude).—This has been a strong market since our last. For arrival July to August shipment, 185s. *c.i.f.* is now asked for *Japan* camphor. In *China* camphor business has been done at 165s. *c.i.f.*, June to August shipment. At the drug sales 2 cases of a parcel of *China* sold at 175s., the remainder being bought in at 180s. Six boxes of crude *China*, part of salvage stock, sold at 100s.

Camphor—(*Refined*). On the 6th inst. the English and *French* refiners advanced their prices 2d. per lb., and the current quotations are now as follows for 10 cwt. lots:—*Bells*, 1s. 11½d.; *blocks*, 1, ½, or ¼ lb. in 7, 14, or 28 lb. wooden boxes 1s. 11½d., 7 lb. tins being quoted at ½d. per lb. extra; *blocks*, 1 or 2 oz. in 6 or 7 lb. wooden boxes, 2s. 1d., if in tin boxes ¼d. per lb. extra; *blocks*, 1 or 2 oz. in 1 lb tins 2s. 1¾d.; *blocks* ½, ⅓, or ¼ oz. in 7, 14, or 28 lb. wooden boxes 2s. 1½d. *Flowers*, 5 or 10 lb. boxes, 1s. 11½d., 10 lb. tins, ½d. per lb. extra; 1 lb. boxes 2s. 0½d. To-day 10 cases of refined *Japan* were bought in at 1s. 10d. per lb.

Canada Balsam.—To-day two casks of fair quality balsam were bought in at 1s. 6d. per lb. The price asked is 1s. 4d. per lb

Cantharides—Dull of sale. A parcel of 17 cases of fair quality *China* flies were bought in at 1s. 2d. per lb., and 4 casks of *Russian* at 2s. 6d.

Cardamoms. — *Ceylon Mysore*: No really fine grades were offered to-day, and steady prices were paid generally. Bold yellow sold at 1s. 10d. to 2s.; small to medium pale, 1s. 7d. to 1s. 8d.; ditto brownish, 1s. 7d.; small brownish, 1s. 3d. to 1s. 6d. No *seed* was offered.

Cascara Sagrada.—127 bags were offered, and bought in at 18s. for fair bark of good colour. The price asked is 17s. per cwt.

Cinchona.—*Yellow* bark was bought in at the drug sales at 10d.; *Carthagena* at 10d., and *Succirubra* at 1s. 6d. per lb.

Cloves.—The demand for *Zanzibar* remains quiet but steady, and business has been done, for October to December delivery, at 2⅝d. per lb.

Cocaine.—There is no change in the position of this article, which is quoted at 14s. 3d. to 14s. 9d. for 100 oz. lots in tins, according to brand.

Coca Leaves.—A parcel of 20 bales of damaged *Bolivian* leaves were offered, but with-

drawn. Privately, *Truxillo* leaves sell at 11d., for somewhat broken leaves of good quality(

Colocynth—Somewhat easier. To-day 3 cases of good *Turkey* apple were bought in at 2s. 6d., but 2 casks of fair quality sold at 2s. subject. Broken *Spanish* was bought in at 9d.

Copaiba—Dull of sale and tending lower, although none was sold to-day. Good pale *Maranham* was bought in at 1s. 8d., and dark *Para* at 1s. 7d. per lb.

Cubebs.—Only 17 bags were offered. These were fair quality *Singapore* berries, part mouldy, and were bought in at 35s. to 38s. per cwt.

Cumin Seed.—Fifty bags of fair *Maltese* seed were bought in at 36s. per cwt.

Dragon's Blood.—The small supply of 7 cases did not fetch a bid. Medium lump of fair colour was bought in at £7 10s. to £8, and dark slabs at £6.

Elemi Gum.—All demand for this seems to have died out, and 40 cases of good pale gum were bought in to-day at 30s.

Fennel Seed.—Ten bales of fair quality seed imported *via* Hamburgh were bought in at 16s. 6d.

Galangal.—A parcel of good bold root from Hong Kong was bought in at 25s. Another lot from Bombay was withdrawn at 15s.

Galbanum.—A case which had been frequently shown before was again bought in on this occasion at 9d. per lb.

Gamboge.—A parcel of nice broken pipe of good fracture was bought in at £10 10s., after a bid of £9 12s. 6d.

Guarana. — No enquiries. Fair quality sausage was bought in at 3s. per lb.

Honey.—*Jamaica* was in fair supply, and moderate inquiry only was shown. Fair quality, moderately clean, sold at 20s. to 22s., other grades at 17s. 6d. Of a parcel of 50 kegs of *Chilian*, 10 sold at 26s. for nice pale candied. The *Australian* and *New Zealand* was all bought in.

Insect Flowers.—Current quotations are as follows for new *Dalmatian* flowers:—Open, 56s. per cwt.; half closed, 86s. 6d.; closed, 90s. per cwt., *c.i.f.*

Ipecacuanha.—At the sales *Rio* (Brazilian) root was largely offered, and sold freely at somewhat irregular but, on the whole, steady rates, although in some cases a decline of 1d. to 2d. was to be noticed. The prices paid were as follows:—Extra fine "picked" root, 6s. 6d.; good sound annulated, 5s. 3d. to 5s. 4d.; fair ditto, 5s. 2d.; third-class damaged, 4s. 6d. to 4s. 9d. *Carthagena* (Columbian) sold at firmer rates than when last offered in auction, but at a decline compared with the prices paid privately. A parcel of 7 bales all sold at 4s. 3d. for fair first-class damaged to 4s. 1d. for third-class ditto.

Jalap—Steady but slow of sale. Of 29 bales offered, one only sold, 10d. per lb. being paid for wormy *Vera Cruz*. Sound grades were bought in at 11d. to 1s.

Kino.—Two cases of non-astringent gum in tears resembling kino, but not genuine gum, were bought in at £15 per cent. and a box of gum which was said to be genuine was bought in at 8s. per lb.

Kola.—The only lots sold to-day were 4 bags of good sound *West Indian*, which fetched 10½d. to 11d. per lb.

Lime Juice—Slow of sale. All was bought in to-day at 1s. 3d. to 1s. 6d. per gallon.

Mastic.—This is very plentiful, but there are few enquiries. To-day 14 bales of good pale gum in tears were bought in at 2s. per lb.

Morphine.—Quotations for 1000 oz. lots are unchanged at 4s., with smaller wholesale quantities at 4s. 2d. to 4s. 3d. *Crystals*, 2d. per oz. more.

Menthol—Remains slow of sale at 13s. 3d. to 13s. 6d. per lb. for good white *crystals*. To-day two cases of *Japan* were bought in at 16s. per lb.

Myrrh Gum.—Very slow of sale, althongh largely offered, the only lot which found a purchaser to-day was two cases of pickings which fetched 17s.

Nux Vomica.—A parcel of fair quality *Bombay* nuts were sold, subject to approval, at 6s. per cwt. *Coconada* were bought in at 6s, and *Tellicherry* at 5s., a bid of 2s. 9d. being refused for the latter.

Oils (Essential).—*Almond*: The current quotation is 25s. per lb. *Star Anise*: There has been a further advance in this since our last report, and 6s. 7d. and 6s. 8d. has been paid on the spot. Holders now ask 6s. 9d. per lb. *Bergamot*: Reports from Sicily received during the week confirm our report of the 27th ult. Owing to the low stocks, prices have advanced to 7s. per lb. for super., and 7s. 8d. per lb. for super. distilled, *f.o.b.* Messina. *Cajeput*: 10 cases were bought in to-day at 2s. 7d. per lb. *Camphor*: A parcel of 20 cases were bought in at 20s. per cwt. *Cassia*: Again a firm market. During the week 6s. 3d. has been paid for oil testing 70 to 75 per cent. of cinnamic aldehyde, and 6s. 6d. is now asked. 80 per cent. oil is scarce, and firmly held on the spot. *Cinnamon*: Bought in at 9d. to 1s. *Citronella*: Dull of sale, but firmly held. To-day one case of oil in tins was bought in, the limit being 1s. 5d. per lb. *Clove*: Dull of sale; 2s. 4d. per lb. is the nearest spot value, and this rate is hardly likely to be maintained, as the stocks are very large. *Lavender*: It is difficult to give a reliable quotation for *Micham* oil, which is quoted as high as 130s. per lb. The price of the new crop *French* oil is not yet fixed, but it is expected to be 30 or 40 per cent. dearer. *Lemon grass*: Steady at 1⅝d. to 1¾d. per oz. *Nutmeg*: Bought in at 3½d. per oz. *Pimento*: The current quotation is 8s. 6d. per lb. *Peppermint*: *H. G. Hotchkiss'* brand is firm at 10s. 3d. on the spot. *Japanese* oil, testing 40 per cent. of menthol, offers at 7s. 6d. on the spot, and for arrival it is quoted at 6s. 6d. per lb. *c.i.f.* terms. *Dementholised* oil offers at 5s. 6d. on the spot, with 4s. 9d. *c.i.f.*, the quotation for arrival. *English* oil is very high in price, being quoted as much as 36s. per lb. *Wayne County* oil is worth 7s. 6d. to 8s. per lb. on the spot. *Cocking's* oil was bought in to-day at 6s. 9d. per lb. *Rose* bought in at 3d. to 5d.

Oils (Fixed) and Spirits.—*Almond*: The expressed oil quotes at 1s. 1s. per lb. *Castor*: Reports from Calcutta advise a firm market with advancing prices, and as there is every prospect of this brisk demand being maintained, full prices may be expected for the next few months. *Cotton*: Dull of sale at lower rates. *Refined* oil now quotes at £17 10s. to £18, according to brand and package. *Coco-nut*: Fairly steady. *Ceylon* quotes at £22 5s., with *Cochin* lower at £24. *Linseed* is dull of sale. At the close £21 2s. 6d. is the spot price for oil in barrels. *Olive*: Unchanged. *Syrian* quotes at £33, with *Spanish* at £37. *Rape*: Unchanged. The spot price for *refined* remains at £22 5s. to £22 10s. *Turpentine*: Dull of sale at lower rates. At the close *American* spirit is quoted at 20s. 4½d. on the spot. *Petroleum*: Lower. *American* oil quotes at 5¾d. to 5⅞d.; *Water white*, 6½d. to 6¾d.; and *Russian*, 5⅝d. *Petroleum Spirit*: *Ordinary* 9d. to 9¼d., *deodorised* 9½d. to 9¾d.

Oil (Cod liver).—Remains steady, but dull of sale. Stocks being but small, the autumn may be confidently expected to bring an advance in prices. At present *Isdahl's* brand of fine non-congealing *Lofoten* oil offers at 170s. per barrel, *c.i.f.*; other holders quote at 160s. to 170s. A considerable amount of business has been done in *Newfoundland* oil privately, at the full rate of 4s. 6d. per gallon.

Opium.—*Turkey*: There is a fair inquiry for some grades at fairly steady rates. Soft shipping descriptions are quoted at 10s. 6d. to 10s. 9d., best druggists at 8s. to 9s.; seconds ditto, 7s. to 8s. *Persian* is very firm, fine quality being quoted at 12s. 9d. to 13s., and seconds ditto, 12s. to 12s. 6d. At the drug sales 3 cases of damaged *Turkey* opium sold without reserve at 6s. to 6s. 3d. per lb.

Orange Peel.—Absolutely no inquiries. Thin cut *Maltese* peel was bought in at 8d. to 9d.; coarse ditto, 5d; and quarters at 4d.

Otto of Rose.—A small quantity of the new oil has now come in, but has not yet been offered owing to the unsettled condition of the prices. It is said that although Kezanlik houses are anxious to adhere to last year's prices, some outside speculators are in favour of a slight advance.

Quince Seeds—Steady: Sales were made to-day of fair quality at 1s. 3d. per lb.

Quinine Sulphate.—No business has been reported in this article since our last report, and quotations for *B. & S.* or *Brunswick*, which are merely nominal remain at 1s. 0¾d. to 1s. 0½d. per oz. The landings during July were 3488 ozs., and the deliveries 49,232 ozs., making the stock on July 31st. t2,217,520 ozs. against 3,027,728 ozs. last year.

Rhubarb.—A fair amount of business was done to-day, but the prices realised show a decline. *Canton*, fine bold flat, sold at 1s. to 1s. 3d. per lb. *Shenshi*, medium round pinkish, sold at 1s. 6d.; fine bold, high-dried flat at 1s. 8d.; and fair small to medium pinkish flat, 10½d.

St. Ignatius' Beans.—A parcel of 4 bags of this drug, which has not been offered recently, sold at 1s. per lb.

Sarsaparilla. — None was sold to-day. *Jamaica* was bought in at 1s. 5d., and *Honduras* at 1s. 2d. to 1s. 3d.

Scammony.—*Root*, Steady privately, but none was sold to-day. 50 bales were bought in at 40s. *Scammonium*: 6 cases of ordinary seconds were bonght in 18s. to 20s.

Senega Root. — Steady. 8 bales of fair quality were bought in at 1s. 6d. per lb.

Senna.—*Alexandrian* is dull of sale, all being bought in at prices ranging from 1s. 1d. for good broken, down to 2d. *Pods* were bought in at 5½d. to 10d. *Tinnivelly*: A parcel of new crop leaves offered, sold freely at the following rates:—Good bright green 5d. to 6d.; medium green, 3½d. to 4¾d.; small to medium, 2½d. to 3d.; and from 2d. down to ¾d. for ordinary to very common leaves. *Pods* sold at 1¼d. to 1½d.

Shellac. — Only a small amount offers but steady prices have been realised. Sales of *TN Orange* have been made at 126s., and free *A. C. Garnet* at 107s. A sale of *Second Orange* for arrival, October to December steamer, is reported at 112s. *c.i.f.*

Spices.—*Ginger*: Sales of ordinary *Jamaica* at steady prices are reported. *Pepper*: There is a fair inquiry for *Singapore* near at hand at 2⅞d., but little business has been done. *White Pepper*: For arrival, June to August steamer, there are buyers of *Penang* at 3⅛d.

Squills.—Privately, fine pale quality sells at the steady rate of 4d. per lb., with fair quality, somewhat dark in colour, at 2d.

Wax (Bees).—New *Jamaica* wax sold at rates which show a decline of about 2s. 6d., £7 15s. to £7 17s. 6d. being paid for fine to good bright. *Madagascar* was dull of sale, all being bought in at £7 10s. *Mogador*: Part sold 90s. to 100s. *East Indian* was bought in at £7 5s. *Australian*: Part sold £6 17s. 6d. to £7. *Spanish* was bought in at £7.

LIVERPOOL MARKET REPORT.

[*From our Special Correspondent.*]

August 8, 1895.

DRUGS, ETC.—Owing to the closing of the General Produce Market during Monday and Tuesday this week there is very little business to report. *Kola Nuts* are plentiful, and since our last notice 6 bags have been sold at 6d. per lb., 80 bags at 5d. for fresh, and 5½d. to 5d. for dried, also 33 bags dried at 5d. per lb. *ex* store. *Carnauba Wax:* During the week 42 bags of grey have realised 112s. 6d.; medium, 117s. 6d.; and yellow, 132s. 6d. per cwt.; and 40 bags grey at 110s. *Aniseed:* Some sales of Chilian have taken place at 22s. 6d. *Canary Seed:* There is no new feature of interest in the market for Turkish, for which sellers now ask 38s. to 40s. per 464 lbs. on the spot. *Gum Acacia* still remains unchanged, there is no improvement in demand, and no sales to report. *Turmeric:* 50 bags Bengal have been sold from the quay, but at what price is not reported.

OILS.—*Castor:* Only a small trade doing, good seconds, Calcutta, 2d. to 2 1/32d. on the spot; first pressure French at 2d. to 2 1/32d.; Madras steadier, and sellers now ask 2d. per lb. *Olive:* Market strong and prices are better, with a good inquiry; Candia is now £32 per tun, and Levant £31 to £31 10s., with little offering. *Linseed Oil:* Liverpool makes are steadily held for 22s. 6d. to 23s. per cwt. in export casks. *Cotton-seed Oil* is very quiet at 18s. to 18s. 6d. for Liverpool pressed in export barrels, and 18s. for American. *Petroleum* is steady at recent rates. *Spirits of Turpentine* is only in moderate inquiry, and rates are 21s. 6d. per cwt.

CHEMICALS.—*Sal Ammoniac* in demand at 39s. firsts, and 37s. seconds per cwt. *Carbonate of Ammonia*: Steady at 3½d. to 3⅝d. per lb. *Bleaching Powder* firm. Soft, on rails, £6 15s., hard, *f.o.b.*, £7. *Phosphorus* dearer, wedges, 2s.; sticks, 2s. 1d. per lb. *Soda Salts:* Bicarbonate, £6 15s. per ton; Soda Crystals, £2 5s. per ton. *Caustic Soda*, 70 per cent., £7 10s.; 60 per cent., £6 10s. *Copperas*, Lancashire, 38s. per ton. *Borate of Lime:* Five hundred and thirteen bags sold at auction at £11 per ton, *ex* quay. *Nitrate of Soda* steady, but quiet on the spot at 8s. 1½d. to 8s. 4½d. per cwt. *Cream of Tartar:* Firmly held at 74s. per cwt.

The *British Trade Journal* says: "There is now an improvement in the value of drugs and perfumes, one result of the severe winter at home being heavy damage to the medicinal and perfumery plants of Hertfordshire and the neighbouring counties. Except in North Lincolnshire, where the poppy harvest bids fair to be very good, the reports are almost uniformly deplorable. In the district of Hitchin, where plants used in the distillation of essential oils are produced, the frosts killed nearly all but the hardiest, and the dry weather since has greatly lessened the growth of those which survived. Of lavender the yield will be the smallest known for very many years. Peppermint is a very poor crop, and the production of oil will fall much below an average. Rosemary is all but destroyed, and only a scanty supply will be available for distillation. Belladonna has suffered much from drought, and the promise of a good crop will not be realised. The henbane plant is thin and small in dry positions, but on damp lands it seems likely to give a good crop. Aconite has escaped with comparatively little injury, and will probably afford a fair yield, reaching about an average amount. Hemlock and a few other remaining drug plants may be counted upon for about the usual supply, but in Lincolnshire there will be only the scantiest crop of mustard. As a consequence the prices of the essential oils distilled from these plants are advancing.

PRACTICAL OPTICS FOR CHEMISTS.

THE MICROSCOPE.

Granted that in the present days of stores, cut prices, and grocers, oilmen, and drapers selling many of the articles which primarily belonged to the chemist, the launching out into other branches is perfectly legitimate to the pharmacist, the sale of the microscope may well be added, and in the following article it is proposed to give a few hints upon the microscope and the optical principles involved in its construction and use.

Any magnifying lens is a microscope, and the earliest form was nothing more than a single lens.

The formation of a magnified image by a convex lens is seen in the following diagram, Fig. 1, in which L is the simple convex lens,

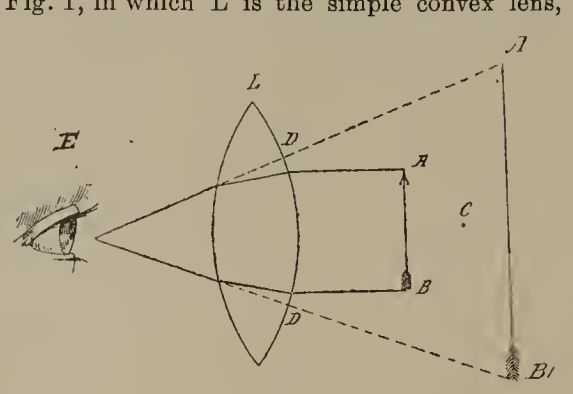


Fig. 1.

and A B the object which is nearer to the lens than the principal focus C, and the rays from which strike the lens at D D, and are thence refracted and enter the eye; but as the object is nearer the lens than the principal focus, no real image is formed, but the rays of light are, as it were, produced backwards and form an erect, virtual, and enlarged image at A^1B^1.

As shown in a former article, lenses may be considered as merely two prisms placed base to base, but it would be more correct to assume that a convex lens was composed of parts of prisms of wider and wider angles, as shown in Fig. 2, in which P^1, P^2, P^3 represent

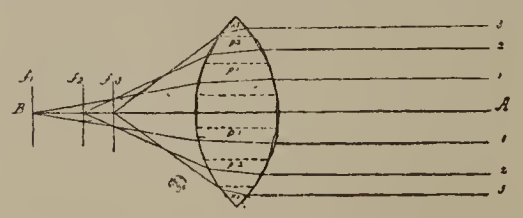


Fig. 2.

the parts of the prisms being bounded by the dotted lines. Now the wider the angle of the prisms the more the rays of light are refracted, so that if we assume 1, 2, 3 to be a pencil of light proceeding from an object, we shall find that instead of being refracted to one point, f^1, where the axial rays meet, the marginal rays 2 and 3 come to a focus at f^2 and f^3.

Abandoning our prisms and using the convex lens we have precisely the same thing happening as shown in Fig. 3, the axial rays from a minute object A come to a focus at F, whereas the marginal rays form an image a f. Now it is

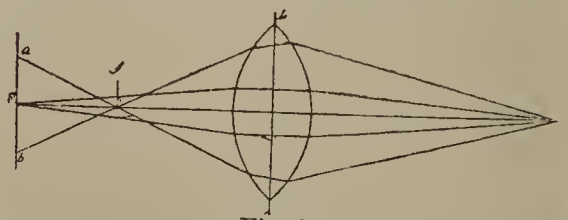


Fig. 3.

obvious that no matter where we place the eye we cannot see a sharp image; if it is placed at f the axial rays do not form a point but have a sensible width, and at F the marginal rays form a line a b, and at both places the image of the one set of rays overlaps the others and a confused and indistinct image is the result. This defect is called spherical aberration and can be cured by reducing the aperture of the lens by means of stops or diaphragms, or by the optician making use of two glasses, a concave and convex, the former neutralising the spherical aberration of the latter.

There is another defect in using single lenses which is extremely troublesome, particularly in the microscopic examination of very minute objects, and that is chromatic aberration.

When light falls upon a prism we obtain no longer homogeneous white light but colours, and everyone knows this, for the old-fashioned candlesticks with lustres on them always show it, and the colours of the diamond are but due to the same cause, that is, the dispersion of light. If we allow a very narrow beam of

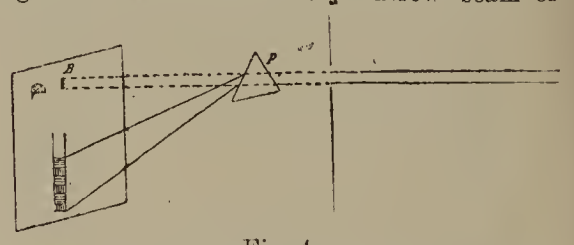


Fig. 4.

light, such as will pass through a fine slit cut in a card or a good size pinhole, we shall obtain an image of the hole or slit on a white card as shown in Fig. 4 at B, but if we place in the path of the light a prism the beam is refracted and also dispersed; we no longer get a white image but a band of colours ranging from red R, through orange O, yellow Y, green G, blue B, with violet V, and this is called the spectrum.

Now the violet rays are refracted more than the red, so that if we return to our original statement that a lens is composed of prisms, and trace again the path of the rays of light,

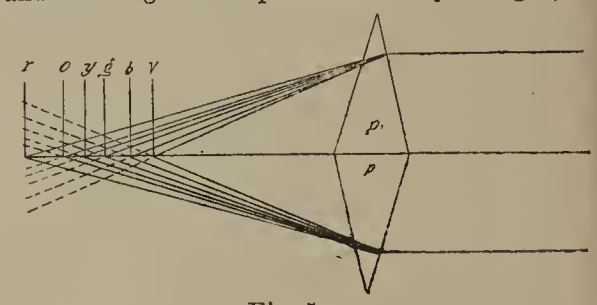


Fig. 5.

through it we shall obtain a result as shown in Fig. 5, where the foci of the different coloured rays are designated by the different letters, and it is obvious that no matter where we place the eye we shall see an image surrounded by rings of colour. This defect is obviated by using two or more glasses; but we must defer the explanation of this till a future note.

The defects inherent in the single lens soon became apparent, and Wollaston used two lenses, or, as it was termed, the doublet, which acted like a single lens, with, however, the advantages of the diminution of chromatic and

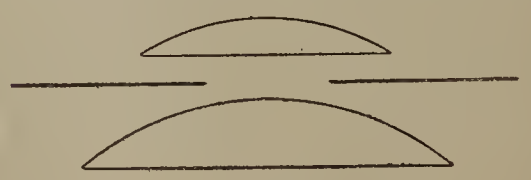


Fig. 6.

spherical aberrations. Wollaston's doublet consisted of two plano-convex lenses with their convexities turned towards the eye and a diaphragm in between, the larger lens being nearer to the object. This is shown in section in Fig. 6, and another advantage of this form is that the focal distance of the lower one can

be increased, and thus a far greater distance between the object and glass be obtained, which is, of course, a great convenience for dissection purposes, and most dissecting microscopes are of this form, and magnify from 5 to 100 times. So much for the simple microscope.

We now have to deal with the compound microscope. The magnifying powers of the simple microscope are limited, and therefore the compound microscope was invented, it is said, by Zaccharias Janssen, of Middleburgh, Holland, about 1590. In its simplest form it consists of two lenses mounted in a tube, the one nearest the object being called the objective, the other, which is closer to the eye, the eye-piece or ocular. The formation of the

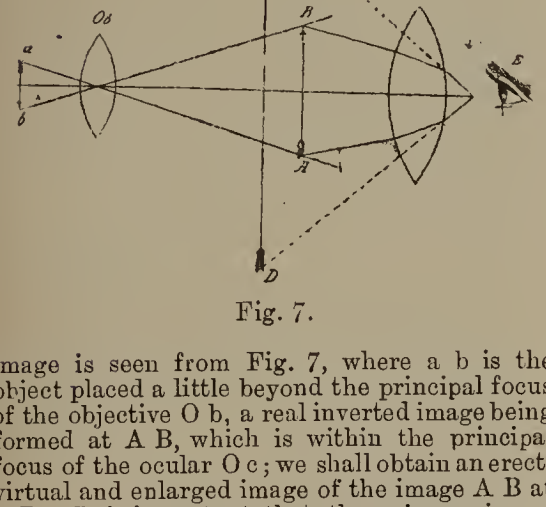


Fig. 7.

image is seen from Fig. 7, where a b is the object placed a little beyond the principal focus of the objective O b, a real inverted image being formed at A B, which is within the principal focus of the ocular O c; we shall obtain an erect, virtual and enlarged image of the image A B at C D. It is important that the primary image A B should be formed at such a point between the ocular and its principal focus that the enlarged image C D can be readily seen by normal sight, which is about 10 inches, and as all vision is not normal, it is obvious that the ocular must be capable of a to-and-fro movement; and it is always the custom to make both ocular and objective movable.

We shall see later on the finer developments of both ocular and objective, but will now proceed to consider the other parts of the microscope.

The Foot.—This is from one point of view quite a secondary part of the instrument, but from the practical point of view one of the most important. A small or insecure foot is absolutely antagonistic to good work, for shakiness will destroy any difiuitiou with a hig power. The foot may be merely a square heavy plate of metal, a horseshoe, merely a tripod, or annular. There is not much to be said in favour of any one particular shape, though most workers get a 'fad' for one kind. From the foot rises a bar pillar or support to which the microscope itself is attached.

The Microscope is a tube or tubes terminated at either end by a combination of lenses which can be altered as to their relative distances, aud the microscope itself can also be made to recede or approach a small table called the stage, on which the object is placed for examination, this stage having a circular aperture through which the object can be illuminated.

The microscope and stage iu all good instruments can be inclined from the perpendicular through auy angle to the horizontal, and in every position the whole should be firm and not shaky.

The tubo is not in one piece, or should ont be, but in two or three, and capable of sliding one within the other. The total length of tube is not the same, because in England we generally use a 225 millimetre (equals 10 ins.), while on the continent 160 to 180 millimetre is the usual length, this being capable of extension, however, to about 220 millimetre. The length of the tube is important because some objectious are made with long, others with short, correction.

To enable the object to be roughly focussed, either the tube slides downwards or it is moved by rack and pinion, this latter being always the case with higher class instruments; this movement is called the coarse adjustment. For fine work microscopes are usually provided with a micrometric screw which will move the microscope very minute distances, 1/100th millimetre (equals 1/2500th inch), or even smaller.

The stage is also provided with clips which hold the glass slide. Underneath the stage will be found the mirror which is gencrally plaue on one side and concave the other, enabling the object to be illuminated by different degrees of light.

We have thus dealt with the microscope in all its essential parts, aud we may have something to say perhaps later on, as to the refinemeuts and improvements which the various parts have undergone.

A FATAL DOSE OF "PRESERVATIVE."

Severe Remarks by a Coroner.

On Wednesday afternoon the circumstances attending the death of an infant of Charles Joseph Kervin, a labourer, of 175, Cheltenham Street, Rochdale Road, Manchester, was investigated by the City Coroner, Mr. Sydney Smelt. The child had since its birth been of a very delicate disposition, and it being taken ill a fortnight ago the mother, according to the story she laid before the jury, purchased an ounce of "Infants' Preservative" from a chemist in the neighbourhood and gave it two doses. The child, however, instead of deriving any benefit from it became worse, and no improvement being observable as time passed, she took it to a doctor, who, on seeing it, immediately asked if she had given it any preservative. She answered in the affirmative, and he ordered her to keep it awake as long as possible. The child, however, became drowsy the next day, and eventually expired on Monday morning.—Mr. Alexauder Ramsey, who also gave evidence, said he was engaged as assistant to Mr. Sherratt, chemist. He was not registered. He remembered selling Mrs. Kervin some infants' preservative, which contained a slight quantity of tincture of opium. He did not not label the bottle "poison."—The deputy coroner then commented rather strongly upon the fact of the bottle containing the mixture not being labelled as poison, and said he was surprised that any respectable chemist should sell a mixture containing opium to be administered to infants. In his opinion the attention of the Home Secretary should at once be called to the indiscriminate sale of mixtures containing opiates for children. Such mixtures were responsible for the deaths of a large number of infants. The jury returned a verdict of "Death from illness aggravated by the administration of 'Infauts' Preservative' containing laudanum," and on their suggestion the deputy-coroner admonished Mr. Ramsey for selling the preservative without labelling it as poison.—Mr. Ramsey promised to take heed of the remarks. He said he had mixed the "preservative" for twenty years, aud tho present was the first fatal result withiu his knowledge.

Drug, Chemical, and Allied Trades Exhibition.—An exhibition appealing to the various sections of the Drug, Chemical and Allied Trades will be held in the Royal Agricultural Hall, London, N., on September 10, 11, 12, 13, according to a circular now being issued. It is the intention of the executive, with the aid of the trades interested, to make this a periodical occurrenee that it may be the means of practically advertising such innovations, new products and appliances as may from time to time present themselves. It is hoped at the same time to bring together to their mutual advantage the producer, seller, and buyer, objects which are effectively accomplished by other successful and popular trade exhibitions which continue to develop themselves from year to year, enabling buyers to study, criticise, and test under one roof the latest achievements in the branches indicated, while affording to producers and supplying-houses generally au opportunity, which they would not otherwise enjoy, to meet their present and potential customers under circumstances conducive to extended business.

The feature which more than any other has militated against the success of previous exhibitions of the drug and chemical trades has been the failure to secure the attendance, in bny numbers, of those interested in the display. an the case of this exhibition, the whole of the trade will be invited, and arrangements made to euable many of the country members to visit the metropolis at reduced railway rates. Features specially attractive will be included, apart from the varied display provided by the trade exhibits, and the organisers expect a "record" attendance of those connected with the drug, chemical, and allied trades in town and country, manufacturing, wholesale and retail.

Many of the houses connected with the drug, chemical, and allied trades have given the undertaking their support, and promise to be represented, these including a number of the leading firms in the various sections. Many of the intending exhibitors having expressed a desire that the public should be admitted, arrangements will be made for that purpose, and it is believed that the independent attractions of the Exhibition will lead to the presence of a very considerable number. A military band will be in attendance daily.

For the convenience of exhibitors the executive have appointed Messrs. A. Elmes and Co., 347, Upper Street, Islington, N., official stand fitters. They will undertake to erect or hire on the latest principles and designs, but exhibitors can, of course, employ their own fitters. To ensure allotment of space early application is necessary.

Communications to be addressed to the Manager, Exhibition Offices, 42, Bishopsgate Without, London, E.C.

The Nature of Choke Damp, or Stithe. Dr. Haldane has communicated to the *Proceedings of the Royal Society* an important paper on the composition of black damp, or choke damp, as met with in the Podmore Colliery, Shropshire. The prevailing opinion is that this gas consists mainly of carbonic acid, but Dr. Haldane shows that his specimen consisted, when undiluted, of a mixture of one volume of carbonic acid gas with seven or eight volumes of nitrogen. Air containing just sufficient of this mixture to extinguish a candle or oil lamp produced no appreciable effect on a man. A mixture of 16 per cent. of black damp and 84 per cent. of air extinguishes candles and lamps, whereas 60 per cent. of the gas with 40 per cent. of air would be required to produce immediate danger to life. The dangerous physiological action of black damp, or choke damp, is due to a deficiency of oxygen, not to an excess of carbonic acid. The effect first appreciable when increasing proportions of black damp are breathed is, however, due to carbonic acid alone (*Proc. Royal Soc.*, lvii.).

Exchange.

[*Notices of books, apparatus, etc., for exchange, of reasonable length, are inserted free in this column, if they do not partake of the nature of ordinary advertisements. The notices should be written on post-cards, addressed "Editorial Department, 17, Bloomsbury Square, W.C."*]

WANTED.

Literature.

Copies of 'Pharm Journ.' from July 4, 1891, to December 26, 1891, inclusive.—A. Plâs, Rhyd-Lewis, R.S.O.

'Pharmaceutical Journal,' February 23, 1895. —Full price will be paid by the Secretary, 17, Bloomsbury Square, London, W.C.

Appliances.

Tincture Press, ½ gall. size.—Particulars to C. M. Robinson, Chemist, Attleborough, Norfolk.

OFFERED.

Literature.

Offers Wanted, Cash or Exchange, *Lancet*, July, 1876, to December, 1880, bound in nine half-yearly volumes.—Morrison, 2, Osnaburgh Street, London, N.W.

Squire's 'Companion,' 1886; Bentley's 'Manual,' last edit., good as new. Stirling's 'Org. Mat. Med. Tables'; B. P. Additions, 1890,' new; Slater's 'Qual. Analysis,' Thornton's 'How to Analyse'; Stirling's 'B. P. Equations'; Anthon's 'Cæsar Books' i. to vii. in 1 vol.; Tully's 'Latin Grammar'; Hamblin Smith 'Arithmetic.' What offers.—W. Tildesley, Wokingham.

Bartlon and Castle's 'British Medical Botany,' coloured figures of medicinal plants, good and cheap copy for sale.—Davies, "Chestnuts," Gordon Hill, Enfield.

Vine's 'Botany,' almost new, will sell for 8s. —Roberts, 110, Kennington Park Road, S.E.

Druitt's 'Surgeon's Vade-Mecum,' Robert's 'Theory and Practice of Medicine,' Bentley's 'Botany,' and 'B.P.,' all in good condition, recent editions, no reasonable offer refused.—Tom Vaughan, 14, Redcliff Hill, Bristol.

Bentley's 'Botany' (last edit.); Watts' 'Chemistry, Organic' (last edit.); Watts' 'Chemistry, Inorganic'; Southall's Mat. Med. Cabinet, what offers.—F. H. Blissett, 3, Hanover Street, Hanover Square, W.

Miscellaneous.

Bicycle, Diamond Frame, clincher, pneumatic, in good condition, with accessories, complete, £6 10*s.*; viewed by appointment.—F. H. Blissett, 3, Hanover Street, Hanover Square, W.

Personal Notes.

Mr Albert Davies, assistant to Mr. John Munday, chemist, High Street, Cardiff, is amongst the candidates for a vacant inspectorship of weights and measures at Cardiff. Mr. Davies is one of three selected candidates out of 190 applicants.

Mr. J. Green, A.P.S., Stallard Street, Trowbridge, Wilts, was married to Miss Isabel J. Boulton, "The Flints," Frome, on August 5, at Christ Church, Frome, by the Rev. Sydney Cooper, M.A.

Mr. J. F. Marlar, chemist, Halstead and Colchester, was married to Miss C. M. Butcher, of Clare, at the parish church, Clare, Suffolk, on August 5.

Mr. Wm. Parker, chemist, has fitted up dark-rooms at 96, Westborough, and Raneshill Road, Scarborough.

New Books and New Editions.

[*Publishers are invited to forward full particulars of new publications, including price.*]

Pleasant Rambles Round Derby, with Map, Notes for Cyclists, Notes on the Place Names of the District, the Local Botany, etc. By J. Ward. Second edition. 18mo, pp. 124. Price 1*s.* net. (Simpkin, Marshall and Co., London.)

Our Sick and How to take Care of Them. By Florence Stacpoole. Third edition. Post 8vo, pp. 150. Price 1*s.* (Cassell and Co., London.)

Down the Lane and Back in Search of Wild Flowers. By M. C. Cooke. Cr. 8vo, pp. 114. Price 1*s.* 6*d.* Boards, 1*s.* (Nelson, London.)

The Rod, the Root, and the Flower. By C. Patmore. 18mo, pp. 204, price 5*s.* Short pithy sentences arranged under the following headings:—Aurea Dicta, Knowledge and Science, Homo, Magna Moralia. (Bell and Sons, London.)

Text-book of Operative Surgery. Translated, with the special authority of the Author, from the second revised and enlarged German edition. By T. Kocher. With 185 illustrations. Roy. 8vo, pp. 318. Price 20*s.* (A. and C. Black, London.)

Dairy Bacteriology, a Short Manual for the use of Students in Dairy Schools, Cheese Makers, and Farmers. By E. von Freudenreich. Translated from the German by J. R. A. Davis. Post 8vo, pp. 122. Price 2*s.* 6*d.* (Methuen and Co., London.)

Short Lessons in Photography. By G. Ardaseer. Post 8vo, pp. 134. Price 1*s.* (Iliffe and Son, London.)

Electrical Laboratory Notes and Forms, Elementary and Advanced. By J. A. Fleming. Folio, pp. 259. Price 12*s.* 6*d.* net. (*Electrician* Office, London.)

Kimpton's Pocket Medical Lexicon: being a Dictionary of Words and Terms used in Medicine and Surgery. Collated from the highest authorities and brought up to present date, with Addenda, consisting of the Etymological Factors common in Medical Terminology, Comparative Tables of Metric and Apothecaries' Weights, a list of poisons and their antidotes, and abbreviations used in prescriptions. By J. M. Keating and H. Hamilton. 18mo, pp. 280. Price 2*s.* 6*d.* net. (Henry Kimpton, London.)

Diabetes and its Treatment. By A. Vintras. 12mo, pp. 24. Price 2*s.* 6*d.* (Baillière, Tindall and Cox, London.)

How to Become a Nurse and how to Succeed. By Honnor Morten. Third edition revised and enlarged, 8vo, pp. 206. Price 2*s.* 6*d.* (Scientific Press, London.)

An Address upon Hydrophobia, Dog-bites and other Poisoned Wounds. By C. R. Illingworth. 8vo, pp. 32, sewed, 1*s.* (Baillière, Tindall and Co., London.)

The Story of the Plants. By G. Allen. With illustrations. 18mo, pp. 232. Price 1*s.* (George Newnes and Co., London)

Garden Flowers and Plants, a Primer for Amateurs. By J. Wright. With 50 illustrations. 18 mo, pp. 140. Price 1*s.* (Macmillan and Co., London.)

Electricity up to Date, for Light, Power, and Traction. By J. B. Verity. Fourth edition, post 8vo, pp. 230. Price 2*s.* (Frederick Warne and Co., London.)

Myxœdema and the Thyroid Gland. By J. D. Gimlette. Cr. 8vo, pp. 134. Price 5*s.* (J. and A. Churchill, London.)

Photo-Ceramics: Photography applied to the Decoration of Plaques, Pottery, and other Ceramic and Metallic Surfaces. By W. E. Henry and H. S. Ward. Post 8vo, pp. 80. Price 1*s.* 6*d.* and 1*s.* net. (Dawbarn and W.

Trade Marks Applied For.

[From the *Trade Marks Journal.*]

No. 186,163.—Medical Suppositories.—The Canoid Company, Welford Place Chambers, Welford Place, Leicester, March 13, 1895. Word, "Canoids."

No. 187,745.—Chemical Substances prepared for use in medicine and pharmacy.—Frederick William Fletcher, Beauchamp Lodge, Enfield, Middlesex, May 21, 1895. Word, "Vibrona."

No. 187,928.—Preparation for the Hair.—Frederick Charles Oswald, 462, Great Western Road, Glasgow, May 30, 1895. Fac-simile signature of applicant.

No. 187,407.—Veterinary Preparations. —The City of London Veterinary Medicines Manufacturing Company, Perry Hill, Catford, S.E. May 3, 1895. Device on a shield, with applicants' name and address round the border.

No. 188,055.—Everything Included in Class 2.—John Farren, The Beeches, Monument Road, Birmingham. June 7, 1895. Words: "Napoleon the First."

No. 188,366.—Disinfectants, disinfecting soap, and sheep dip.—J. W. Drysdale and Company, 16, Cree Church Lane, London. June 24, 1895. Word: "Nestor."

No. 188,419.—Salt for agricultural, horticultural, and disinfecting purposes.—The Salt Union Limited, 16, Eastcheap, London. June 27, 1895. Word: "Saltunia."

No. 187,751.—Medicines for external and internal human use.—Francis Edmund Rubbra, Market Square, Crewkerne, Somersetshire. May 21, 1895. Word: "Lanthea."

No. 188,150.—Chemical Substances prepared for use in medicine and pharmacy.—Hance Bros. and White, 621-635 (odd numbers), Callowhill Street, Philadelphia, Penn., U.S.A. June 12, 1895. Word: "Frog."

No. 188,152.—Chemical Substances prepared for use in medicine and pharmacy. —Hance Bros. and White, 621-635 (odd numbers), Callowhill Street, Philadelphia, Penn., U.S.A. June 12, 1895. Device: A Frog.

No. 188,369.—Salt for Bathing and prepared for use in medicine and pharmacy.—The Salt Union Limited, 16, Eastcheap, London. June 25, 1895. Word: "Saltunia."

No. 188,387.—Chemical Substances prepared for use in medicine and pharmacy.—Frederick William Fletcher, Beauchamp Lodge, Enfield. June 25, 1895. Word: "Exsol."

No. 188,186.—Paper, non-medicated, for toilet purposes.—Walter James Alcock, 43, Banner Street, Golden Lane, London, E.C. June 14, 1895. Word: "Cameo."

No. 188,177.—A Toilet Preparation for the hair and scalp.—William Carr Hebden, Albany Works, Halifax, Yorkshire. June 14, 1895. Word: "Persipit."

No. 187,953.—A Preparation for the Hair. —Edward John Burnell-Jones, 10, Bude Street, Appledore, Devon, May 31, 1895. Word, "Sataline."

Late Advertisements.

Assistant Wanted.

A Junior Assistant (in-doors) not under 22 years of age, to whom 3 hours daily would be allowed for the purposes of study, &c. Address with full particulars as to age, height, past experience, salary required, &c. Field & Co., 112, Camden Rd., London, N.W.

Engagement Wanted.

A MAJOR Student requires one entire day's employment weekly. Address, Citras, 5, Serle St., W.C.

SUPPLEMENT

TO THE

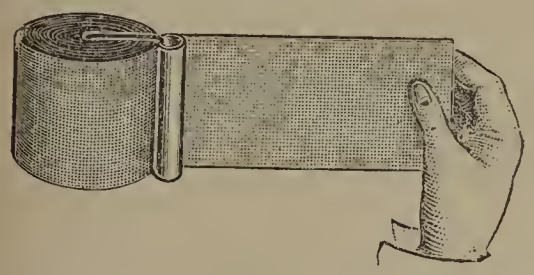
PHARMACEUTICAL JOURNAL.

Contents of Supplement.

Trade Notes i
Company Business i
Chemists' Dark Rooms i
Market Report ii
Liverpool Market Report iii
Newcastle-on-Tyne Chemical Report iv
Exchange iv

Trade Notes.

MESSRS. REYNOLDS AND BRANSON, Leeds, have brought out yet another novelty in the "Non-Run-Away" bandage. The intention is to obviate the difficulty caused by the tendency of an ordinary rolled bandage to escape from the grasp when being applied, and perhaps roll to some distance, unwinding as it goes. In the "Non-Run-Away" bandage, the idea of which was suggested



by Dr. Duke, of Cheltenham, an elastic cord passes through the middle of the roll and presses a cardboard roller firmly against the outside in such a way that the bandage cannot be unrolled except by exerting a distinct pull. Should only part of a six-yard bandage be required for an operation the remainder is left securely rolled for use on another occasion. The boxes in which the bandages are supplied each contain one dozen six-yard rolls, the width of the bandages varying from one to four inches.

WE have received from Messrs. Evans, Lescher, and Webb, 60, Bartholomew Close, E.C., an advance copy of the new issue of 'Hawley's Counter Adjuncts.' The fact that this is the fourth edition which has appeared in the course of about eleven and a half years is sufficient evidence that the preparations described in it have supplied a want, and it is certainly worthy of a place on every pharmacist's desk. We notice that the present edition occupies some 130 pages, being nearly double the size of the previous issue, and the printing, binding, and illustrations are fully up to the standard expected from this firm. Many of the preparations described have now been included for the first time, their introduction having been called for by chemists, who naturally prefer to sell an article the quality and wrapping of which will reflect credit upon them, to handling goods of whose composition they know nothing, which bring neither profit nor *kudos*. Pharmacists being naturally conservative, look with suspicion upon the general run of packed goods, but the "get-up" of the comprehensive list of articles here described is so satisfactory that their objections are likely to disappear. In the present edition, which includes almost every preparation for which there is likely to be an enquiry, we notice that the first part of the book comprises those preparations which can strictly be called "Counter Adjuncts," and under each heading specimen labels are shown, in some instances in colours. The second part includes the well-known specialties of the firm, ending with a useful innovation in the shape of a comprehensive index of articles of recent materia medica, with the dates when a description appeared in 'The Counter Adjunct,' the monthly pamphlet issued by the firm. This arrangement will undoubtedly be appreciated, as it facilitates reference to a succinct account of the numberless synthetic products in which the present-day pharmacist has to keep himself posted.

THE SANITAS COMPANY, LIMITED, Bethnal Green, E., has published a handy little book, entitled 'How to Disinfect,' being "a guide to practical disinfection during cases of infectious illness and in everyday life." It is needless to say that the disinfectant recommended throughout is Sanitas, but doubtless if the name of some other preparation were substituted for this the instructions given would still be found useful. The price of the book is threepence, but supplies are furnished at a reduced rate to doctors, nurses, and others.

Company Business.

JOSEPH BROOKS AND COMPANY, LIMITED.—Registered, on July 24, with a capital of £20,000 in £10 shares, by Chester and Company, 36, Bedford Row, London, W.C. Objects: To enter into an agreement, made July 20, with John Brooks and E. Holt, and, generally, to carry on business as wholesale and retail chemists and druggists, manufacturing chemists, drysalters, oil and colourmen, etc. The directors are E. Holt and John and Joseph Brooks.

DR. FOUQUIER'S ELIXIR SYNDICATE, LIMITED.—Registered, with a capital of £18,000 divided into 3380 ordinary shares of £5 each, and 100 founders' shares of £1 each, by Lindo and Company, 2 and 3, West Street, Finsbury Circus, E.C. Objects: To acquire, as a going concern, the business of a patent medicine manufacturer and vendor as hitherto carried on by Dr. P. J. J. B. Fouquier, and to develop and extend the same. The directors are O. D. Deacon and R. Rowe.

EDWARD PACKARD AND CO., LIMITED.—Registered by Cheston and Sons, 1, Great Winchester Street, E.C., with a capital of £100,000 in £10 shares. Objects: To acquire the business carried on by Edward Packard, jun., and Henry W. Packard as "Edward Packard and Co.," of Ipswich and Bramford, Suffolk, and elsewhere, for the acquisition as a going concern of the business of manufacturers of sulphuric acid, chemical and artificial manures, and chemical manufacturers, and, generally, to carry on business as manufacturers, importers of, and dealers in phosphate of lime, phosphate rock, guano, sulphuric acid, chemical manures, and other raw materials, and chemical merchants. The directors are Sir H. T. Wood, G. H. Hughes, E. Packard, jun., and H. W. Packard. Registered office: Duke Street, Ipswich, Suffolk.

CHEMISTS' DARK ROOMS.

[*Dark rooms for photographic purposes are provided by chemists in various towns and are free to customers in most cases. Any additions to, or corrections of, the following list should be sent to the Editor.*]

BIRMINGHAM: SOUTHALL BROTHERS AND BARCLAY, Broad Street Corner.
BOSCOMBE: TAME AND CO.
BOURNEMOUTH: S. HARDWICK, 21, Commercial Road.
BOURNEMOUTH: F. E. BILSON, 1, Lansdowne Crescent.
CANTERBURY: E. BING AND SON, St. George's Street.
CHESTER: G. KEMP, 59, Bridge Street.
CLEVEDON: J. H. HART.
CONWAY: LLEWELLYN JONES, Lancaster Square.
HACKNEY, N.E.: W. SHARMAN, 247, Mare Street.
LANCASTER: WILLIAM WYATT AND CO., Stoneweli.
LONDON: A. D. RAE, 6, Railway Place, Fenchurch Street, E.C.
LOWESTOFT: FRYER AND CO., The Pier Pharmacy.
MIRFIELD: CHARLES CROOK, Easthorpe.
RHYL: G. R. LAWRENCE, High Street.
RICHMOND: REX BLANCHFORD, 34, Hill Rise.
ROTHESAY: W. B. JAMIESON, 64 Montague Street.
SCARBOROUGH: WILLIAM PARKER, 96 Westborough and Raneshill Road.
SCARBOROUGH: JOHN WHITFIELD, 113, Westborough, and on the Spa.
SOUTHAMPTON: W. MARTIN, 112, High Street.
SOUTHPORT: J. R. CAVE, 52, Nevill Street.
STOKE-ON-TRENT: J. H. ADAMS AND CO., High Street.
UTTOXETER: ALFRED PARKER, High Street.
VENTNOR, I.W.: J. W. LITTLEFIELD, High Street.
WINDERMERE: R. H. BARKER, 13 Crescent Road.
WORTHING: A. B. CORTIS, 30, South Street.

THE SALE OF PATENT MEDICINES. — At West London Police Court on August 6, Mr. Newton heard a summons against Messrs. Harry Hodgkinson Charlesworth and William Creswell Collen, who carried on the business of chemists at 113, Dawes Road, Fulham, at the instance of the Excise authorities, for selling a bottle of patent medicine without the same being duly stamped.—Mr. R. A. Germaine, instructed by Mr. John Haynes, defended.—Mr. Hawkins, who represented the commissioners of Inland Revenue, said all patent medicines were liable for stamp duty. The commissioners have, however, granted a concession to chemists in respect to medicines which were used for dispensing only.—Mr. Germaine, in defence, said the assistant inadvertently handed to the purchaser the wrong bottle.—Mr. Newton pointed out that the public must be protected from such accidents. He imposed a penalty of 50*s*., with 2*s*. costs.

MARKET REPORT.

[Specially compiled for the Pharmaceutical Journal.]

Chemicals and Drugs.

[The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.]

THE CHEMICAL MARKET.

London, August 15, 1895.

There have been no changes of general interest in the chemical market since our last report, and more important features may be briefly summarised. The market in all grades of carbolic acid remains steady, whilst chrysophanic acid is firmly held at steady rates. Tartaric acid has been in good demand at somewhat firmer rates, whilst citric acid is steady. The demand for cream of tartar has considerably slackened, and it is now quoted at easier rates. Potash and soda compounds are generally dull of sale at late rates. Full details will be found below of the various articles of interest:—

Acetanilide.—From New York a moderate demand is reported at unchanged rates. It is quoted at a parity of 1s. 2d. to 1s. 3d. per lb.

Acid, Carbolic.—The current quotations are as follows:—*Crystals:* 34° to 35° C., 5⅛d.; 39° to 40° C., 5¾d. (*detached crystals*), 6¾d. per lb. *Crude*: 60° is now quoted at 1s. 7d., with 75° at 1s. 10d. per gallon. *Liquefied* quoted at 1s. 1d. per gallon for 95 per cent. *Cresylic:* 1s. per gallon.

Acid, Chrysophanic—Remains a very steady market, and *English* makers still quote at 15s. 6d. to 16s. per lb.

Acid, Citric.—A firm market, and a fair demand has been shown at late rates. Makers maintain their prices at 1s. 1¾d., whilst second-hand holders ask 1s. 1½d. per lb.

Acid, Oxalic—Remains unchanged at the long-standing Convention rate of 3⅝d. per lb. net, *ex* rails.

Acid, Salicylic.—Reports from New York state that the makers who have been in agreement as to the prices have been compelled to lower their quotations, owing to the severe outside competition, and the market is in a very uncertain position. It is said that the current prices, which are at a parity of 1s. 9d. to 1s. 10½d., are too low to allow a fair profit being made.

Acid, Tartaric—Firmer, although no noticeable change has occurred in price. *English* makers quote at 11¼d. per lb., whilst *foreign* brands of acid are in good demand at 11d for *crystals* and 11¼d. for *powder*.

Alum.—In fair consuming demand. In London the prices are £5 12s. 6d. to £5 15s. for *lump*, with *powder* quoted at £6 5s. In Liverpool, *lump* quotes at £4 12s. 6d. in tierces, and £4 15s. in barrels, with *powder* at £5 7s. 6d. to £5 10s. per ton.

Ammonia Salts.—*Carbonate*: Unchanged at 3½d. to 3¾d. per lb. *Liquor*: The old price of 3¼d. to 3½d., less 5 per cent., is maintained. *Sal ammoniac*: *First* quality still offers at 39s., with *seconds* at 37s. *Sulphate*: A flat market, and it must again be quoted lower. At the close, grey 24 per cent. offers at £9 5s. per ton.

Ashes—Dull of sale, at lower rates for *American*. At the close Canadian *potashes* are neglected at 37s. 6d, whilst best *pearl ashes* offer at 22s. 6d.

Arsenic—Very firm at late rates. The quotation for *lump* is maintained at 29s., with 15s. 6d. to 16s. asked for best white *powder*.

Bleaching Powder—Very firm and in steady demand at £8 5s. on the spot. In Liverpool *soft* is quoted at £6 15s. on rails, with £7 *f.o.b.* asked for *hard*.

Borax — Unchanged. The Convention prices are maintained at 20s. for *crystals*, and 21s. for *powder*, but it can be bought at fully 1s. less in second hand.

Copper Sulphate.—A very firm market at fully steady rates. The best brands are quoted at £17 on the spot, with other makes at £15 5s.

Cream of Tartar.—The demand has quieted down, and at the close the market is dull at a decline, with a probability of a further fall. *German* brands of *powder* now offer at 75s., with best white *French crystals* quoted at 72s. 6d.

Mercurials—Without change. The current quotations are as follows for quantities up to 28 lbs.:—*Calomel*, 2s. 11d.; *corrosive sublimate*, 2s. 7d.; *red precipitate*, 3s. 2d.; *white precipitate*, 3s. 2d.

Phosphorus—Unchanged at 2s. 1d. for *sticks*, and 2s. for *wedges*.

Potash Salts.—*Bichromate*: Unchanged at 4⅝d. to 4¾d. per lb. *Chlorate*: Dull of sale, at a further decline. On the spot it now offers at 4⅝d. per lb. *Permanganate*: Steady at 55s. to 56s. for small, with 59s. to 60s. asked for large *crystals*. *Prussiate* selling slowly at 8d. on the spot. In Liverpool it is in rather better demand at 8d. to 8¼d.

Quicksilver.—Very quiet, and offering at lower rates in second hand. Importers maintain their prices at £7 5s., but it offers outside at £7 3s. 6d.

Saltpetre.—Somewhat slow of sale. British *refined* still offers at 22s. 6d. to 23s. 6d., on the spot, whilst in Liverpool the price varies from 22s. 6d. to 23s., according to package.

Soda Compounds. — *Bicarbonate*: The spot price is unchanged at £7 5s. per ton. In Liverpool it is quoted at £6 15s. *Caustic* 70 per cent. is still quoted at £8, with 60 per cent. offering at £1 less. *Crystals*: 38s. *ex* ship. *Hyposulphite*: Steady at £7 5s. to £7 10 per ton in Liverpool.

Nitrate.—*Ordinary* is rather easier at £8 3s. 9d. to £8 5s., with *refined* offering at £8 7s. 6d.

Sulphur—Steady. In Liverpool, *flour* is held for £7 10s. per ton. *Roll* is quoted at £5 5s., and *recovered* at £3 17s. 6d. in bags, and £4 5s. in barrels.

Tar Distillation Products.—*Benzole*: 50 per cent., 11d., with 90 per cent., at 11½d. per gallon. *Creosote*: 1¼d. per gallon. *Crude Naphtha*: 30 per cent. at 120° C., 5½d. per gallon. *Solvent Naphtha*: 95 per cent. at 160° C., 1s. 2½d.; 90 per cent. at 160° C., 1s. 2d.; 90 per cent. at 190° C., 1s. 1d. per gallon. *Anthracene*: 13 A, 1s.; B, 9½d. per unit. *Pitch*: 38s. 6d. per ton, *f.o.b.* *Tar*: 12s. per barrel; refined, 2¼d. per gallon. *Toluol*: 1s. per gallon.

Wood Naphtha. — Miscible is worth 2s. 9d. per gallon.

THE DRUG MARKET.

London, August 15, 1895.

Business in the drug market has been dull since our last report, and the attention of buyers has been mostly confined to one or two articles. The market in crude camphor has been very firm, and a large amount of business would have been done had it not been for the scarcity of offers; the refined article remains unchanged, but the present position warrants a further advance. Of the various essential oils, anise, cassia, and bergamot must all be reported very firm, and advanced prices have been paid for the first named, but H. G. H. peppermint is lower. Ipecacuanha is steady, and coca leaves are dearer. The various alkaloids are unchanged. Full details will be found below of the articles of most interest:—

Araroba.—Fine quality is not procurable, and being much wanted would command a good price. At present only common grades are offering, and these quote at from 1s. to 1s. 6d. per lb.

Caffeine—Steady. A few small parcels can be had, but always in second hand, at 25s. to 27s. For delivery, August to September, the makers are prepared to quote at 20s. to 22s. per lb. Latest reports from New York advise a very weak market, but this seems to be merely due to the considerable supply in second hand. Quotations rule at a parity of 28s. to 32s. per lb.

Camphor (crude).—A very strong market, with every probability of the prices going still higher. None is offered on the spot, and for arrival it cannot be said that the amount of business done has been very extensive. This is owing to the firmness of holders. Since our last report there have been sales of *Japan*, for arrival June to August steamer, at 182s. 6d. *c.i.f.*, 100 piculs having been sold at this price. At the close quotations rule 185s. to 187s. 6d. *c.i.f.* In *China* there have been sales for arrival, June to August steamer, at 165s. *c.i.f.*, and at the close 170s. to 172s. 6d. *c.i.f.* is the nearest price.

Camphor (refined).—On Monday it was currently rumoured that one of the *German* refiners had advanced his prices 3d. per lb. This report has not been confirmed, and is not likely. At the close quotations remain as last, *bells* and *flowers* being quoted at 1s. 11½d. for 10-cwt. lots, with *squares* at 2s. 0½d. and proportionate rates.

Chamomile Flowers.—*Belgian* flowers of the new crop, which opened at 65s. per cwt., now offer at 45s., with prices tending steadily downwards.

Cloves.—The market in *Zanzibar* is steady. There have been sales of several hundred bales for delivery, September to November, at 2 9/32d., and October to December at 2⅝d.

Cocaine—Unchanged. The quotations of the best makers range from 14s. 3d. to 14s. 9d. for 100 oz. lots in tins, with smaller quantities at proportionate rates. *Zimmer's*

brand offers at 14s. 6d. per cz. in the above quantities.

COCA LEAVES. — *Truxillo* leaves are decidedly better, and 1s. has been paid privately for good sound leaves, somewhat broken, but of green colour. For *Bolivian* leaves of dark colour, 9d. to 10d. per lb. is asked privately.

CACAO BUTTER—Dearer. At the sales on the 13th inst. 250 cases, representing 25 tons, of *Cadbury's* make sold at an average of 13⅛d. per lb., against 12⅝d., which was the price realised at the July sales.

COCHINEAL.—The market is steady, and a moderate amount of business has been done at late rates. Ordinary *Teneriffe* fetches 1s. 2¼d. privately.

CODEINE —There is no change in the position of this article. Quotations range from 10s. 3d. to 10s. 6d. per cz., according to quantity and brand.

COLOCYNTH—Steady. Sales have been made privately of good *Turkey* apple at 2s. 4d. per lb. *Spanish* quotes privately at 1s. to 1s. 1d., and for arrival is quoted at 1s. *c.i.f.* The scarcity of good grades continues, there having been no fresh arrivals. A strong market is reported from New York in sympathy with the London market. *Trieste* being held for prices which show a parity of 2s. 1d. to 2s. 2d., with *Spanish* at 1s. to 1s. 1d. per lb.

COPAIBA—Steady, but dull of sale. *Maranham* quotes at 1s. 7d. to 1s. 9d.; *Para*, 1s. 5d. to 1s. 6d.; *Maracaibo*, *Bahia*, and *Carthagena* at 1s. 3d. to 1s. 5d. per lb.

GUARANA—Dull of sale. For good sausage 2s. 6d. per lb. would be accepted privately.

INSECT POWDER.—Fine *Dalmatian* powder from the grinding of new flowers quotes at 72s. 6d. per cwt.

INSECT FLOWERS.—The current quotations for the new crop are as follows:—Open, 56s. per cwt.; half-closed, 86s. 6d.; closed, 99s. per cwt *c.i.f.*

IPECACUANHA—Steady. Since the drug sales *Rio* (Brazilian) root has been selling privately at fully steady rates, whilst *Carthagena* (Columbian) root has buyers at 4s. 6d. per lb. for good quality damaged root. The latter variety is still in but poor supply.

JALAP—Moving slowly at 11d. per lb. for fair sound *Vera Cruz*.

MENTHOL.—At the present time there are no buyers of this article, and good dry *Crystals* are on offer at 13s. to 13s. 6d. per lb.

MORPHINE—Unchanged, at 4s. per oz. for 1000-oz. lots, with smaller wholesale quantities at 4s. 2d. to 4s. 3d. *Crystals*: 2d. per oz. more.

OILS (ESSENTIAL).—*Star anise*: Reports from China generally confirm the rumours that the new crop will be somewhat poor, and indicate a very firm market, and it is said that the old season's stock is nearly exhausted. On the spot it has been a very firm market, with 6s. 9d. and 6s. 10d. paid during the week. Holders now ask 7s. per lb. Quotations for arrival are also higher in proportion, the last we heard was 6s. 4½d. *c.i.f.* *Bergamot*: Very firmly held. Holders now quote 8s. 4d. per lb. for an oil of guaranteed purity *f.o.b. Messina*. *Cassia*: A firm market, and little is reported to be offering in China. On the spot 6s. 3d. has been paid for oil testing 70 to 75 per cent. of cinnamic aldehyde, and holders are asking 6s. 6d. Of 80 per cent. oil little is offered, the small stocks being very firmly held. *Citronella*: Very steady, and 1s. 4d. to 1s. 5d. per lb. is asked on the spot. *Clove*: Very slow of sale at present. Nominally the spot price is 1s. 11d. to 2s. per lb. *Lemon Grass*: Dull of sale at 1½d. to 1⅝d. *Peppermint*, *H. G. Hotchkiss'* oil is lower, being now quoted at 10s. to 10s. 1½d. on the spot. *Japanese* oil testing 40 per cent. of menthol offers at 7s. 9d. on the spot, and for arrival is still quoted at 6s. 6d. per lb. *c.i.f.* terms. *Dementholised* oil offers at 5s. 6d. on the spot and 4s. 9d. for arrival *c.i.f.* terms. *Wayne County* oil is unchanged at 7s. 6d. to 8s. per lb. on the spot. *Lemon*. An oil of guaranteed purity offers at 3s. 5d. per lb. *f.o.b.* Messina.

OILS (FIXED) AND SPIRITS.—*Castor*: *Italian* oil is steady, and offers 30s. 6d., *c.i.f.*, per cwt. for extra fine tasteless oil. *Calcutta*: Latest reports advise a firm market with quotations fully steady. Stocks are but small, and the supply does not meet the demand. *Cotton*: Dearer, and there is a decidedly firm tone in the market; at the close *refined* oil quotes at £17 15s. to £18 5s., according to brand and package. *Coco-nut*: Steady. *Ceylon* is 5s. dearer, being now quoted at £22 10s., whilst *Cochin* is unchanged at £24 *Linseed*: Unchanged. At the close £21 2s. 6d. is the price on the spot for oil in barrels. *Olive: Syrian* quotes at £33, and *Spanish* at £37. *Rape:* Unchanged. The spot price for *refined* oil remains at £22 5s. to £22 10s. *Turpentine*: Rather dull of sale. At the close *American* spirit is quoted at 22s. 4½d. to 22s. 6d. *Petroleum*: Easier. *American* oil is quoted at 5¾d.; *water white* at 6½d. to 6¾d.; and *Russian* at 5⅝d. *Petroleum Spirit*: *Ordinary*, 9d. to 9¼d.; *deodorised*, 9½d. to 9¾d.

OIL (COD-LIVER).—There is no change in the position of this article, and nominally fine new non-congealing oil quotes at 160s. to 170s. per barrel of 25 gallons. *Isdahl's* brand quotes at the latter figure. *Finmarken* summer oil is worth 150s. *c.i.f.*

OPIUM.—*Turkey*: There has only been a moderate inquiry for "druggists'" varieties, otherwise the position is unchanged. Soft shipping descriptions are quoted at 10s. 6d. to 10s. 9d.; best "druggists'" at 7s. 9d. to 8s. 9d.; seconds ditto, 6s. 9d. to 7s. 9d. *Persian*: Remains very firm at unchanged prices; fine quality being quoted at 12s. 9d. to 13s.; and seconds ditto, 12s. to 12s. 6d.

ORRIS ROOT—Offering at the following rates: — *Florentine*, good sorts, 71s. 6d.; ordinary selected, 74s.; chips and shavings, 67s. 6d. *Veronese* root still quotes at 55s. for large bold, all *c.i.f.* per cwt.

PERU BALSAM—Unchanged, and offering at 8s. 9d. to 9s. per lb. for genuine balsam of direct import.

QUININE SULPHATE —There has been more business doing in this market, and the general tone is considerably firmer. Holders are very firm, consequently a large amount of business has not resulted. The principal item is a sale of 10,000 ozs. of *B. & S.* and *Brunswick* at 1s. 0⅝d. At the close 1s. 0¾d. is asked.

SALICIN.—The current quotation of the makers is 8s. per lb. for 1 cwt. lots, with 28 lbs. at 8s. 6d.

SARSAPARILLA.—Reports from *Guayaquil* advise offers of fair quality root at 8d. per lb., *c.i.f.* Havre.

SEEDS (CARAWAY).—The current quotation for the new *Dutch* crop is 24s. per cwt., *c.i.f.*

SENEGA ROOT—Firm. The spot price for nice quality root is 1s. 4d. per lb. From New York a decidedly firmer tone is reported, and extensive purchases have been made in the West. The spot price shows a parity of 1s. 1d. to 1s. 1½d. per lb.

SHELLAC.—The sales were held on the 13th inst. after a fortnight's interval, when larger supplies were offered. Although competition was fairly brisk, the real demand is slow. *Second orange* sold at somewhat irregular but, on the whole, fully steady rates. *Button* was steady, and *Garnet* was all withdrawn. Prices:—*Second orange*, fair free, 125s.; strong red, 123s. to 124s.; ordinary liver, 120s.; blocky ditto, 107s. *Garnet*: Bought in at 108s. for fair cakey *AC*, and fair free *G* at 106s. *Button*: Fair pale *BLJ.* sold at 124s. Privately there has been improved demand, especially since the sales; *Second orange* selling at 124s. to 125s. for fair *TN*, and *Button* at 108s. for free *AC*.

SOY.—Somewhat slow of sale at the rate of 1s. to 1s. 1d. per gallon for fair *China*.

STAVESACRE SEEDS.—This drug is rather scarce and firmly held. Privately 1s. 6d. per lb. is asked for good quality.

TURMERIC—Dull of sale. At the auctions good bright *Madras* in lean finger was bought in at 9s. 6d., and fair finger *Cochin* at 8s. to 8s. 6d., with *Bengal* at 9s.

WAX.—*Carnauba* steady. There have been sales of yellow at 125s. to 132s. 6d.; medium, 117s. 6d.; and grey at 112s. 6d. per cwt. *Japan* remains dull of sale at 25s. to 26s. for good white squares.

LIVERPOOL MARKET REPORT.

[*From our Special Correspondent.*]

AUGUST 14, 1895.

DRUGS, ETC.

LINSEED—Is firm, but idle, with very little offering on the spot and less desire to sell forward. During the week 167 bags of Turkish brought 39s. per 416 lbs. *ex* quay. HEMP SEED.—Little offering, and that mostly Chilian, of which two lots of 170 and 50 bags respectively have changed hands during the week at 32s. per 336 lbs. CANARY SEED—Attracts but little attention and remains steady, with moderate inquiry at recent rates for spot parcels of 38s. to 40s. per 464 lbs., between which prices a little business has been done. CARNAUBA WAX.—One small parcel, about 40 bags, of grey realised 110s. per cwt. KOLA NUTS—Not so brisk as last week; 22 bags of dried brought 5d. per lb. GUM ACACIA.—Arabic varieties have been in moderate demand at late steady rates, but very little business has been transacted. Fair sales of Niger are reported, but the terms are strictly private.

OILS.

CASTOR.—Easy tendency early in the week, but prices have hardened and now stand at 2⅛d. for good seconds Calcutta; 2d. to 2⅛d. first pressure French. There is no Madras to be had on the spot lower than 2⅛d., but there are sellers at 2d. to arrive. OLIVE—Remains very firm and steady at

recent full prices, with a fair inquiry and a good trade in Candia and Levant at £31 to £31 10s. per tun for Levant, and £32 for Candia. Linseed—Steady at last week's rates and firmly held, Liverpool pressure 22s. 6d. to 23s. per cwt. in export casks. Cotton Seed—Extremely quiet, little if any business doing, Liverpool refined 18s. to 18s. 6d. in export barrels, American, 18s. 6d. Petroleum. — Values of both Russian and American only nominal, market quiet, and sellers do not care to quote. Russian, 6d. per gallon; American, 6¼d. to 8½d. Spirits of Turpentine — Was in buyers' favour early in the week at 21s. per cwt. spot value, but at present is about 21s. 6d.

CHEMICALS.

Sal Ammoniac is steady at 39s. per cwt. for first quality, 37s. for second. Sulphate of Ammonia—Quiet, but steady at £9 10s. per ton *f.o.b.* 24 per cent. good grey. Bleaching Powder—Hard, dry in hardwood casks *f.o.b.*, Liverpool, £7 5s. nett cash. Soda Salts have advanced generally from 5s. to 10s. per ton; *Bicarbonate*, £7 per ton; *Soda Crystals*, £5 10s. *f.o.b.* Caustic Soda.—Prices steady, with fair inquiry; 70 per cent. £7 15s. to £8 per ton, 60 per cent. £6 15s. to £7 nett cash. Borax.—Quiet, *lump* 20s., *powder* 21s. Nitrate of Soda.—Held very steadily at 8s. 1½d. to 8s. 4½d. per cwt. on spot, but very little business has passed. Cream of Tartar—Still very steady, sellers on spot ask 74s. for best white; nothing to be had under this price. Pot Ashes—Quiet at 22s. 3d. to 22s. 6d. per cwt. Pearl Ash—Quiet at 42s. 6d.

NEWCASTLE-ON-TYNE CHEMICAL REPORT.

Our correspondent writes on the 14th inst. as follows:—There are no new features of special interest to be noted in the condition of the Tyne Chemical Market. Demand for most products continues fairly steady, but prices are not particularly remunerative. Hopes are entertained, however, that a change will take place before long, and quotations for forward delivery are firm with an upward tendency. Sulphur is in good demand, as are also Caustic Soda and Salt-cake. Bleaching Powder quiet for prompt delivery, but sellers show a disinclination to negotiate very far forward. Current Quotations:—Bleaching Powder £7 to £7 5s. per ton nett on rails, softwood casks; £7 5s. to £7 10s. hardwood casks, with 5s. extra for *f.o.b.* Sulphur, £3 17s. 6d. per ton nett. South Durham Salt, 9s. to 9s. 6d. per ton nett *f.o.b.* Tees, and selling freely. Soda Crystals rather firmer, 35s. to 37s. 6d. per ton nett. Hyposulphite of Soda remains firm and demand fairly steady at unchanged values; 5/7 cwt. casks £6 per ton nett, 1 cwt. kegs £6 15s. per ton nett. Oxalic Acid, 3¾d. per lb. nett. Chloride of Barium, £6 5s. per ton nett. Caustic Soda, 76 to 77 per cent., £9 5s. to £9 10s.; 70 per cent., £7 5s. to £7 15s. per ton nett. Soda Ash, 52 per cent., £3 17s. 6d. per ton nett, ditto 48 per cent., £3 12s. 6d. per ton nett. Alkali, 52 per cent., £4 15s. to £5 per ton nett. Pure white Sulphate of Alumina and Precipitated Carbonate of Barytes in fair request.

Exchange.

WANTED.

Literature.

'Veterinary Counter Practice,' Alpe's 'Medicine Stamp Guide,' condition and price to R. J. Middler, 24, High Street, Old Aberdeen.

Paris' 'Pharmacologia' and Maisch's 'Materia Medica'; condition not important if complete.—Rogerson, 48, High Street, Wigton, Cumberland.

The 'Official Handbook of the National Training School of Cookery,' in good condition. Lowest price to F. H. Prosser, Spring Hill, Birmingham.

Miscellaneous.

A Pair of Large Gilt Spectacles, for outdoor sign.—Particulars to C. M. Robinson, Chemist, Attleborough, Norfolk.

OFFERED.

Literature.

Offers wanted for 'Pharmaceutical Journal,' 1892, 1893, 1894, complete.—H. C. Smith, 54, High Street, Stroud.

Fine folio volume, splendid copy, 'Orchids, The Royal Family of Plants,' beautifully coloured plates, published £4 4*s*, for 21*s*.—Davis, "Chestnuts," Gordon Hill, Enfield.

Offers Wanted, cash or exchange, 'Taylor on Poisons,' Dr. Tanner's 'Clinical Medicine' (by Tilbury Fox), Taylor's 'Medical Jurisprudence,' 1852, Hall's 'Practice of Medicine,' Watson's 'Practice of Physic' (2 vols), and principles, 3rd edition.—H. E. Goddard, The Northgate Pharmacy, Great Yarmouth.

Miscellaneous.

Microscope. Collin's Histological Microscope, with coarse and fine adjustments, 1 inch and ¼ inch objectives, live box, polariscope, Beale's Neutral Tint, in case, £5.—J. A. H., 5, Pond Street, N.W.

Chemical Balance, scarcely used, £6, cost £8; particulars on application. 'Year-Books of Pharmacy,' 1870 to 1890, inclusive, general index up to 1885; what offers? Camera, studio or out-door, 5 by 4, long square bellows, focussing screw, with good lens, 33*s*., good condition, original cost of camera alone £4 4*s*.—Harvey, Pharmaceutical Chemist, Sileby, Loughborough.

Photographic Apparatus.

Beck's Frena Camera, lantern plate size, in leather case, Beck's rapid rectilinear lens, cost £5 5*s*. Offers.—J. A. H., 5, Pond Street, N.W.

Half-plate Camera by Watson, Shew lens, three dark slides, cost £13; price £5 10*s*. Approval.—J. A. H., 5, Pond Street, N.W.

Quarter-plate Camera, doublet lens, metal tripod, changing bag, magazine, case, etc., complete and perfect, cost £8; take £5, or exchange patents.—Griffiths, Kidsgrove, Staffs.

Wilcox and Co.—At a meeting of members of Wilcox and Co., "Foreign Chemists, Limited," 239, Oxford Street, W., held on the 7th inst., the audited balance sheet for the six months ending June 30 last was submitted, showing total sales £26,962 14*s*., and a net profit of £2666 1*s*. 1*d*., and it was resolved that a dividend at the rate of £10 per cent. per annum, free of Income Tax, be forthwith paid.

THE FUTURE OF CAMPHOR.

The *O. P. and D. Reporter* commenting upon the present position of the camphor market, remarks that the London market has a stronger appearance now than it had a month since. The reason assigned for this is that the syndicate which entered into the speculation in crude camphor has bought every lot offered, both on the spot and to arrive, instead of remaining content with its early purchases, for which up to 150s. per hundred weight had been paid. The prediction had been made that the latter course would be pursued, and that in the absence of a heavy demand from the refiners during the summer, the syndicate would realise on its holdings. The manipulators appear to have concluded that their only hope of making their venture a success was in taking every lot offered from either Formosa or Japan, and buying for shipment away ahead. According to the latest reports they have secured all July, August and September shipments, having paid up to 165*s*. *c.i.f.* Accounts vary as to the amount of their purchases, one stating 20,000 piculs and another 30,000 piculs. The lowest quotation from the primary markets is 170*s*. Already those who sold to the syndicate have begun to get nervous over the outlook, and offers to buy back goods sold for future delivery have been made of 160*s*., but they have been refused by the syndicate, which does not appear willing to entertain any offers below 200*s*. It is becoming apparent that the sellers to the syndicate have oversold themselves, and there is every probability that the price will sooner or later be sharply advanced. This is likely to occur when the time arrives for making the later deliveries. Then the price of refined will doubtless appreciate sympathetically.

Notwithstanding the late war, there will probably be no real scarcity of camphor. There may be a shortage on account of trouble in Formosa between the residents and the Japanese, but it will be only temporary. Statistically, as we pointed out in a previous article, camphor should not be higher, and as soon as the syndicate has accomplished its purpose, there will probably be a natural reaction. They may, however, find it necessary to continue their operations for several months.

The market for the refined article is very firm, and there is little or nothing in the hands of any but the manufacturers that can be sold at a lower price than the latter quote. Under existing conditions refiners will not sell large quantities, preferring to be in a position to take advantage of every favourable feature that may present itself, so long as they are at the mercy of a syndicate of manipulators. The demand at present is not large.

Late Advertisements.

Assistants Wanted.

JOHANNESBURG.—Qualified Assistant wanted, about 25 years of age. One who has had some experience of Wholesale work preferred. Must be steady, and not afraid of work. Apply, stating full particulars, to E. M., care of John Murdoch & Co., 52, Leadenhall St., E.C.

A QUALIFIED Senior Assistant (about 25) required the beginning of September. Must have had experience of the best class. Full particulars, with carte, to Hutton, Pharmacist, Leamington Spa.

Business for Disposal.

FASHIONABLE North of England Watering Place. — Dispensing and Retail Business. Elegantly fitted shop. Principal thoroughfare. Books can be inspected. Prescription, "Pharmaceutical Journal" Office, 5, Serle St., London, W.C.

SUPPLEMENT

TO THE

PHARMACEUTICAL JOURNAL.

Contents of Supplement.

Partnerships Dissolved	i
Trade Notes	i
Company Business	i
Trade Marks Applied For	i
Market Report	ii
Liverpool Market Report	iv
Scotch Chemical Report	iv
Exchange	iv

Partnerships Dissolved.

[From the *London Gazette*.]

Charles Murray Hornibrook and Herbert Henry Gates, drug, grist, and spice grinders, Fuller's Earth merchants, etc., carrying on business at Fairclough Street, E., under the style of Gates and Hornibrook. The business will be continued by C. M. Hornibrook.

Samuel Pilley and Henry Thomas Pilley, carrying on business as chemists and druggists under the style of S. Pilley and Son, at Boston, Lincolnshire. The business will be continued by H. T. Pilley.

Marriages.

Jackson—Nelson.—On July 31, at Kirkgate Wesleyan Chapel, by the Rev. Robert Hopewell, Herbert Richardson Jackson, Pharmaceutical Chemist, elder son of Mr. John Jackson, of the firm of Harrison, Parkinson, and Co., Chemists, to Clara, youngest daughter of Mr. Thomas Nelson, Springfield Place, Bradford.

Elliot—Davidson.—At Lausanne on the 7th inst., by H. B. M. Vice-Consul, and afterwards at Christ Church, by the Rev. W. M. Clarke, Gilbert J. Elliot, Principal of the Khedivieh Training College, Cairo, to Bessie Clarke, eldest daughter of James N. Davidson, Pharmaceutical Chemist, Dundee.

Anning—Towers.—On July 18, James J. Anning to Sarah Isabel, eldest daughter of Mr. Richard Towers, both of Leeds.

Incombustible Clothing for Firemen.—It has been proposed in Canada to utilise asbestos fibre for the manufacture of fire-proof clothing for firemen. At the meeting of the National Fire Brigade at Montreal the practical use of such clothing was shown. Clad in asbestos, firemen entered a burning building and remained there for some minutes, long enough to demonstrate the value of the texture for salvage purposes. The dress consisted of sandals of asbestos protected by metallic soles, gaiters, breeches, jacket, apron, gloves, and helmet, the latter fitted with mica eye-pieces, all these made of asbestos cloth, which is not only incombustible, but at the same time so slowly conductive to heat that the wearer has ample indication as to how long he may safely remain in the fire. The asbestos material is also perfectly waterproof.

Trade Notes.

PHARMACEUTICAL PREPARATIONS.

Messrs. Cooper and Co., of 80, Gloucester Road, South Kensington, S.W., submit samples of their solution of salicylate of quinine, cachets, and pastils. The solution contains one grain of natural quinine salicylate in each fluid drachm, and in colour, odour, and taste, bears a strong resemblance to orange quinine wine. It is very agreeable to take and should prove very useful in cases where ready absorption of the salicylate is required. The cachets sent are beautifully finished, being tinted with different colours for special drugs, in addition to which the name of the contents can be stamped on when required. The pastils contain cocaine and extract of coca respectively. They are diamond-shaped, are stamped with the maker's name, and are very attractive preparations.

MEDICATED SOAPS.

Messrs. D. and W. Gibbs, of the City Soap Works, E.C., are putting on the market a variety of well-finished medicated soaps. They include sulphur (10 p.c. sulph. præcip., B.P.); white birch tar (10 p.c. pix liquidae, *Betula alba*); ichthyol and tar (3 p.c. ichthyol sulph. amm., and 5 p.c. pix liq.); eucalyptol (5 p.c. ol. eucalypti rectif.); sulphur, camphor, and balsam Peru (5 p.c. sulph. precip., 5 p.c. sp. camph., and 3 p.c. bals. Peru); corrosive sublimate, "superlative antiseptic soap" ($\frac{1}{2}$ p.c.); borax, naphthol and sulphur freckle "soap" (5 p.c. borax, $2\frac{1}{2}$ p.c. naphthol pur., and 10 p.c. sulph. præcip.); boracic acid "shampoo soap" (5 p.c.); salicylic acid and sulphur (3 p.c. acid, salicyl., and 10 p.c. sulph. præcip.); and carbolic acid "surgeon's soap" (20 p.c. pure carbolic acid crystals). Like all the firm's products, these soaps are well made and tastefully finished, being enclosed in special wrappers.

Company Business.

Bleasdale, Limited, York.—The directors of this Company have decided to pay an interim dividend at the rate of 5 per cent. per annum, payable August 31.

Reichenhall Syndicate, Limited.—Registered on July 31 by J. S. Hands, Warnford Court, E.C., with a capital of £1000 in £1 shares. Object: To carry on the businesses of chemists and druggists, manufacturers of and dealers in proprietary articles, oil and colourmen, drysalters, etc., in all their respective branches. Registered without articles of association.

H. W. Knowles and Co.—This Company was registered on August 1, with a capital of £1000 in £5 shares. Objects: To adopt a certain agreement, and to carry on business as chemists and druggists, opticians, drysalters, grocers, etc. The number of directors is not to be less than three nor more than five. Qualification and remuneration to be fixed by the managing director. Registered office, 11, Bradford Street, Cleckheaton, Yorks.

Trade Marks Applied For.

[From the *Trade Marks Journal*.]

No. 188,421.—A Medicated Preparation for human use, being a remedy for piles.—Anthony Setterington, 58, High Street, Bridlington, Yorkshire, June 27, 1895. The fac-simile signature of applicant, and the word "Pilatus." The essential particular is the fac-simile signature.

No. 188,145.—Instruments, Apparatus, and Contrivances, not medicated, for surgical or curative purposes, or in relation to the health of men or animals.—Henry Daubeney Brandreth, 22, Hamilton Square, Birkenhead, June 12, 1895. Word, "Cuirass."

No. 185,221.—Liquorice Juice, only for use as food.—Eugenio Spezzano, Santa Domenica, Corigliano, Italy, January 29, 1895. Devices: A ring and anchor, and the words T.S.D.' juice made in Corigliano. The essential particular is the combination of devices.

No. 185,220.—Liquorice prepared for use in medicine and pharmacy.—Eugenio Spezzano, Santa Domenica, Corigliano, Italy. January 29, 1895. Devices: A ring and anchor with the words T. S. D.'s juice made in Corigliano. The essential particular is the combination of devices.

No. 185,397.—Fruit Extracts, being medicines for human use.—Elijah John Smedley Norton, 13, South Croxted Road, West Dulwich, Surrey. February 6, 1895. Device: Two cornucopias filled with fruit and flowers, etc., and the word "Curanillo." The essential particular is the device.

No. 187,262.—All Goods included in Class 3.—The Standard Malt Extract Co., Ltd., Willow Mills, Clayton-le-Moors. April 27, 1895. Description of works and address of applicants.

The Rise in Camphor.—It is said that Col. North, the nitrate king and owner of many racehorses and the wonderful greyhound Fullerton, is the man who has caused the recent sharp rise in the price of camphor. A large part of the supply of camphor comes from the island of Formosa, and, owing to the disturbed state of affairs there, little of the drug has been exported recently. Camphor, which until a few years ago was principally used for keeping moths away from clothes, is now one of the chief ingredients of smokeless powder, and is also considerably used in the arts. For a long time the Chinese had a monopoly of the trade, and, with their usual shortsightedness, exported as little as possible. In 1890 only 90,000 lbs. were exported, whereas in 1894, when Europeans had been allowed to go into the business, 1,397,100 lbs. were exported from Formosa alone, notwithstanding a heavy tax placed on the commodity by the Chinese Government. A leading wholesale druggist of New York said a few days ago: "The price of camphor has gone up nearly 100 per cent. within the last year, and I expect it will go up a great deal higher. An English syndicate has bought up all the camphor in sight. The camphor belt in Formosa is just back of the strip of land really governed by the Chinese, and the men manufacturing the camphor have always had to be guarded against the natives, who are uncivilised and brutal. When Japan really gets full possession of the island, camphor, no doubt, will be plentiful again, but at present the market has only the Malay Peninsula and the adjoining islands for its supply, which at present is inadequate to the demand. Camphor is essential in the manufacture of celluloid."—*Merck's Market Report*.

MARKET REPORT.

[*Specially compiled for the Pharmaceutical Journal.*]

Chemicals and Drugs.

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

THE CHEMICAL MARKET.

London, August 22, 1895.

The more prominent features of the chemical market may be briefly enumerated. Carbolic acid is generally unchanged in price, but there is a firm tendency in the market. Both citric and tartaric acids are in good demand at steady rates. Cream of tartar is a shade dearer, and there is a probablity of higher prices again. Potash and soda compounds are dull of sale at generally unchanged rates. Full details will be found below of the various articles of interest:—

Acid, Carbolic.—Makers report a firm market, although there is little or no change in the values. The current quotations are as follows:—*Crystals:* 34° to 35° C., 5⅛d.; 39° to 40° C., 5¾d.; 39° to 40° C. (*detached crystals*), 6¾d. per lb. *Crude*: 60 per cent. is now quoted at 1s. 6¼d., with 75 per cent. at 1s. 10d. per gallon. *Liquefied* is 1d. lower, at 1s. per gallon for 95 per cent., and *Cresylic* is also easier at 11d. per gallon.

Acid, Citric—In steady demand, and a fair amount of business has been done at unchanged rates. Manufacturers' prices remain 1s. 1¾d. per lb., whilst in second hands it can be bought at 1s. 1½d.

Acid, Tartaric.—A very firm market, especially for *foreign* makes. *English* manufacturers still quote at 11¼d. per lb., whilst *foreign* brands of acid, both *crystal* and *powder*, are quoted at 11¼d.

Alum—Unchanged. The spot prices are £5 12s. 6d. to £5 15s. for *lump*, with *powder* quoted at £6 5s. In Liverpool, ordinary *lump* quotes at £4 12s. 6d. in tierces, and £4 15s. in barrels, with *powder* at £5 7s. 6d. to £5 10s. per ton.

Ammonia Salt.—*Carbonate*: Steady at 3½d. to 3¾d. per lb. *Liquor*: Quiet at 3¼d. to 3½d. per lb., less 5 per cent. *Sal ammoniac*: *Firsts* still offer at 39s., with *seconds* at 37s. *Sulphate*: Somewhat dearer, and the market is generally firmer; at the close grey 24 per cent. quotes at £9 6s. 3d. per ton.

Ashes—Steady at unchanged rates. Canadian *potashes* still quote at 37s. 6d., with best *pearlashes* on offer at 22s. 6d.

Arsenic—In good demand at unaltered prices. The quotation for *lump* is maintained at 29s., whilst 15s. 6d. to 16s. is the price for good white *powder*.

Copper Sulphate—Again a very firm market. On the spot special brands quote at £17, with other makes at £15 5s., but there are few offers except of the former variety.

Cream of Tartar.—Since our last report the market has been firmer, and there has been a fair demand with a tendency to higher prices. At the close *German* brands of *powder* offer at 75s., whilst for best white *French crystals* 72s. 6d. to 73s. is asked.

Potash Salts.—*Bichromate*: Unchanged at 4⅝d. to 4¾d. *Chlorate*: Dull of sale at 4⅝d. on the spot. *Permanganate*: Quoting at 55s. to 56s. for small, with 59s. to 60s. asked for large *crystals*. *Prussiate*: Dull of sale at 8d. on the spot. In Liverpool it is steady at 8d. to 8¼d.

Quicksilver—Firmer. The price asked by importers is still £7 5s., but the price has somewhat hardened in second hand, and closes at £7 4s.

Saltpetre—Unchanged. British *refined* quotes at 22s. 6d. to 23s. 6d. on the spot, whilst in Liverpool the price is 22s. 6d. to 23s., according to package.

Soda Compounds.—*Bicarbonate*: The price in London remains £7 5s., with £6 15s. quoted in Liverpool. *Caustic*, 70 per cent., quotes at £8, whilst £7 is asked for 60 per cent. *Crystals*: 38s. *ex* ship. *Hyposulphite*: Steady at £7 5s. to £7 10s. per ton in Liverpool. *Nitrate*: Dull of sale, *ordinary* being quoted at £8 3s. 9d. to £8 5s., with *refined* at £8 6s. 3d. to £8 7s. 6d.

Tar Distillation Products.—*Benzole*: 50 per cent. is unchanged at 11d., with 90 per cent. at 11½d. per gallon. *Creosote*: Dearer at 2d. per gallon. *Crude Naphtha*: 30 per cent. at 120° C., quotes at 5½d. per gallon. *Solvent Naphtha*: 90 per cent. at 190° C. quotes at 1s. 1d. per gallon. *Pitch*: 38s. 6d. per ton, *f.o.b.* *Tar*: 12s. 3d. to 13s. per barrel.

Wood Napthha.—*Miscible* quotes at 2s. 9d. per gallon.

THE DRUG MARKET.

London, August 22, 1895.

A quiet week in the drug market must be reported, although some inquiry has been shown in a few special articles. Of these quinine claims attention, and a large amount of business has been done in it since our last report, at advanced rates, both for spot and forward delivery. The other various alkaloids are practically unchanged. Of essential oils, star anise has again been a very firm market, but cassia is hardly so firm, and peppermint oils generally are dull of sale. The fortnightly drug sales were held to-day, and passed off quietly. Ipecacuanha was in fair supply, but the majority was bought in. The selling prices show a somewhat weaker tendency. Of aloes some new arrivals of Cape sold freely at easier rates. Rhubarb was in better demand at steady prices. Beeswax was largely offered, and sold at somewhat irregular, but on the whole firm, rates. Full details will be found below of the various articles of interest:—

Acacia.—A moderate supply was offered to-day, but was very dull of sale. The only parcel sold at auction consisted of 17 bags of *Australian* gum, which fetched from 24s. to 26s. per cwt. A parcel of amber *Turkey* sorts from Suez was bought in at 60s. to 65s., small pale ditto 28s., and yellow sorts from *Calcutta* at 57s. 6d. A parcel of picked *Trieste* gum was bought in at prices ranging from £7 for medium pale down to 80s. for yellowish sorts.

Aconite.—A parcel of 21 bales of *Japanese* root sold at 22s. 6d. for good sound, with 18s. paid for damaged ditto.

Aloes.—No *Socotrine* was sold to-day, although to effect a sale easier rates would be taken. Good soft was bought in at 72s. 6d., and fair ditto at 65s. *Curaçao*: A parcel of 113 gourds was offered, part of this sold at prices ranging from 25s. for good bright capey, down to 15s. for ordinary softish. *Curaçao* in boxes was all bought in. *Cape* was in fair supply and sold freely at rates which showed a decline of 6d. to 1s. per cwt. The prices paid were as follows:—Fine bright hard 24s., fair to good seconds 23s. to 23s. 6d., and from 22s. down to 19s. for ordinary drossy qualities.

Ammoniacum.—There are absolutely no inquiries for this article, and only a few cases were offered. To-day, good almondy block was bought in at 35s.; seedy drop 30s., very seedy loose gum 25s., down to 15s. for drossy grades.

Aniseed.—Of 11 bags of *Spanish* shown, only one sold. This realised 31s. per cwt. for fair quality seed. Fifty bags of *Cyprus* were bought in at 28s.

Areca Nuts.—No inquiries, but firmly held To-day 10 bags of good quality *Ceylon* nuts were bought in at 15s. per cwt.

Asafœtida.—In all, 134 cases were offered, but one only sold, 80s. per cwt. being paid for good pinky almondy gum.

Benzoin.—*Sumatra* gum was in fair supply to-day. Several cases of good seconds with bold almondy centres sold at £8 12s. 6d. to £8 17s. 6d., and for fair seconds with medium centres, but false packed sides, £6 to £6 10s. was paid, whilst ordinary seconds realised 95s. to 105s. *Palembang*: 9 cases of fair seconds sold without reserve at 33s., whilst ordinary thirds were bought in at 15s. Glassy seconds *Penang* were bought in at £4. Of *Siam* gum none was sold, good bold almonds, part block and part free, being bought in at £18 after bids of £16 15s. to £17, with other grades at £8 to £9 10s.

Buchu—Dearer. To-day, 6 bales of nice bright *round* leaves of good colour sold at 3¾d., showing an advance of ¼d. per lb., whilst 8 bales of fair quality yellowish *round* leaves fetched 2½d.

Calabar beans.—Six bags of fair quality sold at auction to-day at 3d. per lb.

Calumba root.—None was sold to-day, although a fair supply was shown. Medium yellowish sorts were bought in at 16s. per cwt.

Camphor.—Since our last report there has not been so much attention paid to this article. At the close the following are the current quotations:—*Japan*, for arrival, July to August shipment, 185s. per cwt. *c.i.f.*, whilst the spot value is 177s. 6d. to 180s. per cwt. *China*, for arrival, July to August shipment, 175s. per cwt. *c.i.f.*

Camphor (Refined).—There has been no formal move in this article, but the second-hand holders have advanced their price generally 1d. per lb., and now ask 1s. 10½d. per lb. The prices fixed by the *English* and *foreign* refiners, however, remain unchanged at 1s. 11½d. for *bells* and *flowers* in 10-cwt. lots, with *squares* at 2s. 0½d. and proportionate rates. At the drug sales to-day 100 cases of refined *Japan*

camphor in slabs, more or less sea-damaged, sold without reserve at 1s. 7d. to 1s. 7¼d. per lb.

Cannabis Indica—Sold cheaply to-day. A parcel of 23 robbins of very stalky greenish tops sold at 2d. per lb., whilst dusty brownish tops were bought in at 3d. per lb.

Cantharides.—Ten cases of fair to bold *Chinese* flies were bought in at 1s. 2d. per lb. The price asked is 1s. per lb. Good bright *Russian* was all bought in at 2s. 6d. per lb.

Cardamoms.—Only a moderate supply was offered, and this did not include any fine grades. The prices paid to-day were as follows:—*Ceylon Mysore*: Pale brownish medium to bold, 1s. 9d. to 2s.; smallish ditto, 1s. 5d. to 1s. 6d.; very small, 1s. 1d. to 1s. 2d.; brownish split and speckled, 1s. 3d. to 1s. 4d. *Seed* sold at the firm to dearer rates of 1s. 10d. to 1s. 11d. per lb.

Canada Balsam — Dearer. A single cask of fair quality balsam was bought in to-day. The price asked is 1s. 5½d. per lb.

Cascara Sagrada—In moderate supply. Of a parcel of 160 bags, consisting of nice bold bark of good colour, 40 bags sold at the steady rate of 17s. per cwt.

Cascarilla.—Some nice lots were on show, but the better qualities were bought in, good bright silvery quill being held for 48s. to 50s.; fair small mixed, 35s. to 37s. 6d.; ditto, very small, 32s. A parcel of small dusty bark all sold at 21s. per cwt.

Cassia Fistula.—Rather largely offered, but none was sold, medium pods from *Dominica* being bought in at 17s. 6d. to 20s. per cwt.

Chiretta.—Ten bales were offered to-day. This drug has not been shown for some months and was bought in at 2½d. per lb., the price asked being 2¼d.

Cinchona.—The periodical sales were held on the 20th inst., when only the small amount of 857 packages were shown, against 1837 at the last auction. Still a good demand was shown, practically all the lots being bought at fully steady rates; the unit remains ⅝d. per lb. The following prices were paid: *Succi rubra*, renewed chips and shavings, 1¼d. to 1⅝d. *East Indian*, all was sold, red renewed chips and shavings 1⅜d. to 1½d. and *Officinalis*, 1½d. to 1¾d. *Ledger*, renewed chips 2½d., ditto branch 1½d. to 1¾d., ditto root 2⅛d. *Hybrid* and *Succi rubra* chips, 1⅝d. At the drug sales to-day a parcel of 40 serons of *Huanco* bark sold freely at rates ranging from 10½d. for good sound down to 4½d. for damaged ditto.

Coca Leaves.—None was sold in auction to-day, broken *Truxillo* leaves being bought in at 1s. per lb. The price asked is 11d. per lb.

Colocynth.—*Turkey* was the only variety shown, and three bales of good bold apple were bought in at 2s. 6d. per lb. It is still scarce.

Copaiba—Fairly steady, but dull of sale. At the drug sales 2 casks of fair bright *Maranham* were bought in at 1s. 9d. per lb.

Croton Seed.—Only four bags were shown. These were seed of fair pale, somewhat mixed quality, and were sold at 37s. per cwt.

Cubebs.—No inquiries. Good brown *Singapore* berries were bought in at 50s., fair ditto 40s., and mouldy *Singapore* and *Bombay* at 35s.

Cumin Seed.—*Maltese* seed was bought in at 36s. to 40s. per cwt., and *Marscilles* at 27s.

Dragon's Blood.—In better inquiry to-day. The prices paid were as follow:—Good lump of bright fracture, £10 17s. 6d.; medium bright ditto, £8 10s.; with £5 17s. 6d. paid for dark grades.

Elemi Gum.—No interest is shown in this drug, and the whole supply, consisting of 40 cases of good white gum, was bought in at 30s. per cwt.

Ergot of Rye.—*Spanish* remains very dull of sale, 12 bags of somewhat weevily quality being bought in at 8d. per lb. Of *Russian* 9 bags of ordinary quality sold at 5½d. to 6d. per lb.

Euphorbium.—Thirty-two serons were offered, but did not fetch a bid. The buying-in price was 20s. per cwt.

Fennel Seed.—Good bright *Bombay* seed was bought in at 19s. per cwt.

Galangal.—A parcel of good quality root from Hong-Kong was again offered to-day, and bought in at 25s. per cwt.

Gamboge.—A moderate supply only was shown, and 2 cases of ordinary pipe of fair fracture sold at £8 12s. 6d. per cwt.

Guaiacum.—A parcel of ordinary quality gum was shown, and sold pretty freely at rates ranging from 1s. 5d. down to 1s. 0½d. subject.

Guarana—Dull of sale. Three cases of fair quality sausage were bought in at 2s. 9d. The price asked is 2s. 6d. per lb.

Honey.—*Jamaica* was the only variety sold to-day, and fetched steady to higher prices, 23s. 6d. being paid for good clean, down to 20s. 6d. *Australian* was bought in at 18s., and *New Zealand* at 28s. to 37s. per cwt.

Ipecacuanha.—The supply of *Rio* (Brazilian) to-day was moderate, but only a few bales found buyers, holders asking prices which there did not seem to be any eagerness to accept. For the amount which was sold the following were the prices:—Fair to good medium, 5s. 3d.; ordinary fair, 5s. to 5s. 2d. No *Carthagena* (Columbian) root was sold in auction; privately 4s. 6d. per lb. is asked for good quality damaged root.

Jaborandi.—Only inferior quality leaves were offered. They were all bought in; brown mixed with stem at 8d., and greenish at 6d. per lb.

Kola—Steady. A parcel of 22 bags of good *West Indian* sold at 10d. to 10½d., and mouldy ditto at 5½d.

Kousso.—This has not been shown lately. To-day two bales were sold at 5d. per lb.

Liquorice Root.—To-day 46 bags of *Bussorah* root, cut into lengths, were bought at prices varying from 12s. to 17s. per cwt.

Menthol.—Very dull of sale. 13s. to 13s. 3d. is the nominal spot price for good white *crystals*. To-day 2 cases of Japan were bought in at 14s. per lb.

Musk Seed.—Forty-one packages sold freely at 4d. to 4¼d. per lb.

Myrrh Gum—Very slow of sale, except when offererred without reserve. To-day a parcel of dull drossy gum sold at 20s. per cwt., with 67s. 6d. paid for good clean sorts, and 26s. to 25s. for ordinary small gum.

Nux Vomica.—In large supply. Fair quality *Bombay* nuts sold at the steady rate of 6s. to 6s. 6d. per cwt. *Coconada* were bought in at 3s., and *Madras* sold "without reserve" at 3s. per cwt.

Oils (Essential).—*Aniseed*: During the week 6s. 10d. has been paid on the spot, and some holders now asked 7s., but this figure could probably be shaded. For arrival 6s. 6d. *c.i.f.* the last price we heard. *Cajeput*: 34 baskets were bought at 2s. 6d. per bottle nominally, a bid of 2s. being submitted. *Camphor*: 20 cases of *white* oil were bought in at 28s. *Cassia*: Fairly steady 6s. 3d. to 6s. 6d. per lb. is asked on the spot for 25 per cent. oil. None was sold in auction to-day. *Cinnamon*: bought in at 1s. *Citronella*: bought in at 1s. 5d. per lb. *Coriander*: an oil of guaranteed purity quotes at 29s. 6d. per lb. net. *Eucalyptus*: for fine *Globulus* oil of the *Platypus* brand, 2s. 3d. per lb. is asked *Bergamot*: Two half cases were bought in at 7s., the price being 6s. per lb. *Lavender*: Finest *French* oil quotes 12s. 6d. per lb. *Lemon Grass*: Bought in to-day at 1¾d. per oz. *Peppermint*: *H. G. Hotchkiss'* oil quotes nominally at 10s. 1½d. It was bought in to-day at 10s. 6d. per lb., and *Cockings'* was bought in at 6s. 6d. *Rose*: Bought in at 4½d.

Oils (fixed) and Spirits.—*Castor*.—Fine *Calcutta* oil was bought in at 2⅜d. to 2½d. per lb. *Cotton*.—Dull of sale at easier rates; at the close, *refined* oil quote at £17 10s. to £18, according to brand and package *Coco-nut*.—*Ceylon* is again 5s. dearer, and is now quoted at £22 15s. whilst *Cochin* is unchanged at £24. *Linseed*: Unchanged, but dull of sale. At the close £21 to £21 2s. 6d. is the price on the spot for oil in barrels. *Olive*: *Syrian* quotes at £33, and *Spanish* at £37. *Rape*: Quiet, but steady. *Refined* oil still quotes at £22 5s. on the spot. *Turpentine*: Dull of sale. *American* spirit now quotes at 20s. 4½d. on the spot. *Petroleum*: Quiet. *American* oil quotes at 5¾d.; *Water white*, 6½d. to 6¾d.; and *Russian*, 5⅝d. per gallon. *Petroleum spirit*: *Ordinary*, 9d. to 9¼d.; *deodorised*, 9½d. to 9¾d. per gallon.

Orange Peel.—Two cases of thin cut *Maltese* peel of fair aroma sold at 7½d. to 8d. per lb. Coarse-cut dark was bought in at 4d., and quarters at 3¼d. to 4d.

Orris Root.—*Florentine*: Latest reports state that no business has yet been done in new crop. As the harvest is unusually late this year, no supplies are yet available, and the price will probably not be settled before the end of the month. It is not, however, thought that it will fall below 76s. per cwt., *c.i.f.*, for prime selected as a certain quantity has already been bought by speculators at that rate. These purchases are made at so much for the fresh green root, and are very speculative, as the actual result in dry clean root is problematical. Ditto, *chips*, 66s. 9d. per cwt., *c.i.f.*, London in bales; ditto, *select*, 74s. 9d. per cwt., *c.i.f.*, London in casks. *Verona*, large pieces, 55s. per cwt., *c.i.f.*, London in bales. At the sales to-day 10 bales of bold dark root from Aden sold at 36s. per cwt.

Peru Balsam.—None was sold in auction to-day, but a fair demand has been shown privately, 8s. 6d. having been paid for genuine balsam.

Quince Seeds.—Steady. 1s. 3d. per lb. is asked for good quality seed.

Quassia.—A parcel of 43 bags of chips sold at £5 7s. 6d. per ton.

Quinine Sulphate—Closing at 1s. 0⅛d last week for the best *German* makes this article has been a very firm market since, and some large sales have been offered. On Monday 25,000 ozs. of *B. & S.* and *Brunswick* sold at 1s. 0⅜d. to 1s. 1d., and this was followed on Tuesday by a sale of 50,000 ozs. of the same brands at 1s. 1d. Since then there have been further sales at 1s. 1⅛d., but holders how ask 1s. 1¼d. In January delivery 20,000 ozs. have been sold during the last few days at 1s. 1¼d.

Rhatany.—Four bales were bought in at 8d. per lb.

Rhubarb.—Somewhat better inquiry was shown to-day. *Shenshi*: A parcel of dull quality root sold without reserve at 9d. for bold flat, and 8½d. for pickings. *Canton*: Four cases of medium flat sold at 1s., and three cases of bold flat high dried pinky sold at 11d.

Rose (Otto of).—Nothing has yet been settled as to the price of the new seasons oil.

Senna. — *Tinnivelly*: The new crop leaves were in good supply to-day, and sold briskly at the following rates:—Good bright green, 5d., medium green, 3½d. to 4d., small to medium, 2½d. to 3d., and from 2¼d. down to 1d. for ordinary leaves. *Pods* sold at 1½d. *Alexandrian* leaves and pods were all bought in.

Tamarinds.—Sixty kegs of fine *West Indian* sold at 22s. 6d. to 23s. per cwt., and 4 casks of *East India* sold without reserve at 6s.

Wax (Bees).—*Jamaica* sold fairly well at £7 10s. to £8. *Zanzibar* was bought in at £6 15s. to £7. *Australian* sold cheaply at £6 15s.

LIVERPOOL MARKET REPORT.

[*From our Special Correspondent.*]

August 21, 1895.

DRUGS, ETC.—Linseed—Remains quiet and unchanged; there is nothing doing to arrive, and less desire than ever to sell distant shipments. Canary Seed—Is quiet and steady on the spot at 38s. per 464 lbs., but there is no business to report in parcels to arrive. Kola Nuts.—The quantity offering is lower than usual, and the prospective auction sales do not promise any improvement in this respect. Four packages of dried nuts have recently brought 5d. per lb. Chillie Pods.—A little business has been done in *Sierra Leone* pods, of which 7 bags have been sold at 25s. per cwt. Gum Acacia.—No new feature to remark upon, the market is very slow, and the inquiries are only for the best qualities, of which there is at present very little to be had. Beeswax. — Twenty-seven packages of *Chilian* are reported at £7 15s. per cwt.

OILS, ETC.—Castor.—The tone of market in this product is very firm for all descriptions, which are steadily held for full prices, both on the spot and to arrive, the inquiry for the latter being more marked. *Calcutta*, for good seconds, 2 3/32d. to 2⅛d.; *French*, first pressure, 2 1/32d. to 2⅛d.; *Madras*, 2⅛d. per lb. Olive—Still continues steady in tone with a very fair consumptive business passing at recent full prices, which are well maintained with a tendency to advance. *Candia*, £32 to £32 10s. per tun; *Syria* and *Levant*, £31 to £31 10s. Linseed is slightly easier, and in buyers' favour for Liverpool makes at 22s. 3d. to 23s. in export casks. Cotton Seed.—In slow demand, although much easier, all kinds being about 3d. per cwt. less than last week. *Liverpool refined*, 17s. 9d. to 18s. *American*, 17s. 6d. per cwt. Petroleum—Unchanged and little doing. *Russian*, 6d. per gallon; *American*, 6¼d. to 8½d. Spirits of Turpentine—In moderate request on the spot at 21s. per cwt.

CHEMICALS.—Sal Ammoniac—In good demand at last week's rates. First quality, 39s.; second, 37s. Sulphate of Ammonia—Quiet, but slightly weaker. Good grey, £9 10s. spot. Bleaching Powder—Easier. Hard dry, *f.o.b.*, £7. Bicarbonate of Soda—Lower, present price, £6 15s. per ton. Soda Crystals—Are held at £2 5s. per ton. Caustic Soda—Has dropped about 5s. per ton for all qualities, and in 10-ton lots costs, for 70 per cent., £7 10s.; for 60 per cent., £6 10s.; less than 10 tons, 5s. per ton extra. Borax—Steady at last week's rates; 20s. for lump; 21s. for powder. Nitrate of Soda.—In gentle demand at 8s. 1½d. to 8s. 4½d. per cwt., at which prices the market is steady. Cream of Tartar—Very quiet, maintaining its prices of 73s. to 74s. per cwt. for finest white. Pot Ashes—Extremely slow at 22s. 3d. Pearl Ashes—Have dropped to 40s. per cwt. and are quiet.

SCOTCH CHEMICAL REPORT.

Our correspondent writes on the 21st inst. that with the exception of a few products, chemicals generally are dull. The alkali manufacturers met at the latter end of last week to discuss prices for next year, but did not arrive at any definite decision. Sulphate of copper easily retains its firm position, but sulphate of ammonia has continued to drop, now standing lower than for some time. Chlorate of potash slightly easier. Current quotations are:—Sulphate of Copper—£16 15s. per ton less 5 per cent., Liverpool. Alum—£5 10s. per ton nett, Glasgow. Borax.—English refined, £20 per ton nett, Glasgow ditto. Boracic Acid—£30 per ton nett, Glasgow. Chlorate of Potash.—5d. per lb. less 5 per cent. any port. Bleaching Powder—£6 10s. per ton nett, Tyne. Soda (*bicarbonate*).—1 cwt. casks, £6 15s. per ton nett, Tyne; ditto 5 cwt. casks, 5s. per ton less. Soda Crystals—35s. per ton nett, Tyne. Caustic Soda.—White ranges from £6 15s. to £9 5s. per ton nett, Liverpool, for different strengths; 60 to 62 per cent. *Cream Caustic Soda*, £6 10s. per ton nett, Liverpool. Nitrate of Lead—£19 per ton less 2½ per cent., Glasgow. Sugar of Lead.—Brown and white, £16 and £23 per ton less 2½ per cent., Glasgow. Sulphate of Ammonia.—£9 to £9 2s. 6d. for prompt, *f.o.b.*, Leith. Bichromate of Potash—4½d. per lb. nett, Scotch and English deliveries, and 4¾d. per lb. nett for export, *f.o.b.*, Glasgow. Bichomate of Soda—3¾d. and 3½d. per lb. nett respectively for home and export.

Exchange.

[*Notices of books, apparatus, etc., for exchange, of reasonable length, are inserted free in this column, if they do not partake of the nature of ordinary advertisements. The notices should be written on post-cards, addressed "Editorial Department, 17, Bloomsbury Square, W.C."*]

WANTED.

Literature.

Attfield's 'Chemistry' and Ince's 'Latin Grammar'; state editions and lowest price to Turver, Chemist, Blackpool.

Attfield's 'Chemistry'; Lindley's 'School Botany'; Maisch's 'Organic Materia Medica.' Lowest price, to Hampson, Bolton Road, Westhoughton.

Martindale's 'Extra Pharm.'; Maisch's 'Materia Medica'; 'Art of Dispensing'; Atkinson's 'Natural Philosophy.' All must be recent editions. State lowest price.—Griffin, Chemist, Monument Road, Birmingham.

Photographic Apparatus.

Lancaster's "Meretoire" Camera, ½-plate, with lens, dark slide, and tripod; or similar outfit by some other maker. Lowest cash price, to Smith, 5, Market Place, Coleford, Glos.

OFFERED.

Apparatus.

Electrical, magnetic, telegraphic, galvanic, pneumatic apparatus; the gases, heat-working mechanical powers, orrery; photographic cameras and appliances; large geological cabinet and specimens. List supplied.—Address, Dr. Martin Reed, Shanklin, I. of W.

Literature.

Culpepper's 'Herbal,' quarto, edges uncut, published 1798, Masonic dedication; 'Flowering Plants, Grasses, and Ferns of Great Britain,' by Annie Pratt, beautiful coloured illustrations; Warne and Co., six vols., published £3 13*s.* 6*d.* What offers.—T. W. Picken, Newport, Salop.

Six vols. 'Pharmaceutical Journal,' bound, from July, 1884, to June, 1890. What offers?—J Mitchell, 30, Union Street, Inverness.

Books on Microscope, by Gosse, Dr. Lankester, Beale, Cole, Slack, etc., at post free prices. Returnable list. Davis, "Chestnuts," Gordon Hill, Enfield.

Late Advertisements.

Assistants Wanted.

English Assistant, speaking fluent French, and from 25 to 30 years of age, is required at the Pharmacie Logeais, 37, Avenue Marceau, Paris.

Junior Assistant, unqualified, in-doors, for Dispensing and light Retail. One who can be well recommended. Only one kept. Apply, with full particulars, to D. Greenwood, 4, Petty Cury, Cambridge.

Laboratory.—Wanted in September, a thoroughly competent man (qualified) for Wholesale Druggist's Laboratory. Should have had good previous experience. Apply by letter, with full particulars, and stating salary required, to Druggist, "Pharmaceutical Office," 5, Serle St., W.C.

SUPPLEMENT
TO THE
PHARMACEUTICAL JOURNAL.

Contents of Supplement.

Photographic Formulæ and Practical Directions i
Company Business i
Trade Notes i
Market Report ii
Newcastle-on-Tyne Chemical Report iv
Liverpool Market Report iv
Exchange iv

PHOTOGRAPHIC FORMULÆ AND PRACTICAL DIRECTIONS.

[The formulæ and directions here given are specially compiled by a practical chemist and photographer, who will be pleased to supply any special information required, or to answer photographic queries. Letters should be addressed "Editorial Department, 17, Bloomsbury Square, W.C."

AN ACID FIXING BATH.

During this hot weather frilling of the film is a trouble by no means unknown, and one of the best remedies for it, as well as for the elimination of stains, is the acid or alum and hypo. fixing bath. The addition of acid or alum to hyposulphite of soda always gives rise to the evolution of sulphurous acid and deposition of sulphur.

But if we use an organic acid combined with a sulphite we do not get off the troublesome decompositions, and a concentrated solution of this character may form a saleable article :—

Sodium sulphite	2 ozs.
Citric acid	½ oz.

Dissolve the sulphite in 3 ozs. of warm water and the citric acid in 1 oz. of water; mix the two solutions and add to a pint of hypo. solution 1:4.

If an alum bath is required the citric acid in the above formula may be replaced with chrome alum.

Instead of the above solution the commercial sodium bisulphite may be sold for the same purpose, and 1 oz. of this should be directed to be added to every pint of hypo. solution.

All these acid fixing baths can be used for any commercial plates, for ordinary negative work, and bromide prints, but they must not be used for any printing out papers.

Tourists' Developers.

During the holiday season, when amateurs are on tour or tramp, they frequently desire a dry powder developer to carry with them, which they can dissolve in water to develop just one plate as a test of their exposures. A very convenient formula is the following :—

Hydroquinone	15 grs.
Eikonogen	7½ grs.
Sodium sulphite	60 grs.
Potassium bromide	2 grs.

Powder the ingredients and wrap in white demy, waxed paper, and tinfoil. In another paper wrap up—

Lithium carbonate	20 grs.

Directions for use :—Dissolve the contents of these two packets in 4 ozs. of water to make a developer suitable for all ordinary work.

The hydroquinone and eikonogen in above formula may be replaced by 20 grains of pyrogallic acid, and 2 grains of oxalic acid, but this does not keep so well as the other.

Instead of packing the powders in paper, the small flat bottles, such as used for tabloids, may be used for the actual developing powder, the lithium carbonate keeping very well in paper.

Yellow Screens for Isochromatic Plates.

Considerable attention is being paid to isochromatic plates, and the commercial yellow screens for use with them are decidedly expensive. To make such screens is not difficult, and they can be sold at a far less price than the commercial kinds, the only disadvantage being that they do not last quite so long, but frequently a larger screen is required, and then the local dealer may well step in and make them.

We require for their manufacture thin polished plate glass, which may be obtained wholesale of Mr. T. E. Butters, 2, Redgrave Road, Putney. The screens are made of dyed collodion, and this can be prepared as follows :—

1.	Amyl acetate	1 oz.
	Pyroxylin	14 grains.
	Absolute alcohol	1 drachm.

Allow to stand at least twenty-four hours, shaking occasionally. This forms the plain collodion. The dye used is Manchester yellow, and the following should be prepared :—

2.	Amyl acetate	1 oz.
	Pyroxylin	14 grs.
	Manchester yellow	5 grs.

Dissolve the dye in about 1 drachm of absolute alcohol, and add to the collodion. To make a screen for ordinary work, which about doubles the exposure, take of—

Pyroxylin, No. 1, 97·5 parts ; No. 2, 2·5 parts.

For a deeper tint use—

Pyroxylin, No. 1, 90 parts ; No. 2, 10 parts.

This requires about five times the ordinary exposure.

Thoroughly clean the glass and coat with the collodion, allowing about 200 minims for three square inches.

Company Business.

TAYLORS' DRUG COMPANY, LIMITED, after paying interest on debenture capital, preference share dividend, and writing off depreciations on plant and fixtures, etc., have declared a dividend of 20 per cent. on the ordinary share capital for the year ending June 30 last, and carry forward £1539 8*s.* 3*d.* to next year's account.

POMONA CHEMICAL COMPANY, LIMITED.—Registered by Bower, Cotton and Bower, 4, Breams buildings, Chancery Lane, W.C., with a capital of £12,000 in £5 shares. Objects: To acquire the business of manufacturers of chemical preparations now carried on by Messrs. Hornby and Co., at Oldham, Lancashire, and to enter into an agreement made on July 30 with T. Cook and others; also a second agreement with Carl Spachter of Coblentz-on-Rhine, and to carry on the business of chemical manufacturers in all its branches.

BRUNNER, MOND, AND CO., LIMITED.—The half-yearly meeting of the shareholders of Messrs. Brunner, Mond, and Co., alkali manufacturers, took place on August 22, at the Law Association Rooms, Cook Street, Liverpool. The report stated that the half-year's profit was £148,762 14*s.* 7*d.*, which, with £89,117 15s. 6d. brought forward from the previous half-year, makes a total of £237,880 10*s.* 1*d.* The directors proposed to deal with this as follows :—Dividend on the preference capital, at 7 per cent. per annum, £15,225; dividend on the ordinary capital, at 30 per cent. per annum, £129,856 2*s.* 6*d.*; amount to be written off patents account, £2500; and balance to be carried forward, £90,299 7*s.* 7*d.* The directors have purchased the lands, works, and business of Murgatroyd's Ammonia, Soda, and Salt Syndicate, Limited, of Middlewich (exclusive of their salt works and business), as a going concern as from the 1st instant, on advantageous terms. Accompanying the report was a circular referring to an issue of 6000 preference shares. The directors contemplate making a call of £1 per share on the ordinary shares, now £2 10*s.* paid, to become due on October 1 next.

Trade Notes.

MR. WILLIAM GILES, Chemist and Druggist, Wallsend, has taken over the business lately carried on by Mr. W. E. Ward, in the same town.

THE LIQUOR CARNIS COMPANY sends specimens of a useful pocket foot-rule. Readers of the Journal can have one by sending a post-card to the Manager, Aston Clinton, Bucks.

THE CONDAL WATER CO., LTD., London, is issuing a circular explaining a system by which they hope to prevent "cutting" in the sale of their specialty. Copies may be had on application to the Manager, 7, Lambeth Hill, E.C.

MESSRS. INGRAM AND ROYLE, LTD., 52, Farringdon Street, E.C., send particulars of the composition of their "Big Rapids" alterative water, described as the strongest natural medicinal water known, and not a purgative.

AMBERGRIS.—An extraordinary discovery was made on July 4 by two Maoris on the north head of the Kaipara Harbour, New Zealand. No fewer than twenty-seven sperm whales were found on the shore, all within a radius of a few miles. Their occurrence is accounted for by supposing that during the breeding season they had left the cold latitudes of the Antarctic until the calves were strong enough to return, and that severe gales had led them to seek shelter, when, suddenly finding themselves in shallow water, they were prevented by the receding tide from returning to deep water. Soon after the discovery a horseman riding along the beach found a large quantity of ambergris valued at about £3000; good ambergris being now worth about twice its weight in gold. Further search for this valuable commodity is, therefore, being made (*Daily Graphic*, Aug. 24). An enterprising firm at Auckland, Messrs. Alison Bros., has commenced the boiling down process, though the plant available is somewhat inadequate for such a gigantic undertaking. Whale oil, spermaceti, and ambergris may, therefore, be expected to fall somewhat in price.

MARKET REPORT.

[*Specially compiled for the Pharmaceutical Journal.*]

CHEMICALS AND DRUGS.

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

THE CHEMICAL MARKET.

London, August 29, 1895.

The more important features of the chemical market are as follows:—In carbolic acid makers report an improved demand for export, but prices are practically unchanged. Citric acid is steady, whilst tartaric acid has been in good demand at steady to dearer rates. Cream of tartar is a very strong market, and prices have considerably advanced. Potash compounds are generally unchanged, with the exception of permanganate, which may be quoted dearer. Tartar emetic has also been advanced in price. Full details will be found below of the various articles of interest:—

Acetanilide.—From New York a quiet market is reported, and although 1s. 2d. to 1s. 3d. per lb. remains the nominal price, this could probably be shaded.

Acid, Benzoic.—Reports from New York recently gave particulars of a decided decline in value. This was accounted for by the fact that large quantities had been offering for delivery at very low rates, but it now seems that circumstances will delay the arrival for an indefinite time. It is also stated that a new process acid will shortly be put on the market. The present value is at a parity of 1s. 11d. to 1s. 11½d.

Acid, Carbolic.—The values are practically unchanged from those of our last report, but a firm market is reported, with a fair inquiry for export. Quotations are as follow:—*Crystals*, 34° to 35° C., 5½d.; 39° to 40° C., 5¾d.; 39° to 40° C. (*detached crystals*), 6¾d. per lb. *Crude*, 60 per cent. is a trifle lower at 1s. 6d. per gallon, with 75 per cent. at 1s. 10d. *Liquefied* is dearer, and is now worth 1s. 0½d. for 95 per cent., whilst *cresylic* is unchanged at 11d. per gallon.

Acid, Chrysophanic—Very firm owing to continued scarcity of good quality raw material. Nominally *English* makes offer at 17s. per lb.

Acid, Citric.—The market is steady, with fair demand shown at late rates. Makers' prices remain unchanged at 1s. 1¾d. per lb., whilst second-hand holders ask 1s. 1½d.

Acid, Salicylic.—Nominally there has been no change in the quotations fixed by the combination, but extra discounts to the extent of ½d. per lb. for 28-lb. parcels, and 1d. for 1-cwt. lots are now allowed. From New York a very flat market is reported. Nominally the price quoted shows a parity of 1s. 9d., but there are plenty of offers at as low as 1s. 7d. per lb.

Acid, Tartaric.—This is rather better, especially for *English* brands of acid, which now quote at 11¼d. to 11½d. per lb., whilst *foreign* makes, both in *crystal* and *powder*, remain at 11¼d.

Alum.—In London the prices remain unchanged at £5 12s. 6d. to £5 15s. for *lump*, with *powder* quoted at £6 5s. In Liverpool ordinary *lump* quotes at £4 12s. 6d. in tierces, and £4 15s. in barrels, with *powder* at £5 7s. 6d. to £5 10s. per ton.

Ammonia Salts.—*Carbonate*: Unchanged at 3½d. to 3¾d. per lb. *Liquor*: 3¾d. to 3½d. per lb., less 5 per cent. *Sal ammoniac*: *Firsts* quote at 39s., and *seconds* at 37s. *Sulphate*: Fairly steady, but dull of sale. At the close grey 24 per cent. quotes at £9 5s. to £9 6s. 3d. per ton.

Ashes.—*American* are decidedly cheaper, best Canadian *potashes* being now worth 35s., whilst *pearlashes* offer at 22s. 6d.

Arsenic.—In small supply only, and the values are fully maintained. Good white *powder* is still quoted at 15s. 6d. to 16s., whilst *lump* is worth 29s.

Copper Sulphate—Unchanged, with but little offering for prompt delivery. Ordinary makes quote at £15 5s., but the *Anchor* and other best brands are worth £17.

Bleaching Powder.—Unchanged, with but moderate inquiry. The spot price is £8 to £8 5s., and in Liverpool *soft* is still quoted at £6 15s. on rails, with £7 *f.o.b.* asked for hard.

Borax.—*English* refined is decidedly firmer in second hand, and 18s. 6d. is now asked for *crystals*, and 19s. 3d. for *powder*. The Convention rates are maintained at 20s. and 21s. respectively.

Cream of Tartar.—This has been a very strong market, and a large amount of business has been done at greatly advanced quotations. At the close holders of finest white *French crystals* ask 77s. on the spot, whilst for *German* brands of powder as much as 78s. has been readily paid, and 79s. to 80s. 6d. is now asked.

Mercurials—Unchanged. The current quotations for quantities up to 28 lbs. are as follow:—*Calomel*, 2s. 11d.; *corrosive sublimate*, 2s. 7d.; *red precipitate*, 3s. 2d.; *white ditto*, 3s. 2d.

Phosphorus—Steady, at 2s. for *wedges*, and 2s. 1d. for *sticks*.

Potash Salts.—*Bichromate*: A recent report from New York alluded to a sudden advance in this article, and various speculations were indulged in as to its cause. It was generally supposed to have been due to an agreement having been concluded between the English and foreign makers. Notwithstanding this, no change has occurred in the price in this country, and it still quotes at 4⅝d. to 4¾d. on the spot. *Chlorate* is dull of sale at 4⅝d. on the spot. *Permanganate*: Quoting at the advanced rates of 55s. 6d. to 58s. per cwt. for small, with 60s. to 61s. asked for large *crystals*. *Prussiate*: Dull of sale at 8d. on the spot. In Liverpool it still quotes at 8d. to 8¼d.

Quicksilver — Unchanged. Importers' prices are maintained at £7 5s., whilst it offers freely in second hand at £7 3s. 6d.

Saltpetre—Dull of sale at 22s. 6d. to 23s. 6d. for British *refined* on the spot; whilst the Liverpool price is unchanged at 22s. to 23s., according to package.

Soda Compounds.—*Bicarbonate*: Unchanged at £7 5s. per ton on the spot, with £6 15s. quoted in Liverpool. *Caustic*: 70 per cent. is worth £8, and 60 per cent. £1 less. *Crystals*: 38s. *ex* ship. *Hyposulphite*: Unchanged at £7 5s. to £7 10s. per ton in Liverpool. *Nitrate.*—*Ordinary* is still quoted at £8 3s. 9d. to £8 5s., and *refined* at £8 6s. 3d. to £8 7s. 6d.

Tartar Emetic.—The price of this has been advanced, and it is now quoted at 8d. per lb. for *crystals*, and 8¼d. for *powder*, 10-cwt. lots ¼d. per lb. cheaper.

Tar Distillation Products.—*Benzole*: Unchanged at 11d. for 50 per cent., and 11½d. per gallon for 90 per cent. *Toluol*: 1s. per gallon. *Creosote*: Again dearer at 2¼d. per gallon. *Crude Naphtha*: 30 per cent. at 120° C., 5¼d. per gallon. *Solvent Naphtha*: 95 per cent. at 160° C. quotes at 1s. 3d., 90 per cent. at 160° C., 1s. 1½d., and 90 per cent. at 190° C., 1s. per gallon. *Anthracene*: 13 A, 1s. per unit; B, 9½d. per unit. *Pitch*: Dearer at 39s. *f.o.b.* per ton. *Tar* offers at 12s. 6d. to 13s. per barrel, or 2¼d. to 2⅜d. per gallon.

Wood Naphtha.—*Miscible* is unchanged at 2s. 9d. per gallon.

THE DRUG MARKET.

London, August 29, 1895.

There is not much of interest to report in the market this week. Of the various drugs there is little change to be noticed, caffeine is tending lower, whilst both cocaine and the opium alkaloids, although nominally unchanged, are very firm at the quoted rates. The demand for quinine has quieted down pending the results of the Amsterdam sales. Of essential oils, all Messina essences must be reported dearer, and the same applies to oil of rosemary. There is not much doing in crude camphor, and refined is unchanged in value. Full details will be found below of the various articles of interest:—

Caffeine.—English manufacturers quote from 20s. to 21s. per lb. for delivery October to November. An inactive market is reported from New York, with prices nominally at a parity of 28s. to 32s. per lb., but little demand shown.

Camphor (Crude).—A quiet market, with little or no business doing. Prices are as follows for arrival:—Japan, 182s. *c.i.f.*, and *China*, 170s. *c.i.f.* per cwt.

Camphor (Refined).—The quotations of *English* and *foreign* refiners remain at 1s. 11½d. for *bells* and *flowers* in 10-cwt. lots, with *squares* at 2s. 0½d. and proportionate rates.

Cinnamon.—The quarterly sales were held on Monday, when only the small amount of 667 bales of *Ceylon* bark were offered. The prices ruled 2d. to 4d. higher as compared with the last sale, and in some cases an advance of 6d. to 8d. was to be noted. Prices:—First sort, 1s. 4d. to 1s. 7d.; second ditto, 1s. 2d. to 1s. 5d.; third ditto, 1s. 1d. to 1s. 4d.; and fourth ditto, 9½d. to 1s. 1d. These are for worked Ceylon. Unworked sold at 1s. 7d. for firsts, 11d. to 1s. 6d. for seconds, and thirds, 10d. to 11d.

Cocaine—Firm. Quotations are nominally unchanged, and range from 14s. 6d. to 15s., one of the makers declining to quote except at the latter figure for 100-oz. lots. The *O. P. and D. Reporter* states that there are two new makes on the market in New York, and there will shortly be a third.

Coca Leaves.—Privately good broken *Truxillo* leaves sell at 1s. per lb., with yellowish leaves at 11d. For good sound

Bolivian leaves 1s. 4d. per lb. is asked; damaged lots sell at 8d. to 9d.

Colocynth.—Firm. Privately 2s. 3d. is paid for good *Turkey* apple, but there is little offering. A consignment of *Spanish* has recently arrived. The price asked is 1s. to 1s. 1d., per lb. The market in New York is very firm, 2s. 2d. being the lowest parity for *Trieste*, whilst *Spanish* is steady at 1s. 0½d. to 1s. 1d. per lb.

Copaiba.—Privately *Maranham* sells at fully steady to dearer rates, and 1s. 10d. is now asked for good bright balsam. A new arrival of *Para* character will be offered at the next drug sales. At present the price is 1s. 7d. per lb.

Guarana.—Dull of sale. For fair to good sausage 2s. 2d. to 2s. 6d. is asked privately.

Insect Flowers.—Reports from Trieste advise a very firm market with every probability of the present prices being maintained until the end of this year, after which a good deal depends upon the American demand. The gathering of the new season's crop may be now regarded as finished, and from all reports it has not been a very plentiful one. The current quotations for new flowers are:—Open, 56s.; half-closed, 79s. 6d.; closed, 115s.; per cwt., *c.i.f.*, London.

Ipecacuanha. — *Carthagena* (Columbian) root is very scarce, there being no first-hand stock and only a few bales in second hand. Nominally the price is 4s. 6d. to 4s. 9d. per lb.. *Rio* (Brazilian) has sold privately at last sale rates.

Lycopodium.—Fine sifted *Russian* quotes at 195s. per cwt., *c.i.f.*, London, in 2 cwt. cases.

Liquorice Root.—New *Russian* decorticated root in thin sticks offers at 28s. per cwt., *c.i.f.*, London.

Morphine.—No change has been made in this by the makers. but it is very firm, and an advance is not at all unlikely. The manufacturers' current rates are:—4s. per oz for 1000-oz. lots, with smaller wholesale quantities at 4s. 2d. to 4s. 3d. *Crystals*, 2d. per oz. more.

Menthol.—Nominally quoted at 13s. to 13s. 3d. per lb. for good white *crystals* on the spot. Reports from New York anticipate a considerable advance in value shortly.

Oils (Essential). — The price of the *Messina* essences in general has been again advanced, the following being the current quotations:—*Bergamot*: 8s. 11d. per lb. *f.o.b.* for extra fine essence. *Orange*: 4s. 1d. per lb. *f.o.b.* *Lemon*: 3s. per lb. *f.o.b.* *Star Anise*: There has not been much inquiry for this, and it remains nominally quoted at 7s. per lb., but 6s. 9d. to 6s. 10d. more nearly represents its value. *Cassia*: Quiet at 6s. to 6s. 3d. for oil containing from 70 to 75 per cent. of aldehyde. *Citronella*: Somewhat scarce on the spot, with only limited inquiry; the price remains at 1s. 5d. per lb. *Lemon Grass*: Neglected at 1⅝d. per oz. *Rosemary*: Genuine *Dalmatian* oil again advanced in price, and is now quoted at 156s. 6d. per cwt., *c.i.f.*, London. *Peppermint*: *H. G. Hotchkiss'* oil is quiet at 10s. 0½d. to 10s. 3d. per lb. *Japanese* oil testing 40 per cent. of menthol offers at 7s. 6d. to 7s. 9d., with *dementholised* at 5s. 6d. Reports from America state that buyers are at present holding off until the new oil is on the market, the distillation of which will have now commenced. It is expected to be but a small crop.

Oils (Fixed) and Spirits.—*Castor*: Extra fine tasteless *Italian* oil quotes at 30s. 6d. per cwt., *c.i.f.* Reports from *Calcutta* state that the market is rather easier, and the demand is generally dull both for home and colonial consumption. *Cotton*: The market is a shade firmer, but prices are unchanged. *Refined* oil still quotes at £17 10s. to £18, according to make and package. *Coco-nut*: *Ceylon* steady. The present quotation is £23 15s. to £23, whilst *Cochin* is dull of sale at £23 15s. to £24. *Linseed*: Quiet. At the close £21 is the spot price for oil in barrels. *Olive*: Unchanged. *Syrian* quotes at £33, and *Spanish* at £37. *Rape*: Quiet. *Refined* oil is now worth £22 5s. on the spot. *Turpentine*: Unchanged. *American* spirit quotes at 20s. 4½d. on the spot. *Petrolcum*: Flat. *American* oil quotes at 5⅝d. to 5¾d: *Water white*: 6½d. to 6¾d; and *Russian*, 5⅞d. to 5⅝d. *Petroleum Spirit*: Ordinary, 9d. to 9¼d.; *deodorised*, 9½d. to 9¾d.

Opium.—*Turkey*: There has been a good inquiry for "druggists'" varieties which must be quoted 6d. per lb. higher. Prices are as follows:—Soft shipping descriptions, 10s. 6d. to 11s. 6d. per lb.; fine "druggists'," 8s. 3s. to 8s. 9d.; seconds, 7s. 6d. to 8s. per lb. *Persian*: Better inquiry, fine quality is worth 12s. 9d. to 13s., with 11s. 6d. to 12s. 6d. quoted for seconds.

Orris Root.—*Florentine*: From latest reports it seems probable that the new crop will be a good one if the weather remains favourable for the next few weeks. With respect to price, it is difficult to give a reliable forecast, but in the event of shippers adhering to their present policy it is probable that fine selected root will be available at 70s. to 71s., *c.i.f.*, per cwt. At present prices for old root remain unchanged, *selected* being quoted at 74s. 9d. per cwt., *c.i.f.* *Verona*: Unchanged at 55s. per cwt., *c.i.f.*

Peru Balsam—Selling privately at 8s. 6d. per lb. for good genuine balsam of direct import.

Quinine Sulphate.—Following the extensive sales reported last week, there were sales of 50,000 ozs. *B. and S.* and *Brunswick* at 1s. 1⅜d to 1s. 1½d. per oz., and 5000 ozs. January delivery, at 1s. 1¾d. per oz. Since this the demand has slowed down considerably. On Monday 5000 ozs. of either of these brands sold at 1s. 1½d., but it was afterwards decidedly easier, small sales only being made at 1s. 1¼d. to 1s. 1⅜d. The result of the Amsterdam sales will doubtless have an effect upon the price. The closing figure is 1s. 1¼d., with little doing at the price.

Santonin.—The present price is 5s. 5½d. to 5s. 6d. per lb.

Shellac.—The sales held on Tuesday showed a marked decline in *Second Orange* and *Garnet*, and this has naturally had a depressing effect upon the market generally. Privately *TN Second Orange* sells at 117s. Arrival sales have also declined, *TN* from August to October shipment having only fetched 108s. Of a total of 1568 cases offered in auction, 799 sold, the following being the prices realised:—*Second Orange*, reddish *BM*, 121s.; block *DJ*, 117s.; pale *SM* was bought in at 130s.; *TN sorts*: Fair bright, 118s. to 120s.; reddish, 116s. to, 118s.; bright cakey, 115s. to 117s.; block 112s. to 114s., down to 97s. for flinty block. *Garnet*: Good curly sold at 98s., ordinary dark ditto, 93s. to 94s. *Button*: Unchanged. Hard block sorts sold at 97s. to 109s. for ordinary to good pale.

Seeds.—*Anise*: In improved demand. *Russian* is quoted at 25s. to 27s, *Turkish* at 28s. to 30s., and fine *Spanish* 34s. to 36s. per cwt. *Caraway*: The current quotation for the new *Dutch* seed, which is of very good quality, is 23s. 9d. *c.i.f.* per cwt., and the market is firm, owing to the recent storms having damaged the crops considerably. *Coriander*: Dull of sale, 20s. per cwt. being asked for the new seed, but there are no buyers. At the spice sales on Wednesday, common coarse mixed *East Indian* seed sold at 6s. to 6s. 6d. per cwt. *Canary Seed*: Lower. At the sales *Turkish* seed sold at 35s. to 35s. 6d. per 464 lbs. *Cummin*: Slow of sale. The new crop of *Morocco* seed is of very fair quality. *Linseed*: There is but little inquiry, and good "feeding" seed can be bought at 40s. to 42s. 6d. per 416 lbs.

Spices (various).—*Cloves*: At the sales on Wednesday *Zanzibar* was in but poor demand; for fair quality 2¼d. was paid, and for good 2⅝d. *Amboyna* sold at 4¾d. for good, and 4⅝d. for fair quality. No *Penang* was sold, good picked being bought in at 7d. Privately there has been a fair amount of business done in *Zanzibar*, for October to December delivery, at 2 11/32d. to 2⅜d., closing at the latter figure. *Turmeric*: Rather flat. At the sales on Tuesday fair finger *Madras* was bought in at 8s. 6d. to 9s. 6d.; a few bags of *Cochin* sold at 6s. 6d. for pale split bulbs. In *Chillies* there is nothing doing. *Pimento* is firm with only moderate business passing. At the sales, ordinary sold at 2⅝d., medium at 2¾d., good at 2⅞d., and fine at 3d. *White Pepper*: Only a moderate supply was offered, and the demand was slow. Good bold *Singapore* sold at 4⅛d., fine ditto were bought in at 5⅜d. to 5¾d., and fine *Ceylon* at 5d. *Pepper*: Steady; first-class damaged *Penang* sold at 1⅝d., good *Singapore* at 2⅜d., and fine at 2½d. *Bombay* sold at 2⅝d. for good bold quality.

Senega Root—Dull of sale. For good quality root, 1s. 4d. per lb. is asked. An arrival of 35 bales on Wednesday was sold previously.

Soy.—Fair *China* is dull of sale at 1s. 0½d to 1s. 1d. per gallon.

Squills.—Good white quality sells steadily privately at 4d. per lb., whilst fair ordinary brownish offers at 2½d.

Sugar of Milk.—The current quotations for this article are from 55s. to 56s. per cwt.

Tolu Balsam—Steady. Privately 1s. 6d. to 1s. 8d. per lb. is asked, the latter figure being the price for fine balsam of recent import.

Wax.—Prime yellow Tuscan *beeswax* quotes at 140s. *c.i.f.* per cwt.—*Paraffin*: *Crude*, is worth 2d. to 2¼d., and refined, 2¼d. to 2¾d. per lb. *Japan*: Good white squares are slow of sale. The price asked is 26s. to 26s. 6d. per cwt. *Carnauba*: Steady. Sales of yellow at 132s. 6d.; medium, 117s. 6d., and grey at 112s. 6d. per cwt. are reported.

Exchange.

[*Notices of books, apparatus, etc., for exchange, of reasonable length, are inserted free in this column, if they do not partake of the nature of ordinary advertisements. The notices should be written on post-cards, addressed "Editorial Department, 17, Bloomsbury Square, W.C."*]

WANTED.

Photographic Apparatus.

Lancaster's "Meretoire" Camera, ½-plate, with lens, dark slide, and tripod; or similar outfit by some other maker. Lowest cash price, to Smith, 5, Market Place, Coleford, Glos.

Literature.

Second-hand 'British Pharmacopœia,' last edition. Please state lowest price, carriage paid, to—F. R., 7, Barrack Street, Norwich.

OFFERED.

Literature.

Offers wanted for twenty-two vols. 'Year-Book of Pharmacy' (1872 to 1893 inclusive), also Index to 1885, all in good condition.—J. S. B., 40, Loraine Road, Holloway, N.

Offers wanted for Ganot's 'Physics' (large edition); Proctor's 'Pharmacy'; B.P., 1885; Cook's 'Structural Botany,' 1*s.*; Tilden's 'Watts' Inorganic Chemistry'; Wills' 'Handbook of Analysis;' B.P. addenda, 1890; Angell's 'Magnetism and Electricity'; Pereira's 'Selecta è Prescriptis'; Maisch's 'Materia Medica'; Prantl and Vine's 'Botany'; Attfield's 'Chemistry.'—Apply "Chemicus," 92, Tollington Park, London, N.

'Pharmaceutical Journal,' 25 volumes, third series, perfect, for a mere nominal price to students. Offers requested.—S. Barlow, Chemist, Darlington.

Esmarch's 'Surgeon's Handbook,' 130 illustrations; Gibbon's 'History of Rome,' half calf; Goldsmith's 'Animated Nature,' 4 vols., half calf; 'The Year-Book of Treatment,' 1884, 1885, and 1886; 'British Medical Journal,' nicely bound, from 1880 to 1886.—H. E. Goddard, The Northgate Pharmacy, Great Yarmouth.

Ganot's 'Physics' (large), Proctor's 'Pharmacy,' Pereira's 'Selecta è Præscriptis,' Prantl and Vine's 'Botany,' Angell's 'Magnetism and Electricity.'—Offers to James, 92, Tollington Park, N.

Miscellaneous.

Eleven Forceps, upper and lower, in mahogany case; cost 80*s.*; will take 50*s.*; approval on deposit.—Wannop, Tow Law, Darlington.

Remington's 'Pharmacy,' last edition; perfect condition. Price 14*s.*, carriage paid.—L. L. Stroud, Chemist, Tewkesbury.

Watts' 'Inorganic Chemistry,' 4*s.*; Southall's Mat. Med. Cabinet (with text-book), hardly used, 15*s.*; Thorpe's 'Chemical Problems,' 1*s.*; Cassell's 'Pop. Educator,' one number missing, 6*s.*; Bicycle, Pneumatic, in good preservation. diamond frame; must be sold; what offers?—F. H. Blissett, 3, Hanover Street, London, W.

Microscope by Baker, Hartnack's model, 1 in., ¼ in., ⅛ in. objectives, two eyepieces, rack and pinion coarse, and micrometer screw, five adjustments. Excellent condition, in mahogany case. What offers (worth £4)?—W. G. Burge, 4, Woronzow Terrace, St. John's Wood.

Chemical balance by Bosch, scarcely used, agate planes, rider, slide, pan-stops, etc. Details on application, cost £8, take £6. 'Year-books of Pharmacy,' 1870-1890, with general index up to 1885; in best condition. What offers? — Harvey, Pharmaceutical Chemist, Sileby, Loughborough, Leicestershire.

Photograpic Apparatus.

Dallmeyer's 1/1 R.R. Lens, 85*s.*; Lancaster's 1/2 Instantaneous Lens, 20*s.*; Oblong Lantern-Slide Making Camera, reduction from ½ pl., 10*s.*—Barfoot, Compton Street, Chesterfield.

LIVERPOOL MARKET REPORT.

Our Correspondent writes, on the 28th inst., as follows:—

DRUGS.—Linseed.—Not much offering on the spot. Hempseed. — During the week a parcel of Chilian, 25 bags, has been sold for 32s. per 336 lbs. in store. Canary Seed.—The general tone of the market in this is still dull, the price remaining at 38s. per 464 lbs. on the spot; 700 bags to arrive, August–September, have been disposed of for 35s. 6d. per 464 lbs. Kola Nuts.—Some twenty-five bags dried have brought from 4d. to 8d. per lb. for "poor" to "fair" quality in store. Chillies.—Some small transactions in poor Sierra Leone have been reported at 25s. per cwt. in store. Turmeric. — There is at present a little inquiry for "Bombay finger," for which about 8s. 6d. per cwt. *ex* quay would be the figure for September–October delivery. Sales of "Madras finger" have taken place at 10s. 6d. per cwt. in store. Beeswax.—A good deal has been offering during the week, mostly Sierra Leone, of which two lots, consisting of 56 and 12 packages respectively, have changed hands at £6 12s. 6d. per cwt. *ex* store. Of Chilian, 15 sacks made £7 12s. 6d. per cwt. Carnauba Wax.—A mixed lot of 50 bags realised, for the grev, 115s. to 115*s.* 6d., and for the yellow, 132s. 6d. per cwt. *ex* store. Gum Arabic.—There is no change to report.

OILS.—Castor.—Calcutta good seconds, 2 3/32d. to 2⅛d. French 1st pressure, 2 1/32d. to 2 1/16d. Madras, 2 1/32d. per lb. *ex* quay, and 2 1/16d. per lb. *ex* store. Olive—Levant and Syrian, £31 to £31 10s.; Canadian, £32 to £32 10s. per tun. Cotton Seed — Liverpool refined is 17s. 6d. to 18s. per cwt. in export barrels, and American 18s. Linseed Oil —Is steadily held at the recently easier rates of 22s. 3d. to 23s. per cwt. in export casks, but no appreciable amount of business is reported. Spirits of Turpentine—Is quietly steady at the spot quotation of 20s. 9d. to 21s. per cwt. Petroleum—Is lower. but still quiet, with Russian offering at 5⅞d. to 6d. per gallon, and American refined at 6¾d. to 7¾d.

CHEMICALS.—Sal ammoniac—Ingood demand at 37s. to 39s. per cwt. Sulphate of Ammonia—Quietly steady at £9 10s. per ton *f.o.b.* Bleaching Powder — Slightly dearer, *f.o.b.*, in hardwood casks, Liverpool, it is now £7 5s. per ton net cash. Soda Crystals—Quiet, £2 10s. per ton. Soda Bicarbonate—Now selling at an advance of 5s. per ton, £7. Caustic Soda. —Prices steady, with good inquiry, £7 15s. to £8 for 70 per cent.; £6 15s. to £7 for 60 per cent., both nett cash. Borax—Quiet. Lump, 20s.; powder, 21s. per cwt. Nitrate of Soda—Some recent arrivals are offering *ex* quay at 8s. to 8s. 3d. per cwt., but store lots still are quoted at 8s. 1½d. to 8s. 4½d. Potash Salts.—Cream of tartar is advancing; the lowest figure for best white in any position is now 74s. 6d. to 75s. Potashes —Slow at 22s. 3d. per cwt. Pearl Ashes —Ditto at 40s. Phosphorus — Dearer. Wedges, 2s.; sticks, 2s. 1d. per lb.; amorphous, 2s. 8½d. Copperas.—Lancashire very firm at 38s. per ton.

NEWCASTLE-ON-TYNE CHEMICAL REPORT.

Our correspondent writes on the 28th inst. that the market remains quiet, and prices are steady but without alteration. Soda crystals have been rather scarce, the warm weather having interfered somewhat with their manufacture. An increased demand for bleaching powder is to be noted, and saltcake maintains a firmer position. Recovered sulphur in fair request.

Current quotations are:—Soda Crystals, £1 15s. to £1 17s. 6d. per ton nett. Recovered Sulphur, £3 17s. 6d. to £4 per ton nett. Bleaching Powder, £7 10s. per on nett, hardwood casks, and £7 5s. per ton nett, softwood casks. Oxalic Acid, 3¾d. per lb. Hyposulphite of Soda very firm, 5/7 cwt. casks £6 per ton nett, 1 cwt. kegs £6 15s. for fair quantities. Saltcake, 17s. 6d. per ton nett. Chloride of Barium firmer and selling freely at £6 5s. per ton nett. Yellow Prussiate of Potash in fair request at about 7½d. per lb. Chlorate of Potash, 5d. per lb., less 5 per cent. South Durham Salt, brisk at 9*s.* to 9s. 6d., *f.o.b.*, Tees. Soda Ash and Caustic Soda without change. Sulphocyanides, weak. Sulphateof'Alu mina, pure white crushed, in bags, £4 per ton nett. Alum, £5 per ton, nett.

New Books and New Editions.

[*Publishers are invited to forward full particulars of new publications, including price.*]

Diseases of Dogs and their Proper Treatment. By H. Dalziel. Third edition, revised and enlarged, post 8vo, pp. 116. Price 2*s.*; sewed, 1*s.* (L. U. Gill.)

Treatise on the Evaporation of Saccharin, Chemical, and Other Liquids by the Multiple System in Vacuum and Open Air. By J. Foster. Second edition, with 181 diagrams and 49 large plates, 8vo (Reed Sunderland), pp. 740. Price 21*s.* (Simpkin, Marshall and Co., London.)

Epitomes of Modern Surgical Progress for Students and Practitioners. By E. H. Fenwick. Illustrated. Second edition, post 8vo (Wright, Bristol), pp. 214. Price 4*s.* net. (Simpkin, Marshall and Co., London.)

The Law of Psychic Phenomena: a Working Hypothesis for the Systematic Study of Hypnotism, Spiritism, Mental Therapeutics, etc. By T. J. Hudson. Post 8vo, pp. 428. Price 6*s.* (G. Putnam and Sons, London.)

Clinical Lectures on the Prevention of Consumption, delivered at the Westminster Hospital. By W. Murrell. Post 8vo, pp. 98. Price 3*s.* 6*d.* (Baillière, Tindall and Cox, London.)

Digest of British and Foreign Patent Laws. By A. J. Boult. Post 8vo, pp. 380. Price 5*s.* (Bemrose.)

SUPPLEMENT

TO THE

PHARMACEUTICAL JOURNAL.

Contents of Supplement.

Drug Trade Regulations in Japan i
Company Business i
Trade Notes and News i
Market Report ii
Liverpool Market Report iv
Newcastle-on-Tyne Chemical Report..... iv
Scotch Chemical Report iv
Exchange iv

Drug Trade Regulations in Japan.

A few months ago the subject of Japanese regulations in the drug trade was frequently discussed, and much dissatisfaction appeared to exist on the part of certain manufacturers whose productions were interfered with by the Japanese authorities. On this point we have caused inquiries to be made in Japan, the answers to which enable us to publish the following statements. There is, we are informed, no regulation in Japan under which imported drugs must be analysed. Physicians are now required to use the chemicals and drugs prescribed in the Japanese Pharmacopœia, and those only, and the wholesale druggists usually obtain the guarantee of the Hygienic Laboratories established by Government, or of those started by private enterprise, such as the Osaka Drugs Examination Company, known in Japanese as the Yakuhin-shiken-kaisha of Osaka, for their chemicals and drugs, simply as a satisfaction to themselves and a means of securing the confidence of buyers. Of course, any chemicals or drugs which do not come up to the standard of purity prescribed in the Pharmacopœia are not used by physicians. The preparations, however, of such makers as Nippon Seiyaku Kaisha, of Tokio, are sold without a guarantee of the Hygienic Laboratory. As regards the report that certain proprietary medicines have been submitted to analysis and rejected, we are informed that the regulations regarding proprietary medicines simply require that no poison shall be contained in them. Even very small quantities of dangerous medicines and drugs are prohibited if the authorities think that such quantities may be the source of danger if taken imprudently. Hence, certain well-known proprietary preparations largely used in this country are not allowed to be sold to the public in Japan, but only to physicians or those bringing physicians' prescriptions. Such medicines as Scott's Emulsion of Cod-Liver Oil with Hypophosphites, Ayer's Hair-Restorer, or Brandreth's Plasters, are sold with Government stamps upon them, and they are, our informant assures us, selling well. We may add that the stamp duty of such medicines is now one *rin*, or the 1000th part of a silver dollar, for those costing 2 *sen* (1 *sen* being the 100th part of a dollar) per bottle or package; 3 *rin* for those under 3 *sen*; 5 *rin* for those under 5 *sen*; 1 *sen* for those under 10 *sen*; and 5 *rin* for every 5 *sen* above 10 *sen*. With regard to the standard of purity which the Japanese set up, it is impossible to understand why any one should complain that it cannot always be met. The Japanese Pharmacopœia standard is not so high that English makers cannot produce drugs of the required purity. If it be compared with that of this country, or with the pharmacopœias of Germany, France, the United States, or Holland, it will at once be seen that the standard of Japanese drugs is not much higher than that of other countries. There should, therefore, be no difficulty on the part of manufacturing chemists in producing drugs of a standard to which even Japanese makers can attain, there being but one standard to which both Japanese and foreign-made chemicals must conform. If any English-made fine chemicals or drugs have been driven from the Japanese market, it is not, we believe, on account of the high standard of purity required, but because British firms have not set themselves to compete with the lower prices of German goods. Let but manufacturers turn out goods according to the prescriptions of the Japanese Pharmacopœia as cheaply as those of Continental firms, and there will be no reason why their chemicals and drugs should not find a very large sale in the Japanese market. At present, our informant points out, the victory rests with the Continental merchants and manufacturers, who do their utmost to extend business by studying and conforming to the special requirements of the Japanese market. —*British Trade Journal.*

Company Business.

WILLIAMS, CHEMISTS AND DRUGGISTS, LIMITED.—This company was registered on August 23 by Glaisyer and Porter, 26, Waterloo Street, Birmingham, with a capital of £3000 in £5 shares. Objects: To acquire from James B. Williams the business of a chemist and druggist as now carried on by him at 257, Oldham Road, Manchester, and to enter into an agreement with the said vendor to carry on in Manchester or elsewhere the business of chemists, druggists, drysalters, oil and colourmen, importers and manufacturers of and dealers in pharmaceutical, medicinal, chemical, industrial, and other preparations, etc.

SAUSALIA, LIMITED. — Registered on August 19 by Hulburt and Crowe, 4, Broad Street Buildings, E.C., with a capital of £6000 in £1 shares. Object: To enter into an agreement with Jacob H. Payne for the acquisition of the right to manufacture a certain preparation known as "Sausalia"; to manufacture and deal in the same, and to carry on business as chemists and druggists generally. Registered office: 43 and 44, Temple Chambers, Temple, E.C.

LAFONE COMPANY, LIMITED. — Registered by G. E. Samuel, 16, Great Winchester Street, E.C., with a capital of £1000 in £1 shares. Objects: To enter into an agreement, made August 19, with W. H. Longsdorf, of 135, New Bond Street, London, W., and to carry on the business of manufacturing chemists, druggists, proprietary manufacturers and dealers, drysalters, oil and colourmen, etc., in all its branches. Registered without articles of association. Registered office: 73, Ludgate Hill, London, E.C.

Trade Notes and News.

MESSRS. F. NEWBERY AND SONS, 1 and 3 King Edward Street, London, E.C., are prepared to indicate, in their Catalogue for 1896, whether articles named therein are labelled "Poison." (About 100 such indications appear in 'Newbery's Catalogue' for 1895.) And further whether the "Poison" is in part 1 or part 2 of the "List of Poisons" appended to the Pharmacy Act of 1868, provided that the information be placed at their disposal by the respective proprietors for the purpose of such publication.

MESSRS. CORBYN, STACEY, AND COMPANY'S 'Notes on Drugs, Chemicals, and Pharmaceutical Preparations' has reached the thirty-first edition. It will be found of considerable value by pharmacists who may receive inquiries from medical men regarding the properties and uses of remedies recently introduced into practice.

MESSRS. FORD, SHAPLAND and Co., Great Turnstile, W.C., submit specimens of their calendars and almanacks for 1896. The designs exemplified in the former are numerous and tasteful, and the almanacks embody much useful and amusing matter. Chemists who make use of such undoubted aids to business would do well to send for specimens.

THE DRUG, CHEMICAL, AND ALLIED TRADES EXHIBITION, to be held in the Agricultural Hall, London, will be opened on Tuesday next and continued during the three following days.

THE BRITANNIA WORKS CO., LTD., Ilford, London, E., makers of the celebrated "Ilford" plates and paper, send 'Photographic Scraps' for July. This is a monthly publication, supplied gratis, and contains notes of interest to photographers.

MESSRS. CALLETT AND NEALL, Ashtead, Surrey, send 'Dry Plates,' a similar publication to the above, free on application, to any photographer applying for it. The number submitted contains articles on ortho-chromatics, falsity in portraiture, etc.

Partnerships Dissolved.

[From the *London Gazette.*]

Charles Biddiscombe and John Llewelyn Rowland, carrying on business as chemists and druggists at Willesden Green under the style of Biddiscombe and Rowland.

Henry Jarvis and Vernon Annandale Bankes, carrying on business as veterinary surgeons at Battle, Burwash, and St. Leonards-on-sea, under the style of Jarvis and Banks. Debts will be received and paid by H. Jarvis.

George Francis Matthews and Bernard Lonsdale, carrying on business as drysalters, chemists and druggists, etc., at Lewins Mead, Bristol, under the style of Henry Matthews and Co. Debts will be received and paid by G. F. Matthews.

MARKET REPORT.

[*Specially compiled for the Pharmaceutical Journal.*]

CHEMICALS AND DRUGS.

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

THE CHEMICAL MARKET.

LONDON, SEPTEMBER 5, 1895.

During the past week there have been several changes in the position of articles of interest, and the most important features of the chemical market are as follows: Citric acid is fairly steady, but in second hand is a trifle easier, whilst tartaric acid is very firm, both for English and foreign brands. Arsenic is rather slack, but copper sulphate is a very firm market. The convention rates for borax are unchanged, but the price in second hand has tightened considerably. Cream of tartar shows the most important change, and greatly advanced prices have been paid. Of the soda compounds caustic is lower for 70 per cent., but the price of crystals has advanced. Potash compounds are unchanged.

ACID, CARBOLIC.—A firm market. The following are the current quotations:—*Crystals*, 34° to 35° C., 5¼d.; 39° to 40° C., 5¾d.; 39° to 40° C. (*detached crystals*), 6¾d. per lb. *Crude*, 60 per cent. is unchanged at 1s. 6d. per gallon, whilst 75 per cent. offers at 1s. 10d. *Liquefied* is easier, and offers at 1s. for 95 per cent., whilst *cresylic* is unchanged at 11d. per gallon.

ACID, CITRIC.—Manufacturers' prices are unchanged, and a fair business has been done. In second hand, however, it offers at fractionally easier rates, 1s. 1⅜d. per lb. being now accepted, whilst makers still ask 1s. 1¾d. per lb.

ACID, OXALIC.—This is a trifle easier, and the Convention now quote at 3⅝d. per lb. net, delivered free London.

ACID, TARTARIC.—Very firm, and prices have every appearance of going higher. English manufacturers will not now sell under 11½d., whilst foreign brands of acid both in *crystal* and *powder* quote at 11½d.

AMMONIA SALTS.—*Carbonate* unchanged at 3½d. to 3¾d. per lb. *Liquor*: 3¼d. to 3½d. per lb. less 5 per cent. *Sal Ammoniac. Firsts* still quote at 39s., with *seconds* at 37s. *Sulphate*: Quiet but fairly steady. Grey 24 per cent. now quotes at £9 5s. per ton.

ASHES.—Unchanged, best Canadian *potashes* being still quoted at 35s., whilst *pearlashes* offer at 22s. 6d.

ARSENIC.—Rather easier, and best white *powder* now quotes at 15s. 3d. to 15s. 9d. *Lump* is unchanged at 29s.

COPPER SULPHATE.—A very firm market. For ordinary makes £15 10s. is the lowest price accepted at present, whilst the *Anchor* brand is steady at £17 per ton.

CREAM OF TARTAR.—Another important advance is to be noted in this article, and prices are about 5s. per cwt. higher since our last report, the scarcity both at home and abroad being very marked. Holders now ask 81s. on the spot for best white *French crystals*, whilst 84s. has been paid for *German* brands of *powder*, 85s. being now asked.

BORAX—Is much firmer in second hand, although the convention rates are unchanged. Holders now ask 19s. 6d. for *crystals*, and 20s. 6d. for *powder*, whilst the syndicate price is 1s. per cwt. more.

POTASH SALTS.—*Bichromate*: Unchanged at 4⅝ to 4¾d. per lb. *Chlorate*: Moving slowly at 4⅝d. on the spot, whilst in Liverpool it is dull of sale at 4½d. per lb. *Permanganate*: *Small crystals* are very firm at 56s. to 58s. per cent., whilst for large 60s. to 61s. is asked. *Prussiate*: Unchanged at 8d. per lb. on the spot. In Liverpool it is unchanged at 8d. to 8¼d. per lb.

QUICKSILVER — Unchanged. Importers' prices are unchanged at £7 5s., whilst in second hand it offers freely at £7 3s. 6d.

SILVER NITRATE.—The present price is 1s. 8d. per oz. net.

SODA COMPOUNDS. — *Bicarbonate* is unchanged at £7 5s. in London, whilst in Liverpool it is quoted at £6 15s. *Caustic*: 70 per cent. is 5s. lower at £6 15s., with 60 per cent. offering at £1 less. *Crystals*: Dearer at 43s. *ex* ship. *Hyposulphite*: Steady at £7 5s. to £7 10s. per ton in Liverpool. *Nitrate.—Refined* offers at £8 6s. 3d.

TAR DISTILLATION PRODUCTS.—*Benzole*: Firmer, 50 per cent. being now worth 11½d. per gallon, whilst for 90 per cent. 1s. is asked. *Toluol*: 1s. per gallon. *Creosote*: lower at 1¾d. per gallon. *Crude Naphtha*: 30 per cent. at 120° C. quotes at 5d. per gallon. *Solvent Naphtha*: 90 per cent. at 190° C. is lower at 1s. 0½d. *Pitch*: 39s. per ton, *f.o.b. Tar*: 2⅛d. to 2⅜d. per gallon.

WOOD NAPHTHA.—*Miscible* quotes at 2s. 9d.

THE DRUG MARKET.

LONDON, SEPTEMBER 5, 1895.

Generally speaking business in the drug market is in a very dull condition at present, except for some few articles which have attracted considerable attention. Camphor has since the beginning of the week been the medium of some heavy investments, and advanced prices have been paid for both China and Japan. The refined article is unchanged. Quinine has been very quiet, following on the position noted in our last report. Of the other alkaloids morphine, as seemed probable last week, has been advanced in price by one of the makers, a rise of 2d. per oz. being notified on Monday. Codeine and cocaine are unchanged, but pilocarpine is scarce and dear. Of the essential oils, star anise and cassia have both advanced considerably in value, and it looks as if a similar value to that of last autumn is to be expected for the former. All peppermint oils are dull of sale. At the drug sales to-day, which passed off very quietly, aloes were in moderate supply, but only Cape claimed attention, fully steady rates being paid. Ipecacuanha was in moderate supply, but only an odd bale or so of Rio was sold, whilst Carthagena realised prices which show a decline. The new arrivals of senna leaves sold freely, as did cardamoms. Full details will be found below of the various articles of interest:—

ACACIA.—An average supply was offered to-day, but few sales were effected. A parcel of glassy yellowish *Turkey* sorts from Calcutta were bought in at 62s. 6d., whilst picked *Trieste* gum was bought in at prices ranging from £7 for medium pale down to 85s. for bold sorts, and 75s. for small brownish sorts. Another parcel of sorts from *Suez* were held for 57s. 6d. for bold brown, and 30s. for small ditto: eight bags of very low drossy "gum" sold at 3s. 6d. per cwt.

ACONITE.—Ten bags of *Japan* root, the remainder of a parcel, were offered to-day, but no bid being forthcoming, were bought in at 22s. 6d. per cwt.

ALOES.—No *Socotrine* was sold to-day, although some nice lots were shown. Good soft was bought in at 70s. to 72s. 6d., and fair ditto at 65s. per cwt. *Curaçao*: Fairly steady; 47 boxes all sold at prices ranging from 15s. 6d. for bright capey softish down to 8s. for dull drossy ditto, and 4s. for very ordinary dark; 5 cases of *East Indian* aloes in skins sold at 41s. and a few cases of *Zanzibar* aloes in skins fetched 34s., with 47s. paid for better grades in calico bags. *Cape*: A parcel of 30 cases sold at steady to slightly firmer rates, 24s. to 24s. 6d. being paid for good to fine bright hard, 23s. for fair ditto, and 19s. 6d. for ordinary drossy qualities.

AMMONIACUM.—This drug is still quite neglected, and only 40 cases were offered to-day. Soft seedy block, part pale almondy, was bought in at 35s. to 37s. 6d. per cwt., whilst good dark block was bought in at 40s.

ANNATTO SEEDS.—Only 10 bags were offered in auction. These were somewhat dull *Madras* seed, and were mostly bought in at 3d. to 4d. per lb., but 1 bag of second-class damaged sold at 2d. per lb. subject.

ARECA NUTS.—No inquiries. Only 10 bags of good quality *Colombo* nuts were offered. These were bought in at 12s. 6d. per cwt.

BENZOIN.—A total of 295 cases were offered to-day. Of this a few cases only consisted of *Siam* gum. Three cases of nice almondy gum, part block and part loose, sold cheaply without reserve at £13 7s. 6d. per cwt. Good medium bright almonds, in block, were bought in at £12 10s., small to medium ditto at £7 7s. 6d. to £9, and siftings in block at 70s. to 75s. *Palembang*: None was sold, fair seconds in cases being bought in at 40s. to 45s., ordinary ditto in tins at 35s. *Sumatra*: The bulk of the gum consisted of this variety, and a good proportion was sold, good quality seconds with bold almondy centres fetching £8 10s. to £8 12s. 6d., medium seconds, fair centres, false packed sides, £6 10s. to £7.

BUCHU—Steady. To-day good *round* leaves of greenish colour fetched 3¼d. to 3¾d. per lb., and yellowish stalky ditto 3d. to 3½d. No *long* leaves were sold, dull greenish leaves being bought in at 6d. per lb.

CACAO BUTTER—Dearer. At the sales on Tuesday 250 cases, representing 25 tons, of *Cadbury's* make, sold at 13⅛d. to 13⅜d., the average price being 13⅜d. per lb. against 13⅛d., which was the price at the August auctions.

CALUMBA ROOT.—None was sold in auction, although a fair amount was shown; 34 bags of ordinary washed sorts were

bought in at 17s., whilst a bid of 9s. was refused for 50 bags of ordinary mixed root.

CAMPHOR (CRUDE).—The market in this article has shown a very marked advance since our last report, and a large amount of business has been done. On Monday, 400 piculs of *Japan* sold at 182s. 6d. per cwt. *c.i.f.*, and this was followed on Tuesday by a further sale of 700 piculs, at prices ranging from 200s. to 210s. per cwt. *c.i.f.* At the close 200s. to 205s. per cwt. *c.i.f.* is asked for shipment June to August steamer. *China* camphor was also sold at 170s. *c.i.f.* per cwt. to the extent of 200 parcels on Monday, and on Tuesday 400 cases sold at 200s. per cwt. *c.i.f.* 200s. per cwt. *c.i.f.* is now asked. At the drug sales to-day a considerable amount was offered both of *China* and *Japan*, but the only sale effected was 10 tubs of *Japan* (new import), at 200s. per cwt.

CAMPHOR (REFINED).—No change has occurred in the position of this article; but in the face of the marked advance in crude an advance is to be expected. The quotations of *English* and *Foreign* refiners remain at 1s. 11½d. per lb. for *bells* and *flowers* in 10-cwt. lots, with *squares* at 2s. 0½d. and proportionate rates. At the drug sales to-day 2 casks of *German* refined were bought in; the price asked is 1s. 8½d. per lb.

CANELLA ALBA.—A parcel of 12 bales of nice bark part sold at 24s. 6d. per cwt.

CANNABIS INDICA.—Quite neglected. At the sales 18 robbins of dusty-brown tops were bought in at 3d., and stalky ditto at 2d. per lb.

CANTHARIDES.—The only parcel offered to-day was 2 casks of dusty *Russian* flies, which sold without reserve at 2s. per lb.

CANADA BALSAM—Steady. A cask of fair quality balsam was bought in at the drug sales, the price asked being 1s. 5½d.

CARDAMOMS — Dearer. The catalogue to-day included some fine parcels of *Mysore*, for which advanced prices were paid. The prices are as follows:—*Ceylon-Mysore*: fine bold pale, 2s. 7d. to 2s. 9d.; medium pale, 2s. 4d. to 2s. 5d; ordinary medium, 2s. 3d.; small to medium pale, 1s. 11d. to 2s. 11d.; small palish, 1s. 9d. to 1s. 10d; brownish medium, 1s. 7d. to 1s. 8d.; brownish split, 1s. 5d. to 1s. 6d.; small brown, 1s. to 1s. 4d.; *Seed*: ordinary quality, 1s. 6d. per lb.

CASCARILLA—Again lower. In auction a parcel of 14 bales of good bold silvery bark sold at 43s. to 44s. per cwt. Of another lot of 66 packages part sold at 29s. 6d. to 31s. for fair small mixed, and 23s. 6d. for very small dusty bark.

CASSIA FISTULA—Sold cheaply to-day. One parcel of fair *Dominica* pods sold at 18s. 6d. subject to 19s. per cwt., whilst a parcel of 101 bags all sold at prices ranging from 14s. 6d. for medium lean down to 9s. for ordinary lean pods.

CASTOREUM.—Two boxes were offered to-day, but were bought in at 80s. and 90s. respectively.

CHIRETTA.—Four bales, the balance of a parcel, were offered. The buying-in price remains 2¼d. per lb.

CINCHONA.—At the drug sales 6 serons of ordinary *Huanoco* bark in quill sold at 5½d. per lb., whilst another parcel of crown bark, part *Loxa* and part *Huanoco*, realised 5½d. to 7¼d. per lb. Of the *yellow* bark only a few lots were sold, 2d. to 3d. being paid for third-class damaged bark.

CELERY SEED.—A parcel of 5 bags were offered, and realised 35s. per cwt., subject.

COCA LEAVES.—Only 4 bales were shown to-day. These were yellow broken *Truxillo* leaves, and were bought in at 1s. per lb.

COLOCYNTH.—The only lot offered to-day consisted of 3 cases of *Turkey*. These were good pale apple, and were bought in at 2s. 3d. The price asked is 2s. 3d. per lb.

COPAIBA.—In auction three cases of nice *Maracaibo* balsam were offered; they were then bought in, but were afterwards sold at 1s. 5d per lb. Three casks of fair bright *Maranham* were bought in at 1s. 8d. per lb.

CUBEBS—Neglected, and very dull of sale, except when offered without reserve, when low prices are accepted. To-day 243 packages were offered. The only lot sold, however, was 29 bags of ordinary *Singapore* berries, which fetched 22s. to 24s. per cwt.

CUMIN SEED—Steady. None was sold in auction. *New Maltese* seed being bought in at 38s., and *Marseilles* at 26s. to 31s. per cwt.

DRAGON'S BLOOD.—None was sold, there being absolutely no inquiries. Good quality gum in reeds was bought in at £12, ordinary lump at £9 10s. to £11, good bright lump at £10 10s., and dark saucers at £6 5s. Eight cases of ordinary *Zanzibar* drop were bought in at 10s. per cwt.

ELEMI GUM—Unchanged but dull of sale. To-day 30 cases good quality gum from *Singapore* were bought in at 30s. per cwt, there being no bid at all.

ERGOT OF RYE.—The only lot offered consisted of 7 bags of *Spanish*, which were bought in at 1s., a bid of 7½d. being refused.

GALANGAL.—A parcel of 134 bales of good bold root from Hong Kong were offered. Of this 40 bales sold at 25s. per cwt.

GAMBOGE—In small supply. Of 27 cases offered, only 3 sold, £8 2s. 6d. being paid for fair mixed pipe, part drossy.

GENTIAN.—A parcel of 20 bales were bought in at 14s. 6d.

HONEY.—No enquiry was shown for any variety. *Jamaica* was bought in at 20s.; *Australia* at 19s. to 27s; and *Chilian* at 26s. For 20 cases of *California* honey, 43s. per cwt. is the price asked.

INSECT FLOWERS.—Reports from Trieste advise an unchanged market, with prices as follows:—Open flowers, 56s.; half-closed, 79s. 6d.; closed, 115s. per cwt. *c.i.f.*

IPECACUANHA. — The supply of *Rio* (Brazilian) root offered to-day was only moderate, and buyers showed no anxiety to deal. A bale of ordinary fair root sold without reserve at 5s. per lb. *Carthagena* (Columbian) is considerably easier, 4s. 2d. per lb. being accepted for 4 bales of fair damaged root.

JALAP.—A parcel of 10 bales of ordinary fair quality *Vera Cruz* root sold at 8¾d. to 9d. per lb.

JUNIPER BERRIES.—Samples of fine sifted berries of the new crop are now being shown. The price is 6s. 9d. per cwt. *c.i.f.* in bales; 50 bale lots, 6s. 3d. per cwt.

KINO.—In auction 5 cases of astringent gum from Bombay, in tears, resembling kino was offered, but bought in. Privately genuine gum has sold during the week at the high price of 15s. per lb.

KOLA—A parcel of 19 packages of *Grenada* nuts sold freely at 7¼d. to 8½d. for ordinary quality, with 5d. to 6d. paid for mouldy ditto.

LIQUORICE ROOT.—*Russian*: Decorticated root is unchanged; new root in thin sticks offering 28s. per cwt., *c.i.f.*

MENTHOL.—There is absolutely no inquiry for this, and holders vary considerably in the price at present asked on the spot, but certainly good white *crystals* can be bought at 12s. per lb. For delivery 12s. 6d. to 13s. *c.i.f.*, is asked. To-day 2 cases *Kobayashi* brand were bought in, 12s. being asked in vain.

MORPHINE.—On Monday the price of this alkaloid was advanced 2d. per oz., and the current quotations are now as follows:—4s. 2d. per oz. for 1000-oz. lots, with smaller wholesale quantities at 4s. 4d. to 4s. 5d.. *Crystals* 2d. per oz. more.

MYRRH GUM.—No inquiries except for low grades. To-day 16 bales of ordinary small sorts fetched 28s. 6d. per cwt., and 2 cases of drossy siftings at 15s. per cwt.

NUX VOMICA.—*Coconada* nuts were bought in at 5s. 6d. per cwt., whilst of 181 bags of *Madras*, part sold at 4s. 3d. per cwt. subject. Sixty-five bags of *Madras* sold without reserve at 2s. 6d. to 3s. 9d. per cwt.

OIL (COD-LIVER).—There is a firmer tone in the market for finest non-freezing *Lofoten* oil; and a sharp advance is anticipated in the course of the next few weeks owing to the low stocks. It is said that the American market absorbs a considerable proportion in the face of the present prices, the demand for *Newfoundland* oil not having affected the *Norwegian* market as much as was anticipated at one time.

OILS (ESSENTIAL).—*Almond.*—The current quotation for this is 25s. per lb. *Star Anise*—A very strong market at greatly advanced prices. On the spot 7s. 6d. has been paid, and 7s. 9d. is now asked, whilst business has been done for arrival at 6s. 10d. per lb. *c.i.f.* *Bay oil*—Bought in at 1s. 6d. *Cajeput*: 19 cases were bought in at 2s. 3d. per bottle. *Cassia*: Again a very active market and 7s. 6d. is now the price for oil testing 80 to 85 per cent. of aldehyde, with 70 to 75 at 7s. 3d.. For delivery, 6s. 6d. per lb. *c.i.f.* is asked for 70 to 75 per cent. oil. *Citronella*: 60 cases in tins were bought in at 1s. 3d., and *Fisher's* at 3d. per oz. *Eucalyptus*: 10 cases *Wheeler's* oil sold at 10d. per lb. *Pimento*: 8s. 6d. per lb. *Peppermint*: *H. G. Hotchkiss'* oil is dull of sale at 10s. 1½d. to 10s. 3d. *Japanese* oil containing 40 per cent. of menthol offers at 6s. 6d. to 6s. 9d., and *dementholised* at 5s. 3d. to 5s. 6d.

OILS (FIXED) AND SPIRITS).—*Almond*: The present price is 1s. 1d. per lb.; *Castor*: Finest quality *Italian* oil quotes at 30s. 6d. per cwt., *c.i.f.* A quiet market is reported from *Calcutta*, but prices are maintained. At the drug sales to-day, 30 cases of *Calcutta* oil were bought in at 2¾d. per lb. *Cotton*: Dull of sale, and prices have declined 5s. per cwt. At the close, *refined* oil quotes at £17 5s. to £17 15s. per cwt., according to make and package. *Cocoanut*: *Ceylon* is steady, the present quotation being £23, whilst *Cochin* remains at £23 15s. to £24. *Linseed*: Lower. At the close £20 10s. is the spot price for oil in barrels. *Olive*: *Syrian* quotes at £33, and *Spanish* at £37. *Rape*: Lower. *Refined* oil is now worth £22 on the spot. *Turpentine*: Dull of sale, *American* spirit being quoted at 20s. 1½d. to 20s. 4½d. on the spot. *Petroleum*: Unchanged, but dull of sale. *American* oil

quotes at 5⅝d. to 5¾d.; *Water-white*, 6½d. to 6¾d.; and *Russian*, at 5½d. to 5⅝d. on the spot.

PERU BALSAM.—Dull of sale. Four cases of balsam of recent import were bought in at 8s. 6d. per lb.

ORRIS ROOT.—*Florentine*. Nothing definite has yet been settled as to the price of the new root which is now being collected, but it is expected to be about 70s. per cwt. *c.i.f.*, shipped in about four week's time. The price of old root remains at 74s. 9d. per cwt. *c.i.f.* for best selected. *Verona*: Unchanged at 55s. per cwt. *c.i.f.*

QUININE SULPHATE.—The market is quiet but steady, and a limited business only has been done in *B. & S.* and *Brunswick* at 1s. 1⅜d. per oz. The landings during August were 10,000 ozs., and the deliveries 73,752 ozs., making the stock on August 31 2,135,864 ozs., against 2,925,776 ozs. last year.

RHUBARB.—A fair supply was offered to-day, and proved slow of sale. The prices realised show a decline. *Canton*: Medium flat and round pickings, 7¼d. to 10½d.; medium to bold flat, 1s.; small round druggists, 1s. 2d. to 1s. 3d. per lb.

SARSAPARILLA.—*Lima* sold freely at 10½d. to 10¾d. *Jamaica*, 1s. 4d. for medium, 1s. to 1s. 1d. for ordinary ditto. *Honduras*, 1s. 1d. per lb. subject.

SENNA.—*Tinnivelly*, the new crop leaves, were in fair supply, and very good demand was shown, the bulk selling at an advance in price. *Tinnivelly*: Medium to bold fair green realised 5d. to 5¼d., small to medium green 3½d. to 4d., small to bold, part mixed, 2½d. to 3½d.; ordinary dull, 2d. down to 1d. per lb. *Pods* sold at 1½d. for damaged quality. *Alexandrian pods* sold at 3¼d. to 3¾d.; leaves were all bought in.

WAX (BEES).—Very plentiful, but dull of sale, the prices were as follows:—*Jamaica*, £7 10s. to £7 15s. *Australian*, £6 7s. 6d. to £6 10s. *Madras*, £6 17s. 6d. *Zanzibar*, £5 15s. to £6 5s. *East Indian*, damaged by heat sold at £4 to £4 2s. 6d. *Madagascar*, £6 7s. 6.

LIVERPOOL MARKET REPORT.

[*From our own Correspondent.*]

DRUGS.—HEMPSEED.—Some 220 bags of Chilian have changed hands at 30s. per 336 lbs. CANARY SEED.—Spot price is in buyers' favour at from 35s. to 38s. per 464 lbs. for Turkish, but no business has been recorded. Some sales of Spanish at 48s. per 464 lbs. are reported. BEESWAX.—Only Chilian offering, of which 10 sacks have been sold at £7 15s. per cwt. CARNAUBA WAX.—Sales reported of medium at 120s., and yellow at 129s. to 132s. 6d. per cwt., in all about 39 bags. TURMERIC—Some more business in Madras "finger" has been transacted at 10s. 6d. per cwt., *ex* store. COCHINEAL.—Of the grey-black Teneriffe a little has changed hands at 1s. 3d. per lb. ALOES.—A sale of 40 boxes of Curaçoa on private terms, doubtless about 12s. 6d. per cwt. CHILLIES.—50 bags Sierra Leone sold at 24s. to 32s. 6d. per cwt., according to quality. GUM ACACIA.—Small sales of Niger arabic at 37s. 6d. per cwt. KOLA NUTS.—4 packages dried Lagos at 5d. per lb., *ex* store.

OILS.—CASTOR.—French first pressure is held for 2⅛d., Madras for 2d. to 2 1/32d., and Calcutta good seconds scarce at 2⅛d. per lb. LINSEED, 22s. 3d. to 23s. per cwt. in export casks for Liverpool makes. COTTON SEED.—Both Liverpool and American stand at 17s. 6d. to 18s. per cwt. OLIVE.—*Candia*, £32 to £33 per tun; *Levant*, £31 to £31 10s. per tun. Prices range from between £31 and £38 per tun generally. SPIRITS OF TURPENTINE—20s. 9d. per cwt. closest spot value. PETROLEUM.—5⅞d. to 6d. per gallon for Russian, and American at the recent drop of ¼d. per gallon now remains quiet at 6d. to 7½d.

CHEMICALS.—SAL AMMONIAC.—37s. to 39s. per cwt. SULPHATE OF AMMONIA.—£9 10s. for good grey, *f.o.b.*, Liverpool. BLEACHING POWDER.—£7, *f.o.b.*, spot in hardwood casks. SODA CRYSTALS.—7s. 6d. per ton, and now are £2 2s. 6d. SODA BICARBONATE.—£6 15s. per ton. CAUSTIC SODA.—£7 10s. for 70 per cent., and £6 10s. for 60 per cent. BORAX.—20s. per cwt. for lump and 21s. for powder. NITRATE OF SODA.—8s. to 8s. 3d. *ex* quay, and 8s. 1½d. to 8s. 4½d. per cwt. *ex* store. POTASH SALTS—Cream of Tartar: Finest has risen to 80s. POTASHES—Steady at 22s. 3d. per cwt. PEARLASHES—Only in retail demand at 40s. per cwt. PHOSPHORUS—Wedges, 2s. per lb.; stick, 2s. 1d.; amorphous, 2s. 8½d. COPPERAS (Green)—Firm at 38s. per ton. COPPER SULPHATE—£16 10s. per ton.

NEWCASTLE CHEMICAL REPORT.

Our correspondent writes on the 4th inst. notifying us of the completion of the negotiations between the producers, by the Leblanc and ammonia processes, of alkali and soda ash, whereby prices are advanced 10s. per ton. Soda Crystals are also 5s. per ton dearer, whilst Bleaching Powder and Caustic Soda remain unchanged. Quotations now are:—Soda Crystals, £2 per ton nett; 52 per cent. alkali, £5 5s. per ton nett; 52 per cent. Soda Ash, £4 10s. per ton nett. Bleaching Powder, £7 10s. per ton nett, hardwood casks, and £7 5s. per ton nett, softwood casks.

SCOTCH CHEMICAL REPORT.

Our correspondent writing on the 4th inst. states that the alkali manufacturers have now arrived at a definite decision about future prices for alkali and soda ash; 10s. per ton is the advance made, and Soda Crystals are to be 5s. per ton higher. Caustic Soda and Bleaching Powder remain unchanged. Sulphate of Ammonia has again advanced slightly, but it is still only dull. Quotations for prompt *f.o.b.* Leith now range from £9 5s. 0d. to £9 7s. 6d. Sulphate of Copper: very firm; £17 less 5 per cent. Liverpool. Borax: English refined, weak £20 per ton nett, Glasgow. Boracic Acid: £30 per ton nett, Glasgow. Bichromate of Potash and also Bichromate of Soda remain unchanged and as last quoted. Nitrate of Lead: £19 per ton nett, Glasgow. Chlorate of Potash: Easy, 5d. per lb., less 5 per cent., Liverpool. Sal Ammoniac: Second white, £37 per ton, less 2½ per cent., and first white, £39 per ton, less 2½ per cent., any port. Sugar of Lead: Brown and white, £16 and £23 per ton, less 2½ per cent., Glasgow.

Exchange.

[*Notices of books, apparatus, etc., for exchange, of reasonable length, are inserted free in this column, if they do not partake of the nature of ordinary advertisements. The notices should be written on post-cards, addressed "Editorial Department, 17, Bloomsbury Square, W.C."*]

WANTED.

Literature.

Ganot's 'Natural Philosophy,' Fowne's 'Organic Chemistry,' and Green's 'Botany,' vol. I. (Churchill), second hand, in good condition.—Send price to W. B., 2, Union Terrace, Cheetham Hill, Manchester.

British Pharmacopœia, last edition.—Please state lowest price, carriage paid, to F. R., 5, Barrack Street, Norwich.

Photographic Apparatus.

Lancaster's "Meretoire" Camera, ½-plate, with lens, dark slide, and tripod; or similar outfit by some other maker. Lowest cash price, to Smith, 5, Market Place, Coleford, Glos.

OFFERED.

Literature.

'Insects at Home,' Wood, 700 woodcuts, published 21*s.*; 'Treatment Venereal Diseases,' Bumpstead, M.D., 4th edition, good as new; what offers?—Picken, Newport, Salop.

Squire's 'Companion,' 1894, new, unused, 8*s.* 6*d.*; Ditto, 1886, with supplement 1890, 5*s.*; Muter's 'Analyt. Chemistry,' 4th ed., new, 4*s.*; 'Modern Microscopy' (Cross and Cole), recent ed., quite new, 2*s.*; Ince's Latin, uncut, 3*s*; 'Selecta Prescriptis,' 18th ed., 3*s.*; Cooley's Latin, 1*s.* 6*d.*; 'Art of Dispensing,' 5th ed., 2*s.* 9*d.*; De Watteville's 'Medical Electricity,' 89 plates, etc., 5*s.*; 4*s.* 6*d.* Botanical Lens for 3*s.* 3*d.* All excellent condition.—Hill, 3, Crosby Road North, Waterloo, Liverpool.

Miscellaneous.

Hall's Eight Guinea Type Writer, in perfect working condition. Cash £3 10*s.*, or would exchange for Check Till.—Bentley, Chemist, Goole.

One hundred and fifty double sheets of stiff white paper for mounting botanical specimens. Cost 24*s.* What offers?—Walker 4, Market Place, Cockermouth.

Shop Fittings.

Two dozen 3 lb., one dozen 1½ lb. Blue Covered Shop Pots, good condition; 2 Marble Mortars, 12 and 14 inches; 1 Iron Mortar, 13 inches; Scales to weigh 14 lbs. with weights; 2 by 6 and 1 by 8 gallon Pear Carboys; 3 Specie Jars; Scroll Labels.—Carter, 13, Cross Street, Woolwich.

Late Advertisements.

WANTED, a YOUNG MAN accustomed to Retail and Dispensing, in a business on the south coast. One just out of his apprenticeship preferred. State age, height, and salary. W., Messrs. Barron, Harveys & Co., Giltspur St., London, E.C.

FOR Sale.—FITTINGS of a Doctor's Surgery, in good condition, or suitable for a small Chemist's shop. Address, GENTIAN, "Pharm. Journal" Office, 5, Serle St., W.C.

EDUCATIONAL SUPPLEMENT

TO THE

PHARMACEUTICAL JOURNAL.

SEPTEMBER 14, 1895.

How to Become a Pharmacist in Great Britain.

The first step in this direction is to show proof of a satisfactory general education. To this end the student must either pass the "First" examination of the Pharmaceutical Society, or produce a certificate from some recognised examining body. The most desirable course to pursue is undoubtedly to pass the Matriculation examination of the University of London, as the student will find the extra knowledge thus gained of great advantage in his future career. If, however, he is satisfied to meet the minimum requirements only, he will enter, preferably before apprenticeship, for the

FIRST EXAMINATION.

(*For Registration as an Apprentice or Student.*)

FEE TWO GUINEAS.

This examination will be held, at the following centres, at Eleven o'clock, on the second Tuesdays in January, April, July, and October:—

Aberdeen	Dundee	Northampton
Aberystwith	Edinburgh	Norwich
Birmingham	Exeter	Nottingham
Brighton	Glasgow	Oxford
Bristol	Hull	Penzance
Cambridge	Inverness	Peterborough
Canterbury	Lancaster	Plymouth
Cardiff	Leeds	Sheffield
Carlisle	Lincoln	Shrewsbury
Carmarthen	Liverpool	Southampton
Carnarvon	London	Worcester
Cheltenham	Manchester	York
Darlington	Newcastle	

Also at the following centres in July only:—

Jersey; Guernsey; Isle of Man (Douglas); Orkney (Kirkwall).

Candidates must give notice to the Registrar in London, on a printed form of application, which can only be obtained from him, and pay the fee not less than fourteen days prior to that on which the examination is to be held. Each candidate must at the time of entry state at which of the centres he desires to present himself.

The examination is wholly in writing, and comprises the following

SUBJECTS.

Latin. Grammar; Translation of simple sentences from English into Latin; Translation into English from Cæsar, "*De Bello Gallico*," Book I., or Virgil, "*Æneid*," Book I.

In each examination paper passages from both of these authors will be given, but a candidate is required to translate from one author only.

Arithmetic. Numeration; the first four rules—Simple and Compound; Reduction; Vulgar and Decimal Fractions; Simple and Compound Proportion; a thorough knowledge of the British and Metrical Systems of Weights and Measures; Percentages and Stocks.

In each examination paper a question will be given involving a knowledge of the Metric System, which every candidate will be required to attempt.

English. Grammar and Composition.

In awarding marks, Spelling and the quality of the Handwriting are taken into account.

The period of pupilage being then entered upon, the student should, during the next few years, make himself familiar with everything pertaining to his craft. His chief training ground will be the pharmacy, but he should also attend classes whenever available, in chemistry, botany, and physics. He should also experiment as much as possible in chemistry and pharmacy, and spend time out of doors in the study of field botany. Apprenticeship over, the next step is to enter a school of pharmacy for the final course of scientific and technical training, after which the candidate presents himself for the

MINOR EXAMINATION.

For Registration under the Pharmacy Act, 1868, *as a Chemist and Druggist.*

FEE FIVE GUINEAS.

The Boards of Examiners in London and in Edinburgh meet in January, April, July, and October.

Each candidate must give notice and pay the fee to the Registrar in London, Mr. Richard Bremridge, 17, Bloomsbury Square, W.C., on or before the fifteenth day of the month immediately preceding that in which the Boards meet, and he will receive due notice of the date on which he will be required to present himself for examination.

When giving notice (for the first time), a candidate for the Minor examination must have attained the full age of twenty-one years, and must have been registered as having passed the First examination, or its equivalent. He will at the same time be required to produce a Registrar's certificate of birth, and a certified declaration that for three years he has been registered and employed as an apprentice or student, or has otherwise for three years been practically engaged in the translation and dispensing of prescriptions. The printed form on which this declaration is to be made can only be obtained from the Registrar in London.

The following are the subjects of examination:—

CHEMISTRY AND PHYSICS.

The candidate will be expected to possess an elementary knowledge of the following subjects:—

(α) The law of the conservation of energy; the law of gravitation; the balance; specific gravity; atmospheric pressure; the barometer, air-pump, and siphon; the law of Boyle; temperature; thermometer; the law of Charles; the law of gaseous diffusion; V. Meyer's method for determining vapour densities.

(β) The chief characteristics of chemical action, the distinction of elements and compounds; the laws of chemical combination by weight and volume; the hypothesis of Avogadro; atomic weight and molecular weight; chemical formulæ and nomenclature; valency; the distinction between metals and non-metals.

(γ) The general characters of the non-metals; the chief methods of preparation and the typical reactions of the following non-metallic elements and compounds:—hydrogen, oxygen, ozone, water, peroxide of hydrogen; chlorine, bromine and iodine, and their compounds with hydrogen and oxygen; fluorine, hydrofluoric acid; nitrogen, ammonia, the oxides of nitrogen, nitrous acid, nitric acid; sulphur, sulphuretted hydrogen, sulphurous and sulphuric anhydrides and acids, thiosulphuric acid; phosphorus, phosphine, the oxides and oxy-acids of phosphorus, the chlorides of phosphorus; silicon, silica, fluoride of silicon, silicofluoric acid; boron, boric acid. The usual impurities in those of the above-named substances that are included in the British Pharmacopœia.

(δ) The general characters and classification of the metals, and the general methods of forming oxides and salts; the sources, the usual methods of extracting, and the chief properties of, the undermentioned metals, and the principal modes of preparation, properties, adulterations and contaminations of such of their compounds as are described in the British Pharmacopœia,—potassium, sodium, ammonium, lithium, barium, calcium, magnesium, zinc, aluminium, iron, chromium, manganese, arsenium, antimony, tin, copper, bismuth, lead, silver, mercury, gold, and platinum.

(ε) Carbon, its oxides, cyanogen, hydrocyanic acid, cyanide of potassium, ferrocyanide and ferricyanide of potassium, oxalic acid. The chief methods of preparing marsh gas, ethylene, alcohol, aldehyde, acetic acid, acetate of ethyl, spirit of nitrous ether, nitrite of amyl, hydrate of chloral, chloroform, iodoform, ether; the principal properties, reactions, and mutual relations of these compounds. The candidate will also be expected to possess a general knowledge of the methods of estimating carbon, hydrogen, oxygen, and nitrogen in organic compounds, and of obtaining molecular formulæ.

Note.—Candidates will be expected to solve simple problems relating to the weight and volume, under different conditions of temperature and pressure, of elements and compounds concerned in chemical reactions.

CHEMISTRY.—PRACTICAL EXAMINATION.

To determine the specific gravity of liquids and solids, to be familiar with the general construction and use of the thermometer and barometer.

To recognise by chemical tests the more important non-metallic elements and compounds, as well as the metals and salts indicated in the foregoing list; to detect the chief impurities in those that are included in the British Pharmacopœia; to recognise by their physical properties those which possess well-defined characteristics.

To identify by chemical tests the organic compounds before enumerated, and in addition tartaric and citric acids, starch, cane sugar, grape sugar, salicin, quinine, morphine, and strychnine; and to detect the impurities in such as are included in the British Pharmacopœia.

To perform those volumetric determinations which are described in the British Pharmacopœia.

To be familiar with the construction and use of the balance, and to have a practical knowledge of the British and metric systems of weights and measures.

To quantitatively determine the total alkaloids in cinchona bark, and in the tincture and extract of nux vomica, and the morphine in opium.

The candidate will further be expected to have a practical acquaintance with the methods of preparing the more important inorganic substances including the non-metals and their compounds, and such metallic compounds as are included in the British Pharmacopœia, and also the following organic compounds:—ether, chloroform, spirit of nitrous ether, nitrite of amyl, acetate of ethyl, and hydrocyanic acid, so that he may be able to explain to the examiner the operations involved in their preparation, and, if called upon, to perform the operations or certain stages of them himself.

BOTANY.

The candidate will be required to recognise any of the plants specified in the list appended to this schedule; to refer any flowers that may be shown to him to their class and sub-class; to possess a general knowledge of the internal structure of stems, leaves, and roots, and their parts, and of the elementary tissues of which they are composed; to describe a cell, its structure and usual contents; to explain the thickening of cell-walls, and to describe the manner in which cells are combined to form tissues. To distinguish between roots and stems, and to name such important modifications of either as present distinguishing characteristics. To name correctly such leaf shapes as are shown, and to recognise appendages or any important modifications of the leaf. To have a practical knowledge of the various arrangements of leaves or flowers in the bud, and of the different kinds of phyllotaxis and of inflorescence; to understand the principles of branching, and the different kinds of branch systems. To possess a general knowledge of the processes of reproduction of plants, and to describe those of phanerogams and ferns. To name and describe the arrangements of the parts of the flower, the number, position, and shape of the floral envelopes and of the organs of reproduction; to name and describe the different kinds of fruits, and the various modes of dehiscence and kinds of placentation. To have a general knowledge of the physiology of plants, and to describe the functions of the roots, stems, and leaves. To be acquainted with the materials which form the food of plants, and to understand the part played by starch, sugar, and aleurone grains in the life of the plant. To recognise, by means of the microscope, sections of stems of dicotyledonous, monocotyledonous, and cryptogamic plants; spiral, reticulated, and scalariform vessels; as well as the simpler structures, such as stomata, pollen grains and hairs.

List of Plants for Recognition.

Aconitum napellus
Papaver rhœas
,, somniferum
Brassica alba.
Cochlearia armoracia
Althæa officinalis
Ruta graveolens
Cytisus scoparius
Rosa canina
Bryonia dioica
Æthusa cynapium
Conium maculatum
Fœniculum capillaceum
Œnanthe crocata
Valeriana officinalis
Achillea millefolium
Anthemis nobilis
Matricaria chamomilla
Taraxacum officinale
Menyanthes trifoliata
Borago officinalis
Atropa belladonna
Datura stramonium
Hyoscyamus niger
Solanum dulcamara
Digitalis purpurea
Lavandula vera
Mentha piperita
,, viridis
,, pulegium
Rosmarinus officinalis
Daphne laureola
,, mezereum
Juniperus sabina
Taxus baccata
Colchicum autumnale
Arum maculatum
Avena sativa
Hordeum vulgare
Triticum sativum
Aspidium filix-mas

MATERIA MEDICA.

The candidate is required to recognise specimens of any crude drug mentioned in the British Pharmacopœia or in the annexed list, and to describe their methods of production and their characteristics so far as may be necessary to detect adulteration or substitution. He must be familiar with their geographical sources, the botanical and zoological names of the plants and animals yielding them, the natural orders to which they belong, and the localities from which they are obtained. The candidate will be required to name their chief active constituents and also the official preparations into which they enter.

ROOTS.
Althæa officinalis
Inula helenium
Alkanna tinctoria
Bryonia alba et dioica

RHIZOMES, ETC.
Helleborus niger
Sanguinaria canadensis
Iris florentina
Allium sativum
Veratrum album
Acorus calamus
Agropyron repens

BARKS.
Berberis vulgaris
Cinnamodendron corticosum
Simaruba amara
Erythrophæum guineense
Quillaia saponaria
Prunus serotina
Ulmus campestris et fulva
Cinnamomum cassia
Coto

HERBS.
Grindelia squarrosa et robusta
Tussilago farfara
Spigelia marilandica
Marrubium vulgare
Solanum dulcamara
Euphorbia pilulifera
Convallaria majalis

FLOWERS.
Calendula officinalis
Pyrethrum cinerariæfolium, etc.
Arnica montana

FRUITS.
Punica granatum
Cuminum cyminum

FRUITS (*continued*).
Capsicum annuum
Laurus nobilis
Piper longum
Vanilla planifolia

SEEDS.
Paullinia sorbilis
Trigonella fœnum-græcum
Dipteryx odorata
Pyrus cydonia
Strychnos amara
Hyoscyamus niger
Amomum melegueta
Areca catechu

HAIRS.
Mucuna pruriens

JUICES, ETC.
Acacia catechu
Lactuca virosa
Aloe spicata, etc
Curare (Woorali)

GUM-RESINS.
Boswellia carterii, etc.
Euphorbia resinifera

OLEORESINS.
Pistacia terebinthus

RESINS.
Callitris quadrivalvis
Pinites succinifer
Calamus draco

CRYPTOGAMIC SUBSTANCES
Lycopodium clavatum, etc.
Fucus vesiculosus
Chondrus crispus

ANIMAL SUBSTANCES.
Spongia officinalis
Coccus lacca
Mylabris cichorii
Sepia officinalis
Castor fiber

PRESCRIPTIONS.

The candidate is required to read without abbreviation autograph prescriptions; translate them into English; understand the grammatical construction of the Latin; and render a literal as well as an appropriate translation of the directions for use. To detect errors, discover unusual doses, and have a general knowledge of Posology. To calculate percentages and other quantities occurring in prescriptions; also to render in good Latin ordinary prescriptions written in English.

PRACTICAL DISPENSING.

To weigh, measure, and compound medicines; write the directions in concise language in a neat and distinct hand; to finish and properly direct each package. [*In awarding marks in this subject the time taken by the candidate in doing the work is taken into account.*]

PHARMACY.

The candidate will be required to possess a general knowlege of the following branches:—

(*α*) Operations requiring the use of heat. Evaporation, with particular reference to the preparation of extracts and inspissated juices; special characters and modes of preparing the various classes of extracts iufluence of surface, temperature and pressure upon the rate of evaporation; water, steam and sand baths; distillation, ordinary, fractional and destructive, distinctive characters and objects of each; official preparations illustrating the various kinds of distillation, apparatus employed, the retort and receiver, still and worm, Liebig's condenser, principles on which they are constructed and used. Sublimation; its objects and applications in pharmacy; official products of sublimation, calcination and fusion. Desiccation; temperature best suited for drying particular drugs, loss in drying vegetable drugs, forms of drying ovens, principles on which they are constructed and used.

(*β*) Disintegration of solid substances; cutting, bruising, and pulverisation; apparatus employed, principles indicating which is to be adopted in particular instances; methods for controlling the degree of comminution, sieves, and sifting, trituration, levigation, elutriation, granulation, including methods for producing certain chemicals as fine powders, small crystals, scales, etc. Solution: its nature, solvent power of various menstrua, influences of (*a*) temperature; (*b*) state of division of the substance to be dissolved; (*c*) time; (*d*) position of the substance in the menstruum; lixiviation, infusion, digestion and decoction; maceration, percolation and displacement, principles on which the successful performance of these processes depends; form and materials for percolators and other vessels employed. Filtration, objects and methods, filtering media, means of expediting filtration; dialysis: its application in pharmacy, construction and use of the dialyser. Expression; methods of obtaining the juices from plants; recovery of the residual liquids from tincture marcs, etc., screw, hydraulic and other presses. The principles involved in the dispensing of medicines, particularly with reference to the best excipients and methods for forming pill masses, the preparation and nature of

emulsions, the most suitable emulsifying agents, and the best means of suspending insoluble substances in liquids.

(γ) The candidate will also be required to show a practical knowledge of the processes, and understand the principles of the processes by which the official preparations belonging to the following classes are made, viz., collodions, confections, decoctions, dilute acids, extracts (solid and liquid), glycerins, infusions, juices, liniments, lotions, mixtures, ointments, pill masses, plasters, powders (simple and compound), solutions, spirits, suppositories, syrups, tinctures, vinegars, waters, and wines. He must be able to conduct such of the operations, or parts of them, as may be required by the examiner. A knowledge of the proportion of active ingredient or crude material in official preparations containing aconite, antimony, arsenic, belladonna, Calabar bean, cantharides, hydrate of chloral, chloroform, caustic potash and soda, colchicum, digitalis, elaterinum, ergot, iodine, iodoform, ipecacuanha, lead, mercury, nux vomica, opium, phosphorus, scammony, stramonium squill, alkaloids, and alkaloidal salts.

POISON REGULATIONS.

Candidates will be required to enumerate the poisons contained in Schedule A of the Pharmacy Act, 1868, and those since added thereto, in pursuance of the provision contained in Section II. of that Act, viz.:—

(*a*) Poisons within Part I. of the Schedule.

(*b*) Poisons within Part II. of the Schedule.

They will be required to describe minutely the conditions required upon the sale by retail of poisons, both in Part I. and Part II. of Schedule A; and to write the proper entry required, according to Schedule F of the Act, for the sale of a poison coming within Part I. of Schedule A. They will also be required to state the conditions imposed on the sale of scheduled poisons by wholesale and for export; and upon the sale of a scheduled poison when forming an ingredient in a medicine dispensed.

A knowledge of the conditions imposed on the sale of arsenic by the Arsenic Act will also be required.

If successful in meeting the requirements of the examining board, the candidate has now done all that is necessary from a legal point of view, and is duly registered as a "chemist and druggist." As such he may at once commence business on his own account, but he would be wiser to undergo

BOARD OF EXAMINERS FOR ENGLAND AND WALES.

J. E. SAUL. J. W. KNAPMAN. (*Librarian*) P. F. FRANKLAND. R. BREMRIDGE. (*Registrar*) W. H. SYMONS. F. RANSOM. J. R. GREEN.

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a further course of special training and then enter for the

MAJOR EXAMINATION.

For Registration as a Pharmaceutical Chemist under the Pharmacy Act, 1852. *Pharmaceutical Chemists are exempt in England and Wales from service on all Juries and Inquests under Juries Act*, 1862.

Fee Three Guineas.

The examination in the respective subjects may be oral, practical, or in writing.

Chemistry and Physics.

In addition to the subjects indicated by the Schedule for the Minor examination the candidate will be expected to possess a knowledge of the most important facts connected with—

1. The physical constitution of the three states of matter; liquefaction of gases, critical point; the diffusion of gases and liquids, dialysis; methods for determining vapour densities; solution.

2. The dynamical theory of heat; heat and temperature; sources, development, and propagation of heat; radiation, diathermancy and athermancy, separation of heat from light; latent heat; boiling point, distillation; freezing mixtures; specific heat; calorimeters; relation of specific heat to atomic weight; thermometers, the air thermometer; methods of determining exceedingly high and low temperatures.

3. The undulatory theory of light; reflection; refraction; propagation of light; the photometer; mirrors and lenses, the microscope; decomposition of white light by a prism; the spectroscope, spectrum analysis; double refraction; polarisation, the polariscope; influence of light in promoting chemical change, the principles of the ordinary photographic processes.

4. The methods of producing magnetism; magnetic induction. Sources of electricity, frictional electricity; the electroscope; electric induction; electric machines; the Leyden jar; voltaic electricity; the principal forms of voltaic batteries; the galvanometer; chemical effects of current; electrolysis; measurement of current, Ohm's law; voltameter; secondary currents, secondary batteries; thermo-electricity, the thermopile; production of heat and light from electricity; electromotors; dynamo-machines.

5. The history of the atomic theory; the hypothesis of Avogadro; the methods by which the standard atomic weights have been determined; dissociation; specific volume; the periodic law.

6. Classification of carbon compounds; rational formulæ; isomerism. The characteristics and constitution of the chief typical organic compounds. The constitution, sources, methods of preparation, properties, reactions, and mutual relations of the following organic compounds: *Cyanogen derivatives.*—Urea, cyanuric acid, uric acid. *Hydrocarbons.*—The principal members of the paraffin, olefine, acetylene, and benzene series; their chief haloid and nitro-derivatives. Theory of isomerism in paraffin and benzene series. *Paraffin derivatives.*—Distinction of primary, secondary, and tertiary alcohols; the chief primary monohydric alcohols; glycol; glycerin (glycerol); mannite; acetaldehyde, chloral; chloral hydrate; acetone; ether; the principal acids of the acetic series; oleic acid; glycollic and lactic acids; oxalic, succinic, malic, tartaric, racemic and citric acids; ethylamine; acetamide; glycocine; cane sugar; grape sugar; milk sugar; maltose; starch and cellulose. *Benzene derivatives.*—Phenol sulphonic acid; phenol; resorcin (resorcinol); aniline; benzaldehyde; salicylaldehyde; benzoic acid; salicylic acid. The principal properties of the terpenes and camphors, essential oils, resins. The characteristics of naphthalene and its derivatives. The processes of alcoholic, acetic, lactic, and ammonic fermentation. The properties and decomposition products of the principal glucosides, alkaloids, and other substances of definite chemical composition in the British Pharmacopœia.

Chemistry.—Practical Examination.

The candidate will be expected to be able—

To analyse mixtures containing three metallic salts; to estimate the nitrogen in organic compounds by the soda-lime process; to determine melting and boiling points. To perform the operations (or certain stages of them) necessary for the preparation of cyanogen, artificial urea, ethyl, chloride, iodoform, ethylene, ethylene dibromide, acetaldehyde, formic acid, oxalic acid, nitrobenzene, aniline, benzoic acid, the nitrophenols. To recognise by their chemical reactions, and to determine, where necessary, by the Pharmacopœial gravimetric or volumetric methods, the strength and purity of the most important of the inorganic and organic compounds (including crude drugs and galenical preparations) described in the British Pharmacopœia. To detect and separate the most important alkaloids, alkaloidal salts and glucosides, and to separate in the pure state morphine from opium and strychnine from nux vomica.

Botany.

In addition to what is required for the Minor, the candidate is expected to possess an intimate acquaintance with the parts of the flower, fruit and seed; to describe the structure and development of the pollen and of the ovule, and to trace the steps by which the latter is transformed into the seed. To have an intimate knowledge of the structure of cells, whether isolated or in combination, to form tissues; of the contents of cells in their various stages of development; and a general knowledge of the origin of gums, acids, and mineral and other secretions of plants. To be familiar with the composition of the cell wall, its chemical nature, properties and reactions; with the changes it undergoes in the formation of wood, cork, and mucilage, and in the processes of thickening and cuticularisation. To possess a knowledge of the general principles of classification, the system of Linnæus, and of the natural system founded upon that of De Candolle. To be able to distinguish practically the natural orders included in the schedule appended below, and such of the leading genera of each of these orders as are therein specified; also to refer to their respective orders or genera such specimens included in the schedule as may be shown to him. To possess a general knowledge of the method of reproduction in cryptogams, and to describe that of mosses; to be familiar with the development of the spores in these plants, and to be able to compare the different organs with the corresponding organs in phanerogams; to possess a knowledge of the alternation of generations in the cryptogams, and the modifications under which this is represented in the phanerogams. To have a practical acquaintance with the use of the microscope, and by means of it to recognise the various tissues found in the plant, the reproductive organs of cryptogams and phanerogams, and the more important cell contents.

Schedule.

Ranunculaceæ
- Anemone
- Helleborus
- Aconitum

Papaveraceæ
- Papaver
- Chelidonium

Cruciferæ
- Brassica
- Cochlearia

Violaceæ
- Viola

Malvaceæ
- Malva

Rutaceæ
- Ruta

Leguminosæ
- Lathyrus
- Mimosa
- Cercis

Rosaceæ
- Prunus
- Spiræa
- Potentilla
- Rosa
- Pyrus

Cucurbitaceæ
- Ecbalium
- Bryonia

Umbelliferæ
- Eryngium
- Cicuta
- Carum
- Œnanthe
- Fœniculum
- Daucus
- Conium
- Coriandrum

Dipsaceæ

Compositæ
- Tussilago
- Inula
- Matricaria
- Anthemis
- Cichorium
- Lactuca

Gentianaceæ
- Erythræa
- Menyanthes

Convolvulaceæ

Solanaceæ
- Solanum
- Physalis
- Atropa
- Hyoscyamus
- Datura

Scrophulariaceæ
- Verbascum
- Scrophularia
- Digitalis

Labiatæ
- Mentha
- Origanum
- Thymus
- Lamium
- Marrubium

Polygonaceæ
- Polygonum
- Rumex

Euphorbiaceæ
- Euphorbia
- Buxus

Cupuliferæ
- Fagus
- Quercus
- Corylus

Salicaceæ
- Salix

Betulaceæ
- Alnus

Coniferæ
- Juniperus
- Pinus

Orchidaceæ

Amaryllidaceæ

Iridaceæ
- Iris
- Crocus

Liliaceæ
- Convallaria
- Ruscus
- Allium

Gramineæ

Materia Medica.

This comprises a practical knowledge of the methods of estimating the value of important drugs, of distinguishing commercial varieties of the same, and of separating such of their active principles as are official in the British Pharmacopœia.

The candidate is also expected to have a general acquaintance with the active constituents of all important drugs, and to possess a general knowledge of the chemical properties of the official alkaloids, glucosides, resins, and essential and fixed oils.

The microscope will be introduced for the examination of certain drugs.

Having passed the "Major" examination the full qualification of "Pharmacist" is attained, and the successful candidate is entitled to become a member of the Pharmaceutical Society. As a matter of self-protection and loyalty to his craft he should not hesitate to take advantage of this opportunity, for it is improbable that the pharmaceutical body in Great Britain will ever obtain any material advantages except through the medium of the Society, and at the same time such advantages are not likely to be readily obtained unless the Society is representative of the whole trade.

PHARMACEUTICAL PRIZES AND SCHOLARSHIPS.*

Council Examination Prizes.

Pharmaceutical chemists who were associates of the Society at the time of passing the Major examination are entitled to compete for the following prizes at the end of the session in which they passed the Major examination :—

First Prize.—Pereira Medal in silver, and a present of books value £5, or thereabouts, given by the late Thomas Hyde Hills in memory of Jacob Bell.

Second Prize. — The Pharmaceutical Society's Medal in silver, and a present of books value £3, or thereabouts, given by the late Thomas Hyde Hills in memory of Jacob Bell.

Third Prize. — The Pharmaceutical Society's Medal in bronze, and a present of books value £2, or thereabouts, given by the late Thomas Hyde Hills in memory of Jacob Bell.

Subjects of Examination.—Materia medica, botany, and chemistry.

The examination is a written one, and competitors may be examined in London or in Edinburgh, the competition taking place in July of every year.

The Jacob Bell Memorial Scholarships.

Two Bell Scholarships are offered annually, and come into operation at the commencement of the session in October, and the scholars shall for that session be pupils in the Pharmaceutical Society's School. The examination for these scholarships takes place on the second Tuesday in July, at the same centres as for the First examination, and is wholly in writing.

Each scholarship is of the annual value of thirty pounds, and is tenable for one year only. The payment will be made in two moieties, the first to be paid when the scholar enters upon his studies in the school, and the second at the expiration of five months. In addition to the endowment, the Council provides for the Bell scholars free Laboratory instruction and admission to the lectures, and books of the value of £5 —given by the late Thomas Hyde Hills— are divided equally between them. At the time of giving notice the competitor must be a subscribing "student" of the Society. On the day on which the examination is held the competitor must be not less than twenty or more than twenty-two years of age, and he must have been engaged not less than three years in the pharmacy of a registered pharmaceutical chemist, or chemist and druggist.

Subjects of Examination.—Latin: Virgil, the first three books of the Æneid, Latin prescriptions, translations of Latin into English and English into Latin, translations from any Latin pharmacopœia, and parsing. *French or German English*: Composition and parsing. *Arithmetic*: The first four simple and compound rules, fractions, and decimals; the British and metrical systems of weights and measures. *Elementary Chemistry, Pharmacy, and Botany.*

* Further particulars concerning these prizes and scholarships may be obtained by application to the Registrar, Mr. Richard Brembridge, 17, Bloomsbury Square, London, W.C.

Manchester Pharmaceutical Association Scholarship.

One scholarship is offered annually, and will be presented at the commencement of the session of the Pharmaceutical Society's School in October. The scholar shall for that session be a pupil in the Society's School, or in case he may elect, he shall be a pupil in any provincial school of pharmacy approved by the Council of the Society. The examination is held at the same time and centres as for the Jacob Bell Scholarships.

The Scholarship is of the value of about £26 (the income arising from a sum of £750), which is to be expended for instruction in the Society's School, or in the Provincial School selected by the Scholar and approved by the Council of the Society.

At the time of giving notice the competitor must be a subscribing "Student" of the Society. On the day on which the examination is held the competitor must be not less than 19 or more than 21 years of age, and he must have been engaged not less than three years in the pharmacy of a Registered Pharmaceutical Chemist, or Chemist and Druggist, in Lancashire, Cheshire, or the High Peak Parliamentary Division of Derbyshire.

Subjects of Examination.—Latin:—Virgil: *Æneid*, first three books, or Cæsar, *De Bello Gallico*, first three books of Commentaries; Latin prescriptions; translation of Latin into English and English into Latin; translations from any Latin pharmacopœia, and parsing. *French or German. English*:—Composition and Parsing. *Arithmetic*:—The first four simple and compound rules, fractions and decimals; the British and metrical systems of weights and measures. *Elementary Chemistry, Pharmacy, and Botany.*

Herbarium Prize.

A Silver Council Medal is annually offered for the best Herbarium, collected in any part of the United Kingdom, the Channel Islands, or the Isle of Man, between the first day of January in one year and the first day of July in the year following, and should there be more than one collection possessing such an amount of merit as to entitle the collector to reward, a second prize consisting of a Bronze Medal and also Certificates of Honour, will be given at the discretion of the Council. In the event of none of the collections possessing sufficient merit to justify the Council in awarding Medals or Certificates, none will be given.

Competitors must be subscribing "Students" of the Society, and under twenty-one years of age.

The collections must consist of Phanerogamous Plants and Ferns, arranged according to the Natural System adopted in some work on British Botany (such as that of Babington or Hooker), and be accompanied by lists, arranged according to the same method.

No collection may contain more than 150 specimens, which must be carefully selected and mounted so as to display the characteristic features of the more prominent and typical genera of the chief British Natural Orders. The name of each plant, its habitat, and the date of collection, must be stated on the paper on which it is mounted.

Each collection must be accompanied by a note, containing a declaration signed by the collector, and certified by his employer, or a Pharmaceutical Chemist to whom the collector is known, to the following effect:—The specimens which accompany this note were collected by myself, between the 1st day of January, 18—, and the 1st day o July, 18—, and were named and arranged without any other assistance than that derived from books.

The merits of the collections will b estimated not so much by the number o plants as by the correctness with which the are named, and by their being typica specimens. The manner in which they are preserved and mounted will also be taken, into account.

The collections must be forwarded to the Secretary of the Society, 17, Bloomsbury Square, so that they may be received by him not later than the first day of July, indorsed "Herbarium for competition for the Prize." After the Prize Distribution in October, they will be retained one month, under the care of the Curator of the Museums, and then returned to the collectors, if required.

Text-Books Recommended.

FOR "MINOR" STUDENTS.

Attfield's 'Chemistry' (Gurney and Jackson), 15*s.*

'British Pharmacopœia' (Spottiswoode and Co.), 6*s.*

Thorpe's 'Inorganic Chemistry' (Collins), 6*s.*

Everett's 'Physics' (Blackie), 3*s.* 6*d.*

Green's 'Manual of Botany' (Churchill), 7*s.* 6*d.*

Holme's 'Botanical Note Book' (Christy), 3*s.*

Ince's 'Latin Grammar of Pharmacy' (Baillière), 5*s.*

Maisch's 'Organic Materia Medica' (Kimpton), 10*s.* 6*d.*

Pereira's 'Selecta è Prescriptis' (Churchill), 5*s.*

Proctor's 'Practical Pharmacy' (Churchill 14*s.*

Remsen's 'Organic Chemistry' (Macmillan), 6*s.* 6*d.*

Scott's 'Structual Botany' (A. and C. Black), 3*s.* 6*d.*

FOR "MAJOR" STUDENTS.

Bernthsen's 'Organic Chemistry' (Blackie), 7*s.* 6*d.*

Flückiger and Hanbury's 'Pharmacographia' (Macmillan), 21*s.*

Fresenius' 'Qualitative Chemical Analysis (Churchill), 12*s.* 6*d.*

Ganot's 'Physics' (Longmans), 15*s.*

Vines' 'Text-Book of Botany' (Sonnenschein), 15*s.*

Woodward's 'Arithmetical Physics, I.a and II.a' (Simpkin, Marshall and Co.), 2*s.*

Glazebrook's 'Light and Heat' (Cambridge University Press), 5*s.*

Calendar of the Pharmaceutical Society.

This is published annually (2*s.*), and gives full particulars of the examinations, scholarships, examination papers, etc. It may be obtained from the Secretary, 17, Bloomsbury Square, London, W.C.

How to Become a Pharmacist in Ireland.

The first step in this direction is the passing of the Preliminary examination of either the British or Irish Pharmaceutical Society, or any Preliminary examination which fulfils the conditions laid down by the General Medical Council; the latter course being recommended to those who have an idea of eventually combining the medical profession with pharmacy, as many do.

The General Medical Council accept the Preliminary examinations conducted by the following:—The University of Dublin, the Royal University of Ireland, the Royal Colleges of Physicians and Surgeons (conjoint examination), the Intermediate Education Board, Ireland, junior, middle, or senior grade examinations (to include all the subjects required).

The intending pharmacist who holds any of these certificates can have his name placed upon the Preliminary Register of the Pharmaceutical Society of Ireland, on submitting this certificate to the Registrar and lodging the fee of two guineas; and, though not compulsory, this course is recommended, as the registered student—other things being equal—is more favourably regarded by employers; and the fee must be paid in any case before the student can be admitted to the final examination.

The Society's Preliminary examination is held on the first Mondays of January, April, July, and October, and is very similar to that required for the registration of medical students, although not quite so extensive. The following are the compulsory subjects:—

LATIN.—To translate into English, and parse sentences from a Latin author:—Cæsar's 'Commentaries,' First Book; or Virgil's 'Æneid,' First Book.

ENGLISH.—English grammar, including orthography and parsing. To write on a subject selected by the Examiner, and to write from dictation.

ARITHMETIC.—The first four rules, simple proportion, vulgar fractions, and decimals. To describe the British weights and measures, and the metric system.

ALGEBRA.—As far as simple equations, inclusive.

GEOMETRY.—Including the first book of Euclid.

In addition to which the candidates must pass in one of the following optional subjects:—

ELEMENTARY PHYSICS AND MECHANICS.—Sound, light, and heat, as given in Ganot's 'Elementary Course of Natural Philosophy'; mechanics of solids and fluids, comprising the elements of statics, dynamics, and hydrostatics.

THE RUDIMENTS OF BOTANY.—Oliver's 'Lessons in Elementary Botany.' Part I.

ELEMENTARY CHEMISTRY.—As included in Roscoe's 'Lessons in Elementary Chemistry,' chapters 1 to 13 inclusive.

FRENCH, GERMAN, or any other modern language.

Only one subject should be selected, and preferably either botany or chemistry, as these subjects are among those for the Final examination.

The fee for examination is £2 2*s.*, which should be lodged in the Bank of Ireland to the credit of the Pharmaceutical Society of Ireland, and the receipt sent with the candidate's application, which should reach the Registrar, at the Society's office, 67, Lower Mount Street, Dublin, not later than the Monday fortnight preceding the day of examination, and should state the optional subject selected, and be accompanied by certificate of birth. The latter is still required, although a candidate may now enter at any age. A candidate who has failed to pass is at liberty to present him or herself for re-examination any number of times until successful on payment of 10*s.* 6*d.* each time, but six months at least must elapse between each two occasions.

If the candidate goes up for the Preliminary examination fresh from school, it may be passed without the aid of a "Grinder," as there ought to be no difficulty in any good school in obtaining thorough tuition in the subjects required; but, in cases where the services of a "Grinder" are desirable, such may be generally obtained for a fee of £3 3*s.* "to pass," *i.e.*, if the candidate fails at the first or second attempt, the tuition is continued without further charge.

The fee and conditions as to tuition for the Preliminary of the Colleges of Physicians and Surgeons are similar.

The total cost of becoming a matriculated pharmaceutical student would therefore be about £5 5*s.* if the Society's Preliminary is selected, or £7 7*s.* if the Preliminary of the Physicians and Surgeons is passed,

THE FINAL, OR PHARMACEUTICAL LICENCE EXAMINATION,

will now be the goal to which the student should direct his attention, and, if not commenced already before the Preliminary examination, he should now enter on his science training, which may be either four years in an open pharmacy kept by a pharmaceutical chemist or an apothecary, if in Ireland, or a pharmaceutical chemist or a chemist and druggist if in Great Britain; or he may serve four years in a registered druggist's or chemist and druggist's shop in Ireland, and two years subsequently in an open pharmacy. He should endeavour to obtain a situation in one of the large centres, such as London, Dublin, Belfast, Cork, or Galway. First, because he will be likely to learn his business more thoroughly there than in one of the small country towns; and secondly, because he will there be able to take out the course of chemistry, extending over at least three months, with 100 hours, practical work at the bench, and the course of botany and materia medica, also extending over three months, at which he must show an attendance of at least forty hours. These courses can be taken out for an entire cost of £8 8*s.* In addition he will find it to his advantage to attend the private classes of some good teacher, which may be done for a fee of £5 5*s.* "to pass."

Having "come of age," *i.e.*, reached the age of twenty-one years, and if he has thoroughly learned "the art and mystery of an apothecary," the candidate may without fear prepare for the final ordeal by giving a clear fortnight's notice to the Registrar, lodging the fee of £5 5*s.*, and submitting proofs that he has fulfilled the different requirements of the Society, and in due course he will be summoned to attend the examinations which are held at Dublin on the second Wednesday and following days of January, April, July, and October, commencing at eleven o'clock, a.m.

The following are the subjects:—

BOTANY.—To recognise the principal indigenous plants used in medicine, to refer them to their natural orders, and to give the definitions and the distinctive characters of their several parts.

MATERIA MEDICA.—To recognise specimens of the drugs of the Pharmacopœia, to describe their characters and active principles, name the sources from which they are obtained, and the official preparations into which they enter; and to detect adulterations.

GENERAL AND PHARMACEUTICAL CHEMISTRY.—The elementary laws of chemistry and physics, including chemical equations. To recognise the chemical substances of the Pharmacopœia; to describe the processes by which they are obtained; qualitative analysis (including the tests of the Pharmacopœia) and volumetric analysis; and to submit to a practical examination in those subjects.

PRACTICAL PHARMACY.—To translate Latin prescriptions; to detect dangerous doses; to compound and dispense correctly.

To explain the processes of making the non-chemical preparations of the Pharmacopœia, and to recognise them; and to have an intimate knowledge of the Sale of Poisons (Ireland) Act, 33 and 34 Vict. chap. 26, 1870.

If successful, the new "L.P.S.I." will have the right to open a pharmacy on his own account; or to manage one for another. He will also be eligible for numerous public appointments; or, if his desire inclines towards "pastures new," the Colonies and most of the American States are open to him.

If unsuccessful, he can try again as often as he likes, provided he pays a guinea and a half every time, and that at least six months elapse between each two examinations.

The entire approximate cost of obtaining the Pharmaceutical Licence, including the Preliminary Certificate, may be set down as amounting to about £24.

It may be observed that by a long-standing regulation the Society's examinations are open to women, and although the Irish "lady pharmacist" is not yet a reality, it may be inferred that she will soon emerge from her chrysalis form, as one occasionally sees the name of some "sweet girl graduate" figuring in the pass list of the Preliminary, and several women have already passed the druggists' examinations.

A good idea of the scope of the examinations may be obtained from the copies of the questions, which are published annually in the Society's Calendar (1*s.* 6*d.*). This is obtainable from the Registrar, 67, Lower Mount Street, Dublin.

How to Get a Science Degree.

The degree of Bachelor of Science of the University of London is granted to all who pass certain examinations, and demands no attendance at lectures for a certain time as do all other universities. This fact, coupled with the place of distinction it holds amongst university degrees, induces many pharmacists to enter for the degree.

To obtain the degree, it is necessary to pass three examinations: (i.) The Matriculation, commonly called the "Matric." (Fee £2). (ii.) The Intermediate Examination (Fee £5), called the "Inter-Sci."; (iii.) The Examination for the Degree proper, called the "Final" (Fee £5). The Matriculation examination is one which is best passed either at or directly after leaving school, and if taken at this time offers no difficulty to one who has had a good general education, such as is given in most "Grammar" schools. Many pharmacists, however, enter for the Matriculation after they have finished their Pharmaceutical curriculum and passed the Major. The subjects taken in the Matriculation are Latin, one foreign language, generally French or German, English, mathematics, mechanics, and one of certain branches of elementary science named, of which the pharmacist will of course choose chemistry.

The preparation for this examination really consists in revising old school work, and if the candidate finds much difficulty in Latin and mechanics (the most likely subjects), he will not find it difficult to attend matriculation classes, since such are to be found in most towns. The standard of the examination is not high, but a good general knowledge is required, and the candidate is required to pass in all branches of the examination. For full particulars of all the examinations, the reader is referred to the Calendar of the University, or separate syllabuses which may be obtained from the Registrar, Burlington Gardens, W.

The "Matric." passed, the next examination is the Intermediate, which may be taken a year after matriculating, or if honours be obtained at the January Matriculation the candidate may enter for the Intermediate in the following July. In this examination there is no choice of subjects allowed, and all candidates must pass in chemistry, experimental physics, mathematics, and general biology.

The examination is partly by written papers and partly practical (except in mathematics), and is held once a year in July. In chemistry, the pharmacist, who has passed the Major will experience no difficulty, the examination being confined to inorganic chemistry and simple qualitative analysis.

In physics a somewhat higher standard is exacted than in the Major, and sound is taken in addition to light, heat, electricity, magnetism, and general physics. It is important in this subject to attend a good course of practical physics at a physical laboratory, and to be thoroughly conversant with the use of most physical instruments. The subjects are treated more fully than in the Major, and treated more mathematically, though a separate paper is set on mixed mathematics. It is quite possible for the candidate to read up sufficient physics for the examination from text-books, if good laboratory tuition is obtained. The best text-books are Glazebrooke and Shaw's 'Practical Physics' (Longmans) for practical work, and Ganot or Deschanel are more than sufficient for this examination. For the general physics Lodge's 'Mechanics and Hydrostatics' (Chambers) may be recommended.

In mathematics the examination is somewhat searching, and, in addition to arithmetic and algebra, a knowledge of trigonometry, plane and solid geometry, and conic sections as far as the right line and circle is required. Most pharmacists will find it necessary to attend classes in these subjects, since a thorough knowledge of them is necessary to ensure success. In addition to pure mathematics, a paper is set on mixed mathematics, which really consists of dynamics, statics, and kinetics, and in this subject, in addition to book-work knowledge, it is absolutely necessary to acquire proficiency in solving problems.

General biology is divided into two parts —botany and zoology—and the examination is by a written paper and practical work, and in no other part of the examination is there so much importance attached to the practical work.

The pharmacist who has passed the Major and has attended a good practical class in botany will have little difficulty with the botanical portion. It consists of the life history and development of certain types of plants, including Bacterium, Spirogyra, Penicillum, Fucus, Fern, Pinus, and the flowering plant.

Zoology is essentially a practical subject, and it is necessary to be able to dissect and describe properly leading vertebrate and invertebrate types, as Amœba, Hydra, freshwater mussel, earthworm, crayfish, rabbit, and frog.

This is a most interesting subject, and if time and care be given, it should offer no difficulty, particularly if the candidate join a good class in practical zoology.

The best text-book is Well's 'Text-Book of Biology," whilst for practical work 'The Frog' and 'Practical Zoology,' by Marshall and Hurst (Smith and Elder), are very suitable.

These constitute the pass subjects, but honours may be taken in all except biology, for which honours in zoology and botany may be taken.

One year after this examination is passed the candidate may proceed to the Final examination for the degree which is held in the October of each year.

In this examination the candidate must select three out of nine subjects, which are pure mathematics, mixed mathematics, experimental physics, chemistry, botany, zoology, animal physiology, geology, and mental and moral science.

Most pharmacists, now choose the three subjects to which the have previously paid special attention, viz., chemistry, botany, and experimental physics, though some prefer pure mathematics or geology to botany.

In chemistry a thorough acquaintance with inorganic and organic chemistry is required, as well as a practical knowledge of qualitative and quantitative analysis, but the standard exacted is not much above that of the Major, so the pharmaceutical candidate will experience little difficulty with this subject.

In botany a much higher standard is exacted, and a thorough knowledge is required of the different branches of this science, as well as a thorough practical knowledge.

The syllabus includes histology, morphology, and physiology, and the examination in this subject lasts twelve hours, six hours of written, and six hours of practical work. The candidate should pay special attention to his practical work, and the following text-books may be read with advantage: Goebel's 'Outlines of Classification' (Clarendon Press); Vine's 'Physiology of Plants' (Cambridge University Press); Vine's 'Text-Book of Botany' (Swan Sonnenschein); Bower's 'Practical Botany' (Macmillan); Van Tieghem's 'Traité de Botanique' (Paris, Librairie F. Savy); De Bary 'Morphology of the Fungi'; De Bary 'Comparative Anatomy of Phanerogams and Ferns' (Clarendon Press).

In physics the standard is also much higher than the Major, and a thorough practical knowledge is required. If possible the candidate should attend a good course of lectures on physics, and a course of practical physics in a good physical laboratory is absolutely essential. In addition to the text-books mentioned for the Intermediate examination the student should refer to such books as Professor Thomson's 'Properties of Matter,' Larden's 'Electricity,' Maxwell's 'Heat,' and should remember that the subject is treated mathematically as far as the mathematics of the "Inter. Sci." allow. For information on the other subjects the reader is referred to the University Calendar.

The full degree of Doctor of Science is granted only on the result of research work in one particular branch.

How to Become a Fellow of the Chemical Society.

In order to become a Fellow of the Chemical Society, the candidate must be proposed by five Fellows, and after certain formalities have been gone through, the candidate is balloted for at one of the meetings. This is in no sense a qualification or distinction, though the action of a few Fellows in black-balling certain candidates, particularly pharmacists, has had the tendency of making it regarded as a qualification. On no account, however, should it be regarded in this light, but rather as membership of a society endeavouring to advance the science of chemistry. The entrance fee is £4, the annual subscription £2, and the latter may be compounded for at any time for £30. Address communications to the Secretary, Burlington House, Piccadilly, W.

How to Take the Fellowship of the Institute of Chemistry.

The regulations for admission to the Fellowship of the Institute having been recently revised, and no examination having as yet taken place under the new regulations, it is not possible to give much information beyond that contained in the syllabus issued by the Institute and obtainable from the Secretary, 30, Bloomsbury Square, W.C.

Unless the candidate has been registered as a student before October 1, 1893, he must conform to the new regulations. In order

to obtain this qualification it is necessary that the candidate should pass through a specified course of chemical training and pass certain examinations.

The first step is to be registered as a student, for which it is necessary to have passed one of the examinations required to be passed by medical students prior to registration, such as the Matriculation examination of the London University, and to be pupils of a member of the Institute, or at one of the universities or schools approved by the Council.

He must produce evidence of having attended lectures and had practical tuition in the laboratory in chemistry and physics, and attended lectures on one of the following subjects: Mathematics, mechanics, metallurgy, geology, or physiology.

He must next pass an Intermediate examination, the subjects of which are theoretical chemistry and qualitative and quantitative analysis.

For the Final examination in practical chemistry the candidate is required to show a thorough acquaintance with at least one branch of analytical chemistry.

Associates are admitted to the Fellowship three years after registration as an associate, provided they are over twenty-four years of age and have been engaged for those three years in the study and practical application of chemistry.

Under certain conditions candidates may be elected Fellows without conforming to the above regulations, but for these conditions reference must be made to the syllabus.

The Annual Subscription is £1 1s.

How to Become a Fellow of the Royal Microscopical Society.

To become a Fellow of the Royal Microscopical Society a form of proposal must be obtained from the Society, 20, Hanover Square, W., and signed by three Ordinary Fellows, the first of whom must have personal knowledge of the candidate. This Certificate of Recommendation is read at two general meetings, and the candidate balloted for at the second. The admission fee is £2 2*s*., and the annual subscription £2 2*s*., payable on election. Future subscriptions may be compounded for at any time for £31 10*s*. Fellows elected after the February meeting are called upon for a proportionate part only of the first year's subscriptions.

How to Become a Fellow of the Linnean Society.

The candidate must be recommended by three or more Fellows of the Society, who are presumed to be personally acquainted with any special qualifications he may possess. A printed form of recommendation can be obtained from the Librarian of the Society at Burlington House, Piccadilly, W. This form when filled in is returned to the Librarian. It is then read at the next general meeting of the Society, and suspended in the library for a few weeks, the ballot being taken at a subsequent meeting. The annual subscription is £3, and the entrance fee £6. The annual subscription can be compounded for at any time for £45.

Reminiscences of the School of Pharmacy.

BY A FORMER "SQUARE MAN."

Students of all ages, and of all classes, from the 'varsity Don to the ex-school-board boy, delight in recalling, when they haply meet old fellow-students, the incidents and characters of their common academic career. Facts which at the time of happening seemed insignificant, frequently in retrospect stand out with marked distinctness; other events, which at one time appeared of overwhelming importance are placed in the mind's perspective in a minor and, perhaps, truer position. Even personal calamities and disasters, softened by the lapse of time, may be recalled without discomfort, even with pleasure. To the student humiliated by failure or dissatisfied with his progress, this statement may seem incredible—he will probably, however, learn in after years that a "pluck" at his "first shot" has been of more value to him than a "pass." Then will he appreciate the beauty of the line in his Virgil, now incomprehensible to his feelings—

"forsan et hæc olim meminisse juvabit,"

and in a chat with an old chum of his session admit the benefit that he derived from his rejection.

We who are past students of the School, although we can show a veneration for an Alma Mater hallowed by the affection of countless generations of students, claiming to descend from early Saxon times, like our university *confrères*, have yet a right to be proud of the traditions of the School, and also of the men she has produced. Not one or two, but many of the leading men of chemical and allied sciences have taken their first steps up the ladder of fame at "the Square." It is rumoured that some of these, when they hear the familiar address, display a dim consciousness of having heard of such a place, possibly in a previous state of existence; or else understand the phrase to indicate the "location" of the Institute of Chemistry; but these are few; to their honour, the majority of those who have risen from the ranks in our School acknowledge both in public and in private the origin of their advance, and even retain their position in the Society long after they have ceased to be active pharmacists.

Those whose privilege it is to come in contact with the men of the early sessions, who heard Jonathan Pereira and Anthony Todd Thompson lecture, or saw Theophilus Redwood in the late forties or early fifties, will be surprised at the vivid recollection of these lectures, so long gone by. Who, too, who has ever "sat under" dear old Robert Bentley at those splendid "demonstrations," as he liked to call them, in the early summer mornings at the Botanical Gardens can fail to recall every detail of the surroundings, or to retain a trace of the love of his beautiful science which he never failed to impart to his "boys." Of Pereira I have a treasured souvenir. It is a copy of Redwood's edition of 'Gray's Supplement.' On the title-page, in an angular but legible hand, is inscribed: "This prize was awarded to Mr. —— as a reward for the attainments evinced by him at the examination in the class of materia medica at the termination of the session, 184-.—Jonathan Pereira, M.D., Professor of Materia Medica." This book my father treasured in memory of his great master, and used as work of reference for thirty-six years. Then it passed into my hands, and now in 1895 scarcely a week passes but I find it useful as a reference in my business. This is not a bad record of usefulness for a "prize" book, I think.

I also possess another concrete memento of the school; it is a special constable's staff carried by my father when he, and other members of the school, headed by Redwood, were enrolled as special constables againts the Chartists. Napoleon Buonaparte, afterwards Napoleon III., was similarly enrolled in the same division.

In the old days the students devoted far more time than they now do to the preparation of "specimens." Many monuments of their patient and watchful care and manipulative dexterity are yet to be found in the Museum in the form of fine specimens and rare salts. Another feature of past decades, happily revived in recent sessions, was the Saturday botanical excursions. In those days Hampstead Heath, Willesden, Acton, Penge, Highgate, and other districts now covered with bricks and mortar, or protected by the County Council, were happy hunting grounds, and yielded good finds. On Hampstead Heath, especially, many good plants were plentiful; there was then on the West Heath a deep bog filled with *Menyanthes*, *Drosera*, *Anagallis tenella*, and other treasures; to secure a prize in this quagmire, which to all appearance was as firm as a bowling green, a rash student once made a rush to anticipate his comrades, and was speedily engulfed to the waist. After his extraction he retired to "Jack Straw's Castle" and had bucketfuls of water emptied over him by the ostler. In another season it was noticed that *Drosera* was being exterminated, and the evident tracks of the spoiler were to be seen. At last a ragged vagrant with a basket on his back filled with the plants was run to earth, and would probably have been roughly handled by the outraged botanists, when he explained with fear and trembling that he was "getting 'em for Mr. Squire, of Oxford Street." Thus was the moral responsibility satisfactorily shifted.

How distinctly does the picture of the lecture-room in the dull October mornings of 1880 come before me, then and ever since suggesting the arrangement of the sanctum of a mediæval alchemist. This illusion was strengthened too by the appearance of "Alfred," the professor's lecture assistant, who habitually wore a round black skull-cap, and manipulated large retorts and enormous Cornish crucibles with remarkable skill. Excellent were these experiments, I do not recall one single failure of any description in his hands; more than can be said for some highly-trained lecturers. It cannot be truthfully stated that, apart from these experiments, the professor's lectures were inspiriting. At that time having gone over the identical ground for forty years, his delivery and action were more appropriate to the Bench of the High Court of Chancery than to lecturing a crowd of irreverent students. He was, to our delight, a very different man when "riled," as we called it, and I fear some of his class would attempt sometimes to draw him, but he was at his best always when defending himself from criticism at some of the evening

TRADE SUPPLEMENT

TO THE

PHARMACEUTICAL JOURNAL.

MARKET REPORT.

[Specially compiled for the Pharmaceutical Journal.]

CHEMICALS AND DRUGS.

[The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.]

THE CHEMICAL MARKET.

LONDON, SEPTEMBER 12, 1895.

Changes in the chemical market have mainly been confined to those articles in which activity was noticeable last week. Briefly the more important features are as follows:—Citric acid is unchanged in first hands, but second-hand holders are a shade firmer. Tartaric acid is a very brisk market, and the prices are firmer, both of English and foreign brands. Borax is unchanged in regard to the Convention rate, and outside makers would appear to have settled down to the price noted last week. Copper sulphate is very firm, but arsenic is again rather slow of sale. The feature of the market, however, has been the continued advance in cream of tartar, which is several shillings dearer. Potash and soda compounds are practically unchanged.

ACETANILIDE.—From American reports there seems to be keen competition going on between the New York and Western manufacturers, consequently prices have declined to a parity of 1s. 1½d. for bulk parcels, with 1s. 3d. asked for smaller wholesale quantities; otherwise there is no interesting feature to chronicle.

ACID, CARBOLIC—Steady. The following are the current quotations:—*Crystals*, 34° to 35° C., 5¼d.; 39° to 40° C., 5¾d.; 39° to 40° C. (*detached crystals*), 6¾d. per lb. *Crude*, 60 per cent. is quoted at 1s. 6d. per gallon, whilst 75 per cent. is unchanged at 1s. 10d. *Liquefied* quotes at 1s 1d. for 95 per cent., whilst *cresylic* is worth 11d. per gallon.

ACID, CHRYSOPHANIC.—The late values of this article are well maintained, and sales have been made on a basis of 15s. per lb. for *English* makes.

ACID, CITRIC.—The market is a trifle firmer, and second-hand holders now ask 1s. 1½d. per lb., showing a fractional advance. Makers' prices remain unchanged at 1s. 1¾d. per lb.

ACID, SALICYLIC.—The New York market seems to be in a very uncertain condition, and prices are somewhat irregular. For 100-lb. lots 1s. 8d. per lb. is the lowest price, with smaller quantities at 1s. 9d. Further complications are expected shortly.

ACID, TARTARIC.—This is decidedly firmer, both for *English* and *foreign* brands of acid. *English* manufacturers quote 1s. per lb. at present, whilst *foreign* acid, both in *crystal* and *powder*, is also worth 1s. per lb. Higher values may be expected.

ALUM.—The spot prices remain unchanged at £5 12s. 6d. to £5 15s. for *lump*, with *powder* quoted at £6 5s. In Liverpool ordinary *lump* quotes at £4 12s. 6d. to £4 15s. in tierces, and £4 15s. in barrels, with *powder* at £5 7s. 6d. to £5 10s. per ton.

AMMONIA SALTS.—*Carbonate*: Unchanged at 3½d. to 3¾d. per lb. *Liquor*: 3¼d. to 3½d. per lb., less 5 per cent. *Sal ammoniac*: *Firsts*, 39s., and *seconds*, 37s. per ton. *Sulphate*: Fairly steady, but generally has been dull of sale. It quotes to-day at £9 3s. 9d. for grey 24 per cent.

ASHES—Steady; best Montreal *potashes* quote at 35s. to 36s., whilst *pearlashes* offer at 22s. 6d. to 23s.

ARSENIC—Remains dull of sale, best white *powder* can be bought at 15s. 3d. to 15s. 9d. per cwt., whilst *lump* offers at 29s.

BLEACHING POWDER.—Rather dull of sale, with little change in prices. The present quotations are:—*London*, £7 15s. to £8; *Liverpool*, soft on spot, £6 15s. hard *f.o.b.* £7.

BORAX—Firm, most outside makers now holding at 19s. 6d. for *crystals*, and 20s. 6d. for *powder*, whilst the Convention rates are unchanged at 20s. and 21s. respectively.

COPPER SULPHATE—Very firm. Ordinary makes now quote at £15 15s., this being about the bottom price, whilst the *Anchor* brand is steady at £17 per ton.

CREAM OF TARTAR.—This continues to be a very strong market, with advancing prices daily. At the close the prices show an advance of 7s. 6d. to 9s. per cwt., best white *French crystals* being held for 90s. on the spot, whilst for *German* brands of powder 92s. 6d. is asked.

MERCURIALS—Unchanged. The current quotations for quantities up to 28 lbs. are as follows:—*Calomel*, 2s. 11d.; *corrosive sublimate*, 2s. 7d.; *red precipitate*, 3s. 2d.; *white ditto*, 3s. 2d.

PHOSPHORUS—Steady at 2s. for *wedges*, and 2s. 1d. for *sticks*.

POTASH SALTS—*Bichromate*: Dull of sale at 4⅝d. to 4¾d. per lb. *Chlorate*: Unchanged at 4⅝d. on the spot, whilst the Liverpool price is 4½d. per lb. *Permanganate*: Very firm, and 56s. 6d. to 58s. is asked for small, and 60s. to 61s. for large *crystals* *Prussiate*: Dull of sale at 8d. on the spot, whilst it still quotes at 8d. to 8¼d. per lb. in Liverpool.

QUICKSILVER — Unchanged. Importers' prices are maintained at £7 5s. per bottle, whilst in second hand it still offers at £7 3s. 6d.

SALTPETRE.—Dull of sale at, if anything, easier rates. British *refined* quotes at 22s. 6d. to 23s. on the spot, whilst the Liverpool price is 22s. to 23s., according to package.

SODA COMPOUNDS — *Bicarbonate*: Unchanged at £7 5s. per ton on the spot; £6 15s. in Liverpool. *Caustic*: 70 per cent. is quoted at £7 15s., with 60 per cent. £1 less. *Crystals*: 43s. *ex* ship. *Hyposulphite*: Steady at £7 5s. to £7 10s. per ton in Liverpool. *Nitrate*: *Refined* offers at £8 6s. 3d.

SULPHUR—Steady. In Liverpool *flour* is held for £7 10s. per ton. *Roll* is quoted at £5 5s., with *recovered* at £3 17s. 6d. in kegs, and £4 5s. in barrels.

TAR DISTILLATION PRODUCTS.—*Benzole*: 50 per cent. is worth 11½d., whilst 90 per cent. is quoted at 1s. *Toluol*: 1s. per gallon. *Crude Naphtha*: 30 per cent. at 120° C., 5¼d. per gallon. *Solvent Naphtha*: 95 per cent. at 160° C. quotes at 1s. 3d., 90 per cent. at 160° C., 1s. 1½d., and 90 per cent. at 190° C., 1s. per gallon. *Pitch*: 39s. per ton, *f.o.b.* *Tar*: 2⅛d. to 2⅜d. per gallon. *Creosote*: 1¼d. per gallon.

WOOD NAPHTHA.—*Miscible* quotes at 2s. 9d. per gallon.

THE DRUG MARKET.

LONDON, SEPTEMBER 12, 1895.

A very quiet week must be reported this week. In alkaloids, caffeine is tending lower, whilst the opium alkaloids are firm at the quoted rates. Quinine is temporarily neglected. Of essential oils, star aniseed and cassia monopolise the chief attention. Camphor has again proved a strong market, and the refined article has been advanced in price. Full details will be found below of the various articles of interest:—

CAFFEINE.—In a month this will probably be easily available on the spot. At present the price is 22s. to 23s. per lb. For delivery, October to November, 20s. to 21s. per lb. is the price. The New York market is reported firmer, with holders asking a parity of 30s. to 32s. There have recently been some fair arrivals from London.

CAMPHOR (CRUDE).—Earlier in the week the prices accepted were easier as compared with those ruling at the close of our last report, and 195s. *c.i.f.* per cwt. was accepted for 100 cases each of *China* and *Japan*, June to August shipment, but following this a sharp advance occurred, and 210s. *c.i.f.* was asked for both varieties, same shipment. The amount of business done has, however, been but small compared with last week.

CAMPHOR (REFINED).—On Monday *English* and *foreign* refiners advanced their prices 4d. per lb., and the current quotations are now as follows for 10-cwt. lots:—*Bells*, 2s. 3½d.; *blocks*, 1½. or ¼ lb. in 7, 4, or 28 lb. wooden boxes, 2s. 3½d., 7 lb. tins being quoted at ½d. per lb. more; *blocks*, 1 or 2 oz. in 6 or 7 lb. wooden boxes, 2s. 5d., if in tin boxes, ¼d. per lb. extra; *blocks*, 1 or 2 oz. in 1-lb. tins, 2s. 5¾d.; *blocks*, ½, ⅓, or ¼ oz. in 7, 14, or 28 lb. wooden boxes 2s. 5½d. *Flowers*, 5 or 10 lb. boxes, 2s. 3½d.; 10-lb. tins, ½d. per lb. extra; 1-lb. boxes, 2s. 4½d. The *German* camphor, which was bought in at the last sale at 1s. 8½d. per lb., has since then been sold at 1s. 11½d.

COCAINE.—The position of this article is unchanged. Quotations range from 14s. 3d. to 14s. 9d. per oz. for 100-oz. lots, but there are few inquiries.

COCHINEAL.—Privately there are moderate sales in this at unchanged rates, ordinary black *Teneriffe* fetching 1s. 2¼d. to 1s. 2½d., and *silver*, 1s. 3d. to 1s. 4d. per lb.

CODEINE.—This alkaloid has not been affected by the recent advance in morphine, and remains at 10s. 3d. to 10s. 6d. per oz., according to quality and brand.

COLOCYNTH—Very firm. There is still but little *Turkey* offering, and 2s. 3d. continues to be paid for good bold apple. In *Spanish* there is not much demand at pre-

sent. A parcel of this variety to arrive next week offers at 1s. to 1s. 1d. per lb. The New York market in *Trieste* colocynth is very firm, and advanced prices are asked, up to a parity of 2s. 6d. per lb. *Spanish* is reported held for 1s. 0½d. to 1s. 1d., with little inquiry.

COPAIBA.—Privately *Maranham* is tending decidedly easier, and 1s. 7d. per lb. is accepted for good quality balsam. For the other varieties, *Para* quotes at 1s. 5d. to 1s. 6d. per lb., and *Maracaibo* at 1s. 3d. to 1s. 5d. per lb. Of the latter variety a lot imported *vid* Hamburg offers at 1s. 5d. per lb.

INSECT FLOWERS.—An unchanged market is reported from *Trieste*, with sales of new flowers at the following rates:—Open, 56s.; half-closed, 79s. 6d.; closed, 115s. per cwt. *c.i.f.*

IPECACUANHA.—There is but little doing in this article at the present time. Privately *Rio* (Brazilian) root quotes at steady rates, but there are few inquiries. For *Carthagena* (Columbian) root 4s. 6d. to 4s. 9d. is the price for fair damaged to sound root, with only a few bales to be had.

JALAP.—At present there is not much demand for this privately, moderate quantities selling at 10½d. per lb. for good sound *Vera Cruz*. It is not thought likely that the present low rates will be maintained much longer.

JUNIPER BERRIES.—It is said that the new crop in Italy is of better quality than the Hungarian, hence it is by no means unlikely that the present quotation for *Italian* berries will be advanced from 6s. 9d. per cwt. *c.i.f.*

MENTHOL.—The spot quotations for this article vary considerably. Probably 12s. 3d. per lb. would buy, but some quote 13s. per lb. For delivery the current quotations is 12s. 6d. to 12s. 9d. per lb. *c.i.f.* The present low prices are not likely to be maintained, and a sharp advance in value may be expected shortly. It is said that stocks in Japan are practically *nil*; the bulk being on the spot, and the new crop is expected to be backward.

MORPHINE—Very firm. Nothing can be bought under 4s. per oz. in 1000-oz. lots, and this price is not readily procurable. *Crystals* quote 2d. per oz. more.

OIL (COD-LIVER).—*Norwegian*: It is said that the stocks in *Bergen* are now very low, and really fine oil is difficult to obtain. On the spot fine non-congealing oil is firm at 170s. per barrel. Privately *Newfoundland* oil sells at 4s. 9d. per gallon. The *O. P. and D. Reporter*, in the course of some comments upon the present position of this article says:—At the moment practically everybody interested in the article is convinced of its strong position, and, judging from the prices that have recently been paid in Norway for shipment, the market will advance as soon as the autumn demand sets in, unless cheaper qualities operate to hold it down. Consumers are, however, pretty well aware of the character of the inferior oils. If they want well-known brands they will be obliged to pay the prices asked. The advance has been a natural one, based on the short yield, and the tendency of prices is still upward. Manufacturers have already purchased quite liberally of new oil, and the stock on the spot is not large. There is a little of 1894 crop left. The highest prices will probably be those paid on the eve of the catch of 1896, next January, and dealers would not be surprised to see them advance to an extreme point. What effect the Newfoundland oil will have on prices cannot be foretold with any degree of accuracy at this writing, as there have been no returns of the catch. We have heard relatively high prices named for future delivery. It is to be hoped that the refiners of this variety will strive to place a superior article on the market and win a place for it alongside of the more favoured variety, if it is possible to do so.

OILS (ESSENTIAL).—*Star Anise* has again been a very firm market and holders ask 7s. 6d. to 7s. 9d. per lb. on the spot. For delivery 7s. 5d. per lb. *c.i.f.* is the last price we heard. *Cassia*: Firm. The spot price for 75 to 80 per cent oil is 7s. 3d. to 7s. 6d. per lb, and for delivery 7s. per lb. *c.i.f.* terms. A recent report from China stated that the market there for forward delivery in *Star aniseed* oil was very strong with few offers, owing to the producers keeping back their stocks. It was also stated that the first arrivals of new season's *Cassia* oil were exceptionally bad in quality, the percentage only ranging from 35 to 40 of cinnamic aldehyde, and there was only a small quantity of this, with no better grade on offer. *Lemon Grass* oil is dull of sale at 1⅝. *Citronella* is quiet, 1s. 2d. per lb. *c.i.f.* being asked for oil in tins or bottles for delivery, and 1s. 3d. per lb. on the spot. *Messina* essences are very firm. For *Lemon* 3s. 4d. to 3s. 6d. per lb. *f.o.b.* is asked for an oil of guaranteed purity, whilst 8s. per lb. *f.o.b.* is the price for *Bergamot*. *Peppermint H. G. Hotchkiss'* oil is dull of sale at 10s. to 10s. 1½d. per lb. For *Japanese* oil testing 40 per cent. menthol there is a better inquiry, and 7s. 3d. per lb. is the spot price, with *dementholised* on offer at 5s. 6d. New York reports say that *peppermint* oil is rather easier, owing to some uncertainty about the prices of the new oil. *Western* oil quotes at a parity of 4s. 7d. to 4s. 11d., and *Wayne County* at 8s. *Spearmint* oil is said to be getting scarce.

OILS (FIXED) AND SPIRITS.—*Castor*: Finest *Italian* oil still quotes at 30s. 6d. to 31s. per cwt., *c.i.f.* terms. Reports from *Calcutta* anticipate a gradual rise in price, owing to the supply of seed being smaller than usual. *Cotton*: At the close the market is very firm, although prices are unchanged from our last. *Refined* oil quotes at £17 5s. to £17 15s., according to brand and package. *Cocoanut*: *Ceylon* is unchanged, the present price being £23 whilst *Cochin* is rather firmer at £24. *Linseed*: Very firm, and prices have advanced about 7s. 6d., with every appearance of going higher. At the close £20 15s. to £20 17s. 6d. is the price for oil in barrels. *Olive*: *Syrian* £33, *Spanish* £37. *Rape*: Unchanged, but quiet at £22 on the spot. *Turpentine*: Steady, *American* spirit being quoted at 20s. 3d. on the spot. *Petroleum*: Dull of sale. *American* oil quotes at 5¾d. on the spot, with *Water white* at 6½d. to 6¾d., and *Russian* 5½d. to 5⅝d. *Petroleum Spirit*: *Ordinary* 9d. to 9¼d., *deodorised* 9½d. to 9¾d.

OPIUM.—The London market is firm, the following being the current quotations:—*Turkey*: New soft shipping, 11s. to 11s. 6d. per lb; fine "druggists" 8s. 3d. to 8s. 6d.; second "druggists," 7s. 3d. to 7s. 9d. *Persian*: Very firm, fine quality quoting 12s. 6d. to 13s., and seconds, 11s. 6d. to 12s. 6d.

ORRIS ROOT.—Reports state that no new purchases of new root have yet been made, hence no definite price has been fixed as yet, but it is expected to be about 70s. per cwt. *c.i.f.* for best selected root.

PERU BALSAM—Very slow of sale, and genuine balsam of direct import can be had at 8s. to 8s. 3d. per lb.

QUININE SULPHATE. — Nominally the market is steady, but the market is very quiet, and only small sales have resulted. *B. & S.* and *Brunswick* remains quoted at 1s. 1⅛d. per oz.

SAFFRON—Dearer. Super extra *Valencia* quotes at 22s. per lb., the price having been advanced from 21s. 3d. owing to the scarcity of good quality.

SALICIN.—The current quotation of the makers is still 8s. per lb., for 1 cwt. lots, with 28 lbs. at 8s. 6d.

SCAMMONY—*Root* is very firm, and there is every probability of higher prices. At present 45s. per cwt. is the price, and very little could be had under this figure. *Scammony resin*: Fine quality of *British* manufacture quotes at 9s. per lb., whilst ordinary *foreign* brands offer at 8s. to 8s. 6d. per lb.

SENEGA ROOT.—Slow of sale, 1s. 4d. to 1s. 5d. per lb. is the price for good quality root.

SHELLAC—The amount of business done privately has been only small, but prices are fairly steady. Sales have been made of fair *TN orange*, at 118s. to 119s., whilst for arrival firmer rates are paid, including *TN orange* November to January shipment at 112s. to 112s. 6d. *c.i.f.* At the sales on Tuesday only a moderate supply was offered, and the prices paid for *TN orange* were somewhat irregular, but average an advance of 1s. upon last sale rates. *Button* and *Garnet* were steady The prices were as follows:—*Second orange* fair bright, 118s.; ditto red flat, 117s. to 118s.; dark bright, 116s; ordinary, 110s. to 111s.; block, 108s. down to 40s. *Button*: Pale cakey *BL1*, 122s; hard block, 112s. to 113s. *Garnet*: *GDS* block 93s to 94s.

SOY—Somewhat slow of sale. Fair *China* is worth 1s. to 1s. 0½d. per gallon.

SPICES (VARIOUS).—*Cloves*: At the sales on Wednesday all the *Zanzibar* was bought in; good bright at 2¾d., and fair at 2⅝d. Of *Penang*, good quality sold at 7d., and fine bold at 9½d. to 10d. *Chillies* remain dull of sale. *Pimento* sold at easier rates, good medium fetching 2¾d., ordinary 2½d, and low dark 2¼d. *Ginger*: Steady. Fair medium washed sold at 34s., small to bold brown at 35s., and pickings at 21s. 6d. *Pepper*: Steady privately, and *Singapore* is in good demand at 2½d. for fair quality. At the sales damaged *Singapore* sold at 2⅜d. for first quality. *White pepper*: At the sales *Penang* sold at 2⅝d., and good bright *Singapore* at 5½d.

TOLU BALSAM—Dull of sale. There have been small sales privately at 1s. 5d. to 1s 7d. per lb., the latter figure being the price for good "old fashioned" balsam.

TURMERIC.—Rather dull of sale at a slight decline. At the Tuesday's sales all the *Madras* was bought in at 9s. to 10s. 6d. for ordinary to good finger, and *Cochin*, good bulbs, at 9s. to 10s., and split ditto at 8s.

A parcel of dark wormy *Chinese* root sold without reserve at 6s. 9d. to 7s. 6d.

Wax.—*Japan*: Slow of sale. The price asked is 26s. 6d. per cwt. for good white *squares*. *Carnauba*: Steady sales of yellow at 129s. to 132s 6d.; medium, 120s., and grey at 115s. to 115s. 6d. are reported.

NEWCASTLE CHEMICAL REPORT.

Our correspondent writes on the 11th inst. as follows:—The market remains very steady, an increased demand for chemicals generally is to be noted, and at the advanced prices mentioned last week. Demand for home consumption is good. Bleaching powder especially is in good request, and stocks have fallen very low. Soda crystals, salt-cake, recovered sulphur, and South Durham salt continue to be inquired for largely. Current quotations are as follows:—Bleaching Powder, £7 5s. per ton net, softwood casks, and £7 10s. per ton net, hardwood casks. Soda Crystals, £2 to £2 2s. 6d. per ton net. Recovered Sulphur, £3 17s. 6d. per ton net. Hyposulphite of Soda continues brisk at £6 per ton for 5/7 cwt. casks and £6 15s. per ton net for 1 cwt. kegs. Caustic Soda, £9 5s. to £9 10s. per ton net. Fair inquiry for Precipitated Carbonate of Barytes a £9 per ton net, *f.o.r.*, and also for Precipitated Sulphate of Barium (blanc fixe) at £7 per ton net. Oxalic Acid, without change, 3¾d. per lb. net. Sulphocyanides dull. South Durham Salt, 9s. to 9s. 6d. per ton *f.o.b.* Tees. Alum in better request, £4 17s. 6d. to £5 per ton net. Chlorate of Potash, 5d. per lb., less 5 per cent. Chlorate of Soda, 6¼d. per lb.; Salt-cake, 20s. to 22s 6d. per ton net. Other products without change.

LIVERPOOL MARKET REPORT.

[*From our own Correspondent.*]

September 11, 1895.

DRUGS.—Canary Seed.—The spot business in this is quiet; 250 bags Turkish have been sold at 35s. per 464 lbs. There is more inquiry for parcels to arrive, but no transactions to report. Linseed—Is still very flat and nothing doing. Kola Nuts.—Of these only 9 bags (dried) are reported sold *ex* store at 5d. per lb. Gum Acacia.—There is only a small amount of business doing, but at very steady rates. Sales of Niger arabic on private terms have taken place.

OILS.—Castor.—The tone of the market is very steady, with a tendency to higher prices for forward delivery. Madras, at 2⅞d. has been in good demand, and is now scarce; French, first pressure, 2⅞d.; Calcutta, good seconds, 2⅝d. per lb., spot prices. Olive In good demand at recent rates, which are firmly maintained owing to extremely light quantity offering on the spot. Linseed Oil—Slightly easier. For Liverpool makes in export casks 21s. 9d. to 22s. 6d. per cwt. Cotton Seed.—Very little doing, and prices still at 17s. 6d. to 18s. per cwt. for both English and American refined in export barrels. Spirits of Turpentine.—A firmer tone remarked in this article, and a good demand at 20s. 9d. per cwt. Petroleum—Quiet at recent quotations, American 6d. to 7½d., Russian, 5⅞d. to 6d. per gallon, according to quality.

CHEMICALS. — Sal Ammoniac. — 39s. per cwt. 1st, and 37s per cwt. 2nd quality. Sulphate of Ammonia.—Price for good grey *f.o.b.* Liverpool is still £9 10s. Bleaching Powder—Quiet at net cash price of £7 per ton *f.o.b.* Liverpool in hardwood casks. Soda Crystals—Have in sympathy with the general rise in sodium salts risen to £2 10s. per ton. Bicarbonate of Soda—£7 per ton. Caustic Soda—70 per cent., £7 15s. to £8; 60 per cent., £6 15s. to £7 per ton net cash. Borax—Lump 20s., powder 21s. per cwt. Nitrate of Soda—In fair request at 7s. 9d. to 8s. 3d. per cwt., spot. Chlorate of Potash—Quiet. Spot value and forward both between 4½d. and 4¾d. per lb. Prussiate of Potash—English at 8d. to 8¼d. per lb. Cream of Tartar—Very little of the best white offering at the nominal quotation of 85s. to 87s 6d. per cwt. Potashes—Slow of sale at 22s. 3d. per cwt. Pearl Ash—40s. per cwt. Copperas (Green)—Steady at slightly easier price of 37s. per ton Lancashire. Sulphate of Copper—Price ranges between £16 10s. and £17 per ton.

Marriages.

Squire—Reaney.—On the 5th inst. at St. James's, Muswell Hill, London, by the Rev. J. S. Whichelow, George Squire, pharmaceutical chemist, Sheffield, to Edith, elder daughter of John E. Reaney, Claremont, Muswell Hill.

Wood—O'Neill.—On September 4 at St. Nicholas' Church, Cork, by the Rev. F. W. Ainley, M.A., Uriah Wood, chemist, Arnold. Nottingham, to Georgina Maria, elder daughter of J. Walter O'Neill, 1, Frankfield Terrace, Cork.

Dawson—Nesbitt.—At 19, High Street, Coldstream, on 4th inst., by the Rev. Archibald Nisbett, A. F. Dawson, chemist, Edinburgh, to Anne Eleanor, eldest daughter of Mr. J. W. Nesbitt, printer, Coldstream.

Blakelock—Alexander.—At the Imperial Hotel, on the 4th inst., by the Rev. Dr. Webster, John William Blakelock, to Janet Wagner Howden (Jessie), daughter of Duncan Alexander, general foreman, Edinburgh Gas Works.

Kelly—Johnston.—On the 10th inst., at 24, Rubislaw Terrace, Aberdeen, by the Rev. Gordon J. Murray, B.D., Greyfriars Church, and the Rev. James Taylor, M.A., Cookney, James Kelly, to Helen, fourth daughter of John Johnston, Chemist.

Edinburgh Pharmacy Athletic Club.

The fourth annual picnic and golf competition of the above club, will take place at Gullane, on Monday 16th inst. (Autumn Holiday). Several valuable prizes will be played for. The company will travel by four-in-hand coach, leaving St. Andrew's Square at 9 a.m.

Trade Notes and News.

Mr. James Townsend, of Exeter, has submitted samples of his almanacks for 1896. There are 20 and 36 page almanacks, a prettily designed "Bouquet" almanack and an extremely convenient "Purse" almanack. The package also contains card calendars, parti-coloured handbills, and the chemists' label catalogue. With respect to the whole, chemists are advised to see them for themselves, as they are very good.

Mr. Ernest Hinton, Optician and Preparer of Microscopic Objects, 12, Vorley Road, Upper Holloway, London, N., sends specimens of his mounted objects. The first is a leaf of a carnivorous plant, showing an insect captured and held down by the glandular hairs. This slide is really magnificent. Then there is a preparation of a hydroid zoophyte, killed with the tentacles fully extended, and mounted so as to preserve its natural form. This has been very skilfully done. The third slide is the proboscis of a blow-fly mounted without pressure, showing the different parts, in their natural colours, shape, and position. It is very different from the ordinary slides of the blow-fly proboscis, and, like the other specimens, is worthy of special commendation.

The Terrol Company, of 34, Devonshire Road, Forest Hill, London, S.E., have been awarded a gold medal for their product "Terrol" at the World's Exhibition, Amsterdam.

New Books and New Editions.

[*Publishers are invited to forward full particulars of new publications, including price.*]

Illustrated Ambulance Lectures. By J. M. H. Martin. To which is added a Nursing Lecture, in accordance with the Regulations of the St. John's Ambulance Association for Male and Female Classes. Fourth edition, post 8vo, pp. 158. Price 2*s.* (J. and A. Churchill, London.)

Chemistry, Inorganic and Organic. By C. L. Bloxam. With Experiments. Eighth edition, re-written and revised by John Millar Thomson and Arthur G. Bloxam. 8vo, pp. 846. Price 18*s.* 6*d.* (J. and A. Churchill, London.)

Public School Chemistry. By J. H. Anderson. Third edition, revised, corrected, and enlarged. Post 8vo, pp 326. Price 2*s.* 6*d.* (Cassell and Co., London.)

Anatomy: a Manual for Students and Practitioners. By F. J. Brockway and A. O'Malley. Second edition, with full-page plates, edited by Bern. B. Gallaudet. Post 8vo, pp. 370. Price 6*s.* net (Students' Essentials). (Henry Kimpton, London.)

An Introduction to Chemical Crystallography. By A. Fock. Translated and edited by William J. Pope, with a Preface by N. Story-Maskelyne. Post 8vo, pp. 198. Price 5*s.* (Henry Frowde, London.)

The Cell Outlines of General Anatomy and Physiology. By O. Hertwig. Translated by M. Campbell, and edited by Henry Johnstone Campbell. With 166 illustrations. 8vo, pp. 382. Price 12*s.* (Swan, Sonnenschein and Co., London.)

Exterior and Interior Photography. By F. W. Mills. Illustrated. 8vo 68. Price 3*s.* (Dawbarn and W.)

EXCHANGE.

[*Notices of books, apparatus, etc., for exchange, of reasonable length, are inserted free in this column, if they do not partake of the nature of ordinary advertisements. The notices should be written on post-cards, addressed "Editorial Department, 17, Bloomsbury Square, W.C."*

WANTED.

Any chemist possessing old bronze mortars, with date, crests, or curious inscription, or any antique jars or apparatus of pharmaceutical interest, and wishing to sell or exchange same will oblige by communicating with—D. Davison, Pharmaceutical Chemist, Cromer, Norfolk.

Good Microscope for hospital practice. State description, maker, and lowest price.—Chemist, 2, Chichester Street, Upper Westbourne Terrace, W.

Several specimens of *Cicuta virosa* in flower and plant. Other rare plants offered in exchange.—Curator, 17, Bloomsbury Square, London, W.C.

Attfield's 'Chemistry.' State condition, etc. to—W. Woolcock, 78, Alexandra Terrace, Newport, I.W.

A 10-gallon Drum with Tap and Bung, suitable for paraffin or benzoline.—W. F. Williams, Chemist, Longfleet, Poole.

OFFERED.

Literature.

Gibbon's 'History of Rome,' in good condition, well bound; Goldsmith's 'Animated Nature,' 4 vols., in good binding, embossed and gilt; 'Taylor on Poisons'; 'Taylor on Medical Jurisprudence'; Turner's 'Clinical Medicine,' 1884, 5, and 6; 'Year-Book of Treatment.' Will exchange for 'Art of Dispensing'; Proctor's 'Pharmaceutical Testing'; 'B. and C. D. Book of Formulæ.'—H. E. Goddard, Northgate Pharmacy, Great Yarmouth.

Dr. Daguenel's 'Manual of Ophthalmoscopy,' published at 5*s.*, for 2*s.* 6d. Woodhead's 'Bacteria and their Products,' published at 3*s.* 6*d.*, for 2*s.* Power's 'Human Physiology,' published at 7*s.* 6*d.*, for 4*s.* Herschell's 'Indigestion' for 2*s.* All good as new.—William Willis, Chemist, Alresford, Hants.

Good copies Piesse's 'Art of Perferment'; Barton and Castle's 'Medical Botany'; 'Liebig's Works,' 2 vols., 5*s.*, published, 19*s.*, and a few books on Microscopes.—Davies, "Chestnuts," Gordon Hill, Enfield.

Offers wanted for Wills' 'Materia Medica,' 9th edition; Attfield's 'Chemistry,' 13th edition; Everett's 'Physics'; and the latest edition of the British Pharmacopœia.—Simnett, 206, High Street, Lewisham, S.E.

Photographic Apparatus.

Lancaster's "Instantograph" Stereoscopic Camera, with shutter and two double slides, no tripod; in good condition. Will accept £2 10*s.*, cost £4 9*s.*—W. Coates, 3, Moira Street, Belgrave, Leicester.

Quarter-plate Spanish Mahogany Hand Camera, takes twelve plates, bag changing, Taylor, Taylor, and Hobson's R.R lens, Thornton Pickard shutter Price £3 10*s.*; a bargain.—Lewis Ough, 6, Upper King Street, Leicester.

Miscellaneous.

Microscope by Stanley, cost 5 guineas, as good as new; what offers? Books for the Minor, recent editions, in good condition, cheap, lists free. Half-plate Lancaster instantograph, lens, tripod, four dark slides, bag, complete, in first-class condition; what offers?—C. N. P, 73, North Road, Durham.

Clever Water-coloured Drawing of Herbert Spencer; will exchange for photos of Dr. E. Ray Lankester and Prof. Patrick Geddes.—C. Fielding, Heath Pharmacy, Glover Hill, Halifax.

Two dozen 3 and 1 dozen 1½ blue covered pots, good condition; 2 marble mortars, 12 and 14 inches; 1 iron mortar, 12 inches; scales to weigh 14 lb., with weights; 2 four gallon and 1 eight gallon pear carboys; 3 specie jars, scroll labels.—Carter, Chemist, Woolwich.

THE
PHARMACEUTICAL JOURNAL.

FIFTY-FIFTH YEAR OF PUBLICATION.

A WEEKLY RECORD OF PHARMACY AND ALLIED SCIENCES.

Published Weekly, Price Fourpence.

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The PHARMACEUTICAL JOURNAL, which was established by Jacob Bell in 1841, has been recognised throughout English-speaking countries for more than half a century as the leading Journal devoted to Pharmacy and its allied sciences, and is indispensable to those who desire to keep abreast of the progress made throughout the world in those subjects.

It is the only periodical which publishes in full the transactions of the Pharmaceutical Society of Great Britain and of the Pharmaceutical Conference, and in addition to recording the proceedings of various other Pharmaceutical and Scientific Societies, it chronicles all important advances in Pharmacy, Chemistry, Botany, Materia Medica, &c., &c.

Reviews of new scientific and technical works form an important feature in the Journal, and its pages are open for the discussion of matters of importance to Chemists and Druggists generally, as well as for the purpose of supplying special information desired by subscribers.

On account of its extensive circulation amongst British and Foreign Pharmacists, the PHARMACEUTICAL JOURNAL is specially adapted for all Advertisements to the Trade at Home and Abroad.

Advertisements and Subscriptions for the Journal should be addressed to

THE PUBLISHERS, 5, Serle Street, Lincoln's Inn, LONDON, W.C.

Cheques and Money Orders should be made payable to "Street Bros.," and crossed "London Joint-Stock Bank."

meetings. During the somewhat tedious lectures on organic chemistry—unrelieved by experiments, a very diminutive and youthful student used to give vent to his pent-up energy by bombarding those in front of him with paper. This continued from some time unnoticed by the professor; but at last he stopped, pellets of paper." After this the very young gentleman subsided. On another occasion a man who had been indulging too freely appeared at lecture in all the glory of Fred's gold-laced hat and livery great-coat. When sober he apologised to the professor, and accounted for the coat by the ambiguous statement that he "got wet."—"Yes," said most useful in practising them in the art of concise and lucid reply. The last time I saw him, a few months before he died, he and I met in Hart Street going Squarewards, he leant upon my arm in walking for some ten minutes, the whole time spent in kindly inquiries after past students of whom he had not lately heard.

SCHOOL OF PHARMACY—CLASS OF 1894-95.

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and with the air of a judge—you would almost fancy he had put on the black cap—he proceeded: "It behoves me to take cognisance of the fact, that a young gentleman I may say a very young gentleman (such a scathing emphasis on this "very"), habitually amuses himself and distracts the attention of his more industrious fellows by sometimes continuously, and sometimes intermittently, projecting into their vicinity minute

the professor, "I observed that the morning was abnormally fine."

If we respected Redwood, we loved Bentley. The same will be said of him by every student who attended his lectures. Each felt that the professor was a friend, for he showed a personal interest in each individual. As a teacher too his style was admirable, and his constant revision of the work and cross-examination of students

One of the happiest inspirations that ever occurred to me was to endeavour to "get up a Pharmaceutical Football Club." I had been one Saturday, early in October, with a medical student friend and his team to play a match, and their *camaraderie* and good-fellowship so impressed me that I determined to try my luck at the Square on the Monday. I did, and with indifferent success among the few students I consulted, until

Charles Thompson, on learning my project, used all his influence and enthusiasm with the men, and also secured the help of the Society's officials, and our club was accomplished. From that time my dear old "Tommy," as we all called him, was my "chum," and was for several years our captain. His early death at the commencement of a promising scientific career was a grief to all who knew him. We could not at first claim to any great successes, nor were we a brilliant body of players. At first, many of our men had never played before; "passing" to most of us was an unknown art; but we got on good terms with each other and had many glorious games. I remember, in the first match that we played, one of our men made a grand run in the direction of his own goal. Then we instituted the "Football" dinner, which has been held annually since, without a break, and forms one of the pleasantest and least formal of our festive gatherings in the pharmaceutical year. The club now plays the Association game; we unwisely started under Rugby Union Rules. We were always at the greatest difficulty to get a full team, and even then were frequently obliged to play men who were more ornamental than useful. A forward who could play on Queen's Park ground without soiling his knickers, was not of much service to his side, yet we had several members who could perform this feat.

Another institution which plays no unimportant part in the student's curriculum is the Students' Association. At its meetings he not only acquires useful knowledge, but also by practice a readiness expressing his thoughts in words on the spur of the moment and an opportunity of criticism and replying thereto. This Association also serves to bring the men of two or three sessions into contact, and has been the source of many agreeable friendships and acquaintances between them. It must not be supposed that the eloquence displayed, apparently impromptu, at the Students' Association is always spontaneous. Before now an ardent orator has been heard to recite to himself his extempore speech some hours before its supposed genesis.

Many incidents of interest occur each session in connection with the laboratory. The glories to be seen from the forbidden region of roof, the exquisite flavour acquired there by pipe or cigarette, the excitement of whistling for hansom cabs from that point of vantage, are handed down from session to session with unfailing regularity; also the illicit joy of descents by the lift. Tradition has it that a student was being let down gently in this way by some others, who proved treacherous, and, after lowering him half-way, put the break on, leaving him suspended like Mahomet's coffin. He then tried to climb the rope, but finding his strength failing, managed to reach a half-opened window in the lift well, through which he with difficulty squeezed himself, to emerge into a bedroom in a house in Great Russell Street. Seeing a workman going downstairs, our friend, with commendable presence of mind, followed him, and with him got into Great Russell Street without question.

Happily accidents have not been common at the Square. During the earlier period of the history of gun-cotton, the experiments carried out in the basement with a miniature cannon might well have been attended with serious consequence, as well as those connected with the first application of anæsthetics. A few sessions ago, however, a student was severely burned by smashing a winchester of nitric acid over himself. He was promptly laid in the sink and the remnants of his nether garments washed off under the taps. Another novice got mixed between phosphorus and sodium and was proceeding to cut a piece of the latter under water; by good fortune his eyes were not permanently injured, although a terrific explosion resulted.

At a recent chemical lecture a somewhat alarming scene occurred; a student inadvertently turned on the key of an oxygen cylinder, producing a terrific hissing accompanied by two loud reports as the thick rubber tubing swelled into aneurisms and burst. This created a great commotion resulting in a general *sauve qui peut* up the stairs. When the excitement had somewhat abated, it was followed by amusement at the sight of men crawling out from under the seats and the tables, whither in their fright they had taken refuge.

In my student days I threw out a humble suggestion that a "common room" for past and present students of the School, where they could meet, talk, smoke, and "coach" each other, would tend still further to unite the men of the various sessions. The idea, however, was not then regarded with favour by the powers. Now after fifteen years I still think, if it could be done, such a room would have a useful influence. It would, at any rate, spare the nervous man the ordeal of being coached *coram publico* in the Library, where he and his mentor recall, by their attitudes and actions, if one may indulge in a Virgilian metaphor, an old cock pigeon feeding a "squeaker" with the partially predigested scientific pabulum.

How widely "Square" men are scattered? My own limited knowledge extends to some in various parts of India, at the Cape, in Fiji, Hong-Kong, in Australia, in New Zealand, and naturally in the States. To those who are so far away, these lines may not be without interest, and to the new students of the coming session they may indicate that if it is not all "beer and skittles" at Bloomsbury Square they may justly anticipate a large amount of pleasure, and even good, honest sport and hearty fellowship during the course of study they are about to commence.

Pharmaceutical Football Club.

Friends of the above Club will be glad to hear that there is every prospect of an exceptionally good season; the Club is most prosperous in all ways, and very fortunate in having the support of many old players.

There is a first-rate match programme which contains the names of many good clubs, and if anything like the old enthusiasm is kept up there will be plenty of excitement in the matches. To a great extent the welfare of the Club rests with the new students, and it is hoped that all will support it. It is well known that for years the pick of the pharmaceutical students have been football and cricket players, and this season should prove no exception.

Those wishing to become members should send their names at an early date to the Hon. Sec., Mr. H. T. Durant, 17, Bloomsbury Square, W.C.

Educational Facilities for Pharmaceutical Students.

School of Pharmacy,

17, Bloomsbury Square, London, W.C.

The School of Pharmacy of the Pharmaceutical Society of Great Britain was founded in 1842, as a means of providing a sound education in the scientific principles on which the practice of pharmacy is based, and has been consistently developed during the past half century by the Council of the Society, so that it has at all times afforded a complete scientific curriculum, for the time being, for pharmaceutical students. There are now separate departments, each complete in itself, of chemistry, practical chemistry, botany, materia medica, and pharmacy, and apprentices may enter for any single subject during their period of pupilage. In chemistry, including physics in relation to chemistry, there are two distinct courses of lectures (the second for advanced students) delivered during the session. In the chemical laboratories, which are open daily, there are also both junior and senior courses of instruction. The lectures on botany deal with the morphology and anatomy of plants, including the vascular cryptogams, the leading facts connected with their physiology and mode of life, the phenomena of reproduction and the principles of classification, together with the peculiarities of the chief British Natural Orders. Classes in practical work are arranged as convenient, the study of plant histology by the aid of the microscope being a prominent feature. Materia medica and histology are taught by means of lectures, and demonstrations in the histological laboratory, whilst the theory and practice of pharmacy are also taught by means of lectures and demonstrations, systematic instruction in dispensing and practical pharmacy being afforded in the Pharmaceutical Laboratory. Students who have passed the Major examination are eligible for admission to the Research Laboratory, where they may obtain instruction in the methods of research and undertake special investigations. The Society's library, reading rooms, and museums are all available to students who are connected with the Society. Applications for prospectuses should be addressed to the Secretary of the School of Pharmacy, 17, Bloomsbury Square, London, W.C.

CLASSES.

Chemistry and Physics.

Professor Dunstan, F.R.S., and Mr. Jowett.
Tuesdays, Wednesdays, and Thursdays, at 9.30 a.m.
October to end of March..... £4 4*s.* 0*d.*
April to end of June..... £3 3*s.* 0*d.*

Practical Chemistry.

Professor Attfield, F.R.S., and Mr. Eastes.
Daily from 10 a.m. to 5 p.m.
Fees depend upon length of time spent in laboratory.

Botany.

Professor J. R. Green, F.R.S.
Fridays and Saturdays, at 30 a.m.
October to end of March..... £3 3*s.* 0*d.*
April to end of June..... £2 2*s.* 0*d*

MATERIA MEDICA.
Professor H. G. Greenish.
Mondays, at 9.30 a.m.
October to end of June.. ..... £2 2*s.* 0*d.*
April to end of June..... £2 2*s.* 0*d.*

PHARMACY.
Mr. Joseph Ince.
Mondays, Tuesdays, and Wednesdays, at 3 p.m.
October to end of March..... £3 3*s.* 0*d.*
April to end of June..... £2 2*s.* 0*d.*
Practical Course (4 months).. £2 2*s.* 0*d.*

The fifty-fourth Session of the School, 1895–1896, will commence on Wednesday, October 2, 1895, when the prizes of the last session will be distributed by the President. An inaugural address to the students will be given by Dr. Frederick T. Roberts, F.R.C.P., Professor of Medicine at University College, London. All students and their friends are invited to be present. After the proceedings all the departments of the School will be open for the inspection of visitors.

South London School of Pharmacy,

325, Kennington Road, London, S.E.

TEACHERS.—Dr. Muter, Messrs. W. H. Dodd, W. F. Mawer, F. Armstrong, L. De Koningh, E. J. Read, J. Thomas.

DAY CLASSES are held in botany, chemistry, pharmacy, materia medica, physics, practical chemistry, organic chemistry, and prescription reading.

FEES.—A perpetual charge of £5 5*s.* for lectures in Minor subjects and a fee of £2 12*s.* 6*d.* per month for practical work in botany, chemistry, or pharmacy.

Metropolitan College of Pharmacy,

162, Kennington Park Road, London, S.E.

PRINCIPAL.—Mr. W. Watson Will.

DAY CLASSES are held in chemistry (inorganic, organic, and practical), materia medica, practical pharmacy, botany, vegetable histology, and physics.

FEES.—Minor course, £10 10*s.*; Major course, £6 6*s.*

EVENING CLASSES are held in chemistry, physics, pharmacy, practical analysis, materia medica, betany, and prescription reading. The fees of these classes are:—Minor course, £3 3*s.*; Major course, £3 3*s.*

Westminster College of Chemistry and Pharmacy,

Trinity Square, Borough, London, S.E.

TEACHERS.—Messrs. G. S. V. Wills and H. Wootton.

DAY CLASSES are held in chemistry, materia medica, structural botany, practical botany, pharmacy, physics, prescriptions, practical chemistry, practical pharmacy and dispensing, organic chemistry, inorganic chemistry, heat, light, magnetism and electricity, vegetable histology.

FEES.—Minor course: Three months, £8 8*s.*; six months, £12 12*s.*; twelve months, £15 15*s.* Major course: Three months, £5 5*s.*; twelve months, £10 10*s.*

EVENING CLASSES are held every Tuesday, Wednesday and Thursday from 7 till 9. The fees are:—Minor course: Three months, £1 1*s.*; six months, £1 11*s.* 6*d.*; and twelve months, £2 12*s.* 6*d.* Major course: Three months, £1 11*s.* 6*d.*; six months, £2 12*s.* 6*d.*; twelve months, £4 4*s.*

Newington College of Chemistry and Pharmacy,

26 and 28, Newington Causeway, London, S.E.

PRINCIPAL.—Mr. Frederick Davis.

PRIVATE CLASSES are held in chemistry, materia medica, botany, pharmacy, physiology and biology.

FEE for the complete course, ten guineas.

City School of Chemistry and Pharmacy,

27, Chancery Lane, London, W.C.

DAY AND EVENING CLASSES are held for the Minor and Major examinations.

FEES.—Minor course £8 8*s.*

Birkbeck Literary and Scientific Institution,

Bream's Buildings, Chancery Lane.

Arrangements have been made for the instruction of students in chemistry, biology, and experimental physics, in conformity with the requirements of the Intermediate and Final B.Sc., the Preliminary Scientific (M.B.), and the Intermediate M.B. examinations of the University of London and the Conjoint Examining Board of the Colleges of Physicians and Surgeons. Special attention will be paid to lecture experiments, and to individual practical work in each subject. The chemical, biological, and physical laboratories have been recently much enlarged and completely refitted, and accommodation is now provided for fifty students in each laboratory. Application should be made to the secretary for special prospectuses.

DR. A. B. GRIFFITHS holds private classes at 12, Knowle Road, Brixton, London, for pharmaceutical examinations, and conducts postal courses for the "Minor" and "Major" examinations, which are useful for men who cannot attend a school.

Aberdeen and North of Scotland Society of Chemists and Druggists.

The above society recommends local students to attend at Robert Gordon's College where classes are held in botany and chemistry. There is a laboratory specially fitted up for the use of students at the Society's rooms, free use of which may be obtained by applying to Mr. A. Strachan, 138, Rosemount Street, Aberdeen.

Aberdeen School of Pharmacy,

21, Bridge Street, Aberdeen.

TEACHERS. — Messsrs. W. Pennie and Robert Clegg.

PREPARATORY CLASSES for the Minor examination will be re-opened during the first week in October.

ADVANCED CLASSES are held in botany, materia medica, practical chemistry, theoretical chemistry, physics, and pharmacy.

ELEMENTARY CLASSES are also held in the same subjects.

Birmingham Municipal Technical School,

Paradise Street, Birmingham.

TEACHERS.—Messrs. W. E. Sumpner and C. J. Woodward.

DAY CLASSES are held in chemistry, practical chemistry, and botany.

FEES.—5*s.* per session.

Mason College, Birmingham.

TEACHERS.—Professors Percy F. Frankland, Hillhouse, and Mr. John Barclay.

DAY CLASSES are held in organic chemistry, botany, materia medica, pharmacy, systematic botany, etc.

FEES.—Chemistry (from October to March and a weekly tutorial class), £5 5*s.*; organic chemistry suitable for Major students (April to June), £1 11*s.* 6*d.*; botany (spring and summer terms), £2 2*s.*; systematic botany (summer term), £1 1*s.*; materia medica and pharmacy, £1 1*s.*; practical chemistry, 10*s.* 6*d.*

Evening Classes are also held.

MR. F. H. ALCOCK holds TUTORIAL CLASSES for pharmaceutical students, at the Analytical Laboratory, Temple Chambers, Broad Street Corner, Birmingham. The laboratories are conveniently arranged for the practical study of the subjects necessary for the Minor and Major qualifications. The fees are dependent upon the hours of attendance and subjects required.

MR. F. STOKES DAWSON holds day and evening classes at the Central School of Pharmacy, 90, New Street, Birmingham, for the Minor and Major examinations. Practical pharmacy and dispensing receive special attention.

Dundee.

MR. J. BRAIK MASON holds classes in chemistry and botany at the Science and Art classes held at the Y. M. C. A., Dundee. The fee for two classes is 7*s.* 6*d.*, or 5*s.* for one.

Edinburgh Central School of Pharmacy,

26, Clyde Street, Edinburgh.

TEACHERS.—Messrs. William B. Cowie, Alex. Johnstone, and Alex. Cameron.

DAY CLASSES commence on October 2. Fee for either Minor or Major, £8 8*s.* per quarter.

EVENING CLASSES commenced on September 3, meeting three nights per week, from 8.30 to 10.30. Fee for either Minor or Major £3 3*s.* per quarter.

Royal Dispensary.

21, West Richmond Street, Edinburgh.

TEACHERS.—Mr. William Duncan and Assistants.

DAY CLASSES are held in practical chemistry and physics, theoretical chemistry, pharmacy, dispensing and prescription reading, botany, materia medica, practical pharmacy and dispensing.

FEES.—Major course, £8 8*s.*; Minor course, £8. 8*s.*

EVENING CLASSES are held in practical work and theoretical subjects. The fee for these classes is £3 3*s.*

Glasgow School of Pharmacy,

180, West Regent Street, Glasgow.

PRINCIPAL.—Mr. David Lees.

DAY AND PRIVATE CLASSES are held, but Mr. Lees should be addressed in regard to these.

EVENING CLASSES are held in theoretical and analytical chemistry, materia medica, dispensing, pharmacy, physics, organic chemistry, systematic and volumetric

analysis. The fees for these classes are—First course (six months), £3 3*s.*; second course (six months), £2 12*s.* 6*d.*

Central School of Chemistry and Pharmacy,

196, St. Vincent Street, Glasgow.

Principal.—Mr. Thomas Mackenzie.

Day Classes are held in chemistry, physics, pharmacy, prescription reading, botany, materia medica, practical botany, practical chemistry, practical pharmacy, and dispensing.

Fees.—Minor course, £8 8*s.*; Major course, £5 5*s.* per quarter.

Evening Classes are held in chemistry, physics, pharmacy, botany, materia medica, prescription reading, practical chemistry, practical pharmacy, and dispensing.

Fees.—Minor course, £2 2*s.*; Major course, £2 2*s.* per quarter.

Leeds School of Science and Technology,

Rossington Street, Leeds.

The technical school in connection with the Mechanics' Institute, Leeds, offers great facilities for students in pharmacy to acquire a thorough knowledge of elementary and practical chemistry under the superintendence of Mr. S. J. Harris, assisted by Mr. R. W. Ferguson; practical physics by Mr. H. Holbeche; botany by Mr. T. Tate.

Fees.—For a course of thirty lectures, elementary sciences, 2*s.* 6*d.*; advanced, 3*s.* 6*d.* For laboratory practice, elementary, three hours weekly, 7*s.* 6*d.*; advanced, four and a half hours a week, 12*s.* 6*d.*; all materials found. The work of instruction is carried on during the evenings from 7 to 10. Full particulars can be obtained on application to the head-master, Mr. S. J. Harris.

Liverpool School of Pharmacy,

6, Sandon Terrace, Upper Duke Street, Liverpool.

Principal.—Mr. R. C. Cowley.

Day Classes are held in all subjects of the Minor and Major examinations.

Fees.—Minor course, £10 10*s.*; Major course, £9 9*s.*

Once a week classes are held, one evening for juniors and one for advanced students. The fee for this class for an entire course is £3, or for the whole session £7 10*s.* The course of study in this School is controlled by the Council of the Liverpool Chemists' Association.

Manchester College of Pharmacy,

225a, and 227a, Oxford Street, Manchester.

Principal.—Mr. Charles Turner.

Day Classes are held in prescription reading, and Latin, practical dispensing, pharmacy, materia medica, botany, chemistry, and physics.

Fees.—Minor course: (January to April), £9 9*s.*; (April to July), £9 9*s.*; (September to January), £10 10*s.* Major course: £4 14*s.* 6*d.* per quarter.

Evening Classes are held in chemistry, Latin, physics, practical chemistry and dispensing, botany, materia medica, and pharmacy. The fees are, Minor course: (January to July), £5 5*s.*; (September to December), £3 3*s.* Major course: (January to July), £3 3*s.*; (September to December), £2 2*s.*

A Once a Week Class is held in practical chemistry, dispensing, pharmacy, chemistry, Latin, physics, botany and materia medica. The fees for this class are: Minor course (January to July), £4 4*s.*; (September to December), £2 12*s.* 6*d.* Major course (January to July), £3 3*s.*; (September to December), £2 2*s.*

Northern College of Pharmacy,

100, Burlington Street, Manchester.

Teachers.—Messrs. George Clayton and Frederick Lawson.

Day and Afternoon Classes are held in organic and inorganic chemistry, physics (theoretical), practical chemistry, practical pharmacy, dispensing, theoretical pharmacy, botany, materia medica, prescription reading, theoretical chemistry, and Latin.

Fees.—Minor course (day), January to April, £9 9*s.*; April to July, £9 9*s.*; September to January, £10 10*s.*; (afternoon), January to July, £5 5*s.*; September to December, £3 3*s.* Major course, January to April, £5 5*s.*; April to July, £5 5*s.*; September to January, £6 6*s.*

Evening Classes are held in theoretical chemistry, physics, Latin, practical chemistry, dispensing, botany, materia medica, and pharmacy. The fees for these classes are: Minor course, January to July, £5 5*s.*; September to December, £3 3*s.* Major course, January to July, £3 12*s.* 6d.; September to January, £2 5*s.*

Owens College,

Manchester.

Teachers.—Professors A. H. Young, H. B. Dixon, W. H. Perkins, F. E. Weiss, D. J. Leech. Messrs. W. Kirkby, J. H. Hoseason, T. Hick, A. W. Ward etc.

Day Classes are held in chemistry, practical chemistry, botany, practical botany, organic chemistry, materia medica, pharmaceutical chemistry, pharmacy, pharmacy law.

Fees.—A composition fee of £13 13*s.* admits to the college courses for the Minor examination.

There are also several courses suitable for students preparing for the Major examination.

North of England School of Chemistry and Pharmacy,

55, Northumberland Street, Newcastle-on-Tyne.

Principal.—Mr. George F. Merson.

Day and Evening Classes are held in all subjects of the Minor and Major examinations.

Fees.—Full time classes, £6 6*s.*; evening classes, £3 3*s.*; Wednesday afternoon class, £3 3*s.* The fees are in each case per quarter.

A special weekly class for junior assistants and apprentices is held by Mr. Merson. The fees for this class are £1 1*s.* for each subject, or £3 3*s* for all.

Newcastle-on-Tyne Pharmaceutical College and Chemical Laboratory,

35, Grainger Street, Newcastle.

Teachers.—Messrs. A. Russell Bennet and Robert McClumpha.

Day Classes are held in botany, materia medica, chemistry and physics, practical chemistry, prescription reading and posology, pharmacy.

Fees.—Minor course (evening), £3 3*s.*, (day), £6 6*s.*; Major course (evening), £3 3*s*, (day), £8 8*s.*; dispensing and practical pharmacy, £2 2*s.*

A special weekly class is held on Wednesday afternoon for junior assistants and apprentices, the fee of which is £3 3*s.* a quarter.

Nottingham and Notts. Chemists' Association,

2, Chapel Bar, Nottingham.

The Council of the above Association have made arrangements for a complete three years' course of instruction, suitable for students preparing for the Minor examination of the Pharmaceutical Society, to be given at the University College, Nottingham. The course includes chemistry and botany, both theoretical and practical, physics, materia medica, and dispensing.

Pharmaceutical chemistry (Mr. R. M. Craven), fee, 15*s.* per term; elementary organic chemistry, suitable for advanced pharmaceutical students (Mr. J. J. Sudborough), fee 7*s.* 6*d.*; materia medica (Mr. C. Haydon White), fee for the course, 15*s.*; physics (Professor Heaton), fee, 5*s.*

Sheffield Pharmaceutical and Chemical Society,

New Surrey Street, Sheffield.

The above society holds classes for teaching botany, chemistry, materia medica, etc. The arrangement for the coming session includes materia medica and botany lectures, which Mr. J. Austin will again conduct; chemistry and practical chemistry lectures will be delivered by Mr. J. C. Platts; whilst Mr. C. O. Morrison will hold a pharmacopœia class. The latter is intended to assist students in the study of the Pharmacopœia, with special reference to the chemistry of the same. Full particulars and syllabus can be obtained from the School Secretary, New Surrey Street, Sheffield.

Sheffield College of Pharmacy,

118, Princess Buildings, The Moor, Sheffield.

Teachers.—Messrs. Robert B. Greaves and J. W. J. Turner.

Day Classes are held in chemistry and physics, practical chemistry, botany, pharmacy, materia medica, prescription reading, dispensing and practical pharmacy, organic chemistry.

Fees.—Minor (full course), £9, (short course), £5; Major (full course), £7, (short course), £4 10*s.*

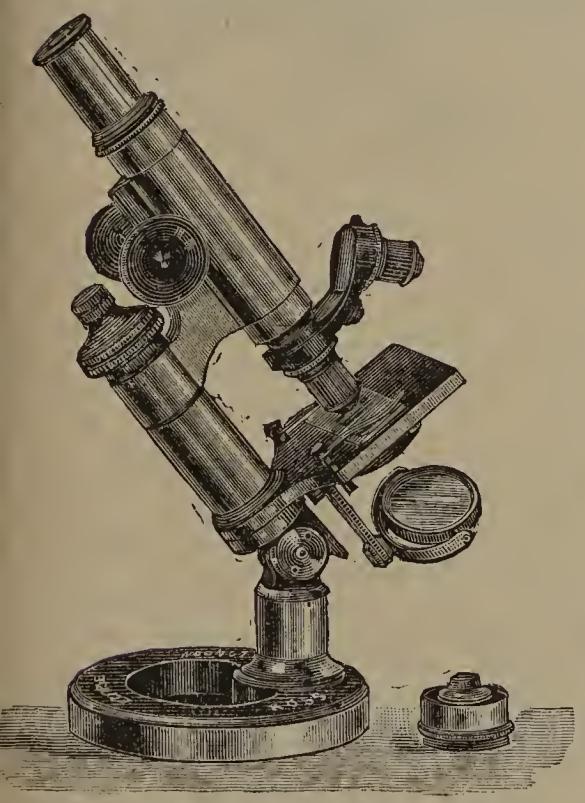
Evening Classes are held in botany, chemistry, and practical chemistry. The fee per term is £1 1*s.*

The Choice of a Microscope.

Every pharmacist and pharmaceutical student should possess a microscope, but having convinced himself of this fact the individual often experiences difficulty in making a selection from the instruments of different makers. As a matter of fact, the productions of the leading English makers are all good and well adapted to the requirements of modern study. The chief difference is in the matter of price, which, of course, depends greatly upon the number of accessories. Details of a number of instruments, which can all be strongly recommended, are given below, and it will be seen that a useful student's microscope can be obtained for less than four pounds, whilst an instrument serving for the most advanced work need not cost more than ten pounds, complete:—

Ross and Co., 11, New Bond Street, London, W.

The new "Eclipse" Microscope of this firm is constructed to afford the greatest facilities for practical work, combined with stability and the necessary strength to withstand hard use, and at a moderate cost. It is mounted on a circular foot, the centre of gravity being so situated that equal steadiness is secured in every direction, and the inclination to tilt, so prevalent in the usual forms of stands, is obviated. The fine adjustment of these stands is very substantial, and being independent of set screws, is not subject to derangement. It is extremely sensitive and direct in action, and from its con-

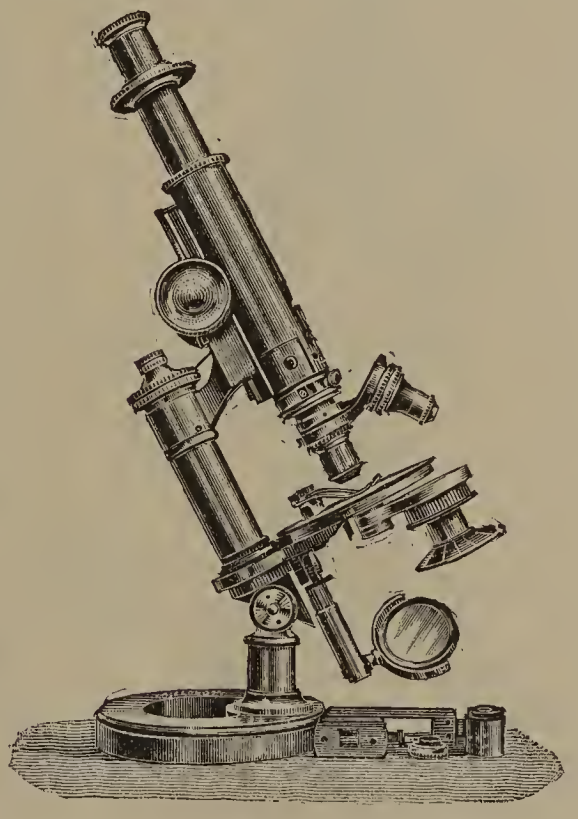


struction is equal in perfection of working to the best that can be made. Its fitting, by a new device, is completely covered at all points, being thus preserved from disturbance or injury by dust. The stage being firmly fixed to the strong upright pillar is not liable to flexure, and the method of attachment of the limb carrying the sliding tube insures perfect steadiness of the optical combinations. The body tube has the standard screw of the Royal Microscopical Society, and carries eye-pieces of the Continental size. It gives the Continental optical tube-length (160 Mm.), for which the object glasses are adjusted, and is extended by means of a draw-tube to eight inches.

This microscope is furnished with two eye-pieces, 1 in. and $\frac{1}{4}$ in. object glasses of highest excellence and large angular aperture, both adjusted to a double nose-piece, so that they focus in the same plane; swinging mirror and a stage diaphragm, so arranged that it need not be removed should a tube-fitting be attached to admit the use of a condenser, the whole packing into a compact mahogany case (12 in. by 5 in. by 5 in.), with lock and key, and leather handle for carrying.

The rigid form complete, as above described, costs £6 15*s*, or if desired, 2/3 in. and 1/6 in. object glasses can be supplied instead of the 1 in. and $\frac{1}{4}$ in. at the same price. The addition of a specially strong and smooth-working diagonal rack and spiral pinion to coarse adjustment is 15*s*. extra, and the same instrument is supplied with inclining limb at an advance of 25*s*. on above prices.

Another new instrument by the same firm is the "Eclipse" Stand Petrological Microscope, designed to provide a thoroughly reliable instrument for students in petrology. Its size and form is the same as that already described, but the stage is circular, revolving, and the periphery is divided to 360°. The analyser, which can be drawn out when not needed, is fitted into the lower end of the body tube, where also a slot is cut at the

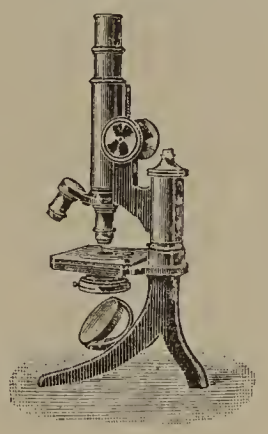


angle of 45° for the insertion of quartz wedge, etc. The polariser is pivoted to swing immediately out of the field when so required, and it has a circle divided into eight, clicked at 0° and 180° to indicate when the Nicols are crossed. The eye-piece is furnished with crossed webs, and readily drops into a slot. The milled-head of the micrometer screw is divided to measure 1/500 of an inch motion of the fine adjustment. Plane and concave mirrors are provided.

Price—with one eye-piece, $1\frac{1}{2}$ in. and $\frac{1}{4}$ in object glasses, double nose-piece, polarising and analysing prisms and Klein's quartz plate, in mahogany case, £10 10*s*. If fitted with internal sliding tube for carrying enlarging lens, extra, 12*s*. 6*d*.

E. Leitz, Wetzlar.

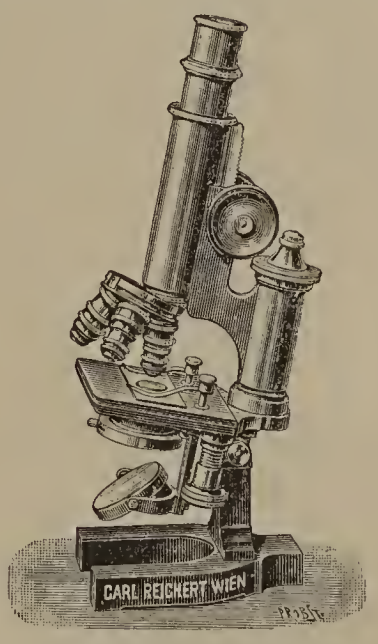
This maker is adopting English models, and his productions are worthy of special attention. A microscope suitable for student's use is his medium size microscope, stand II. C., not inclinable, coarse adjust-



ment by rack and pinion, fine adjustment by micrometer screw, plane and concave mirrors, double nose-piece, objectives 2/3 and 1/6 in., eye-piece III., magnification 80 and 390. Price £6 5*s*, without nose-piece £5 10*s*.

Carl Reichert, Vienna.

The instruments and lenses of this maker are now well known in England, and are as good as any supplied at the price. His new III. Stand, which is specially suitable for student's use, with 3/5 and 1/6 objectives and eye-piece No. III. costs £6 18*s*. This instrument is made in two forms, viz., with



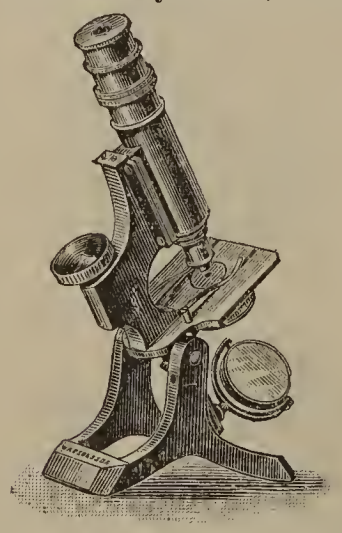
the Continental form of foot, and with the English tripod. The foot, as well as the stage, is of brass, and well polished and varnished. The edges and ends of the stage are rounded, so that it is very pleasant to work with it. The foot is extremely large so as to give the instrument great steadiness. The stage is covered with hard rubber which, by a new chemical process, is united with the brass of the stage in such a way as to render it possible that the stage will wear well even after long use.

The instrument is generally supplied with a cylinder diaphragm, however, the sub-stage, which has the standard size, can be very easily fitted with an Abbe condenser and iris diaphragm. The iris diaphragm of the Abbe condenser is provided with an adjustment by which a blue glass or diaphragm for oblique or dark-field illumination can be inserted. The coarse adjustment is by rack and pinion, the fine adjustment by a new micrometer screw, which has the advantage of working extremely easily, so that the instrument can be well used even with the highest magnifications.

The new "Austrian" Student's Microscope is a lower priced instrument, and has been designed to combine the steadiness of the English tripod with the compactness and portability of the Continental form of foot. The stage measures 3 1/8 by 3 1/3 in., and is made with a sheet of ebonite over the metal portion. The coarse adjustment is by a specially well-made spiral rack and pinion. The fine adjustment by a new and very smooth working micrometer screw. The sub-stage is made in two forms, (1) the standard English size fitted with screw focussing adjustment and centring screws; (2) a smaller less expensive form suitable for the N. A. 1·00 sub-stage condenser, which gives very good results, the arm moves up and down on a rod, and can be swung aside when not required. The objectives supplied with this stand are the celebrated semi-apochromatic ones, and are all fitted with the standard English screw. This instrument will be most useful to students. It is very portable, and as every part is finished in the most careful manner, it can be used satisfactorily with the highest magnifications. With 3/5 in. and 1/6 in. objectives, one eye-piece and mahogany case, the price is £6 3*s*.

W. Watson and Sons, 313, High Holborn, London, W.C.

The figure below represents one of this firm's student's microscopes. It is fitted with a sliding body coarse adjustment, their lever form of fine adjustment, double mirror,

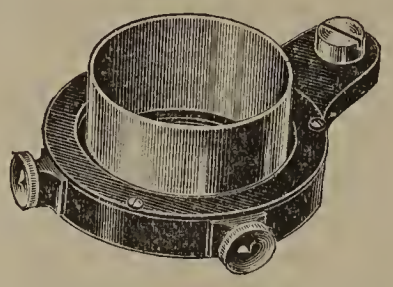


and draw-tube, together with 2/3 and 1/6 in. objectives, and mahogany case. The price is £5 5*s*.

The same instrument may be had with a diagonal rack and pinion for coarse adjustment, instead of the sliding tube, at a cost of 20*s*. additional.

Messrs. Watson have also recently introduced a new form of centring underfitting.

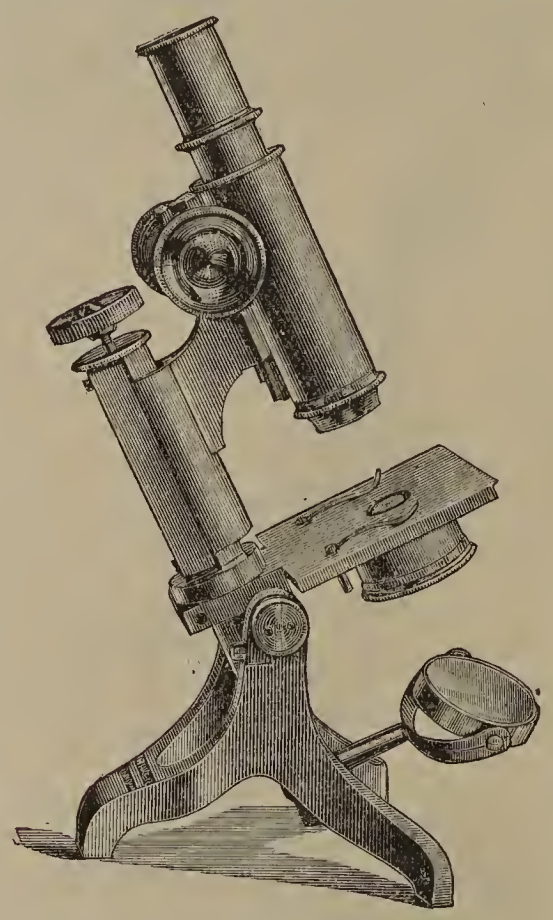
Many of our readers are familiar with the advantage of being able to centre the con-



denser accurately in a centring sub-stage. This new fitting enables the operation to be performed in the same manner. by means of two screws, as illustrated. This arrangement should considerably increase the utility of the student's microscopes to which it is attached, and we are informed that it is adaptable to almost any make of instrument at a small cost.

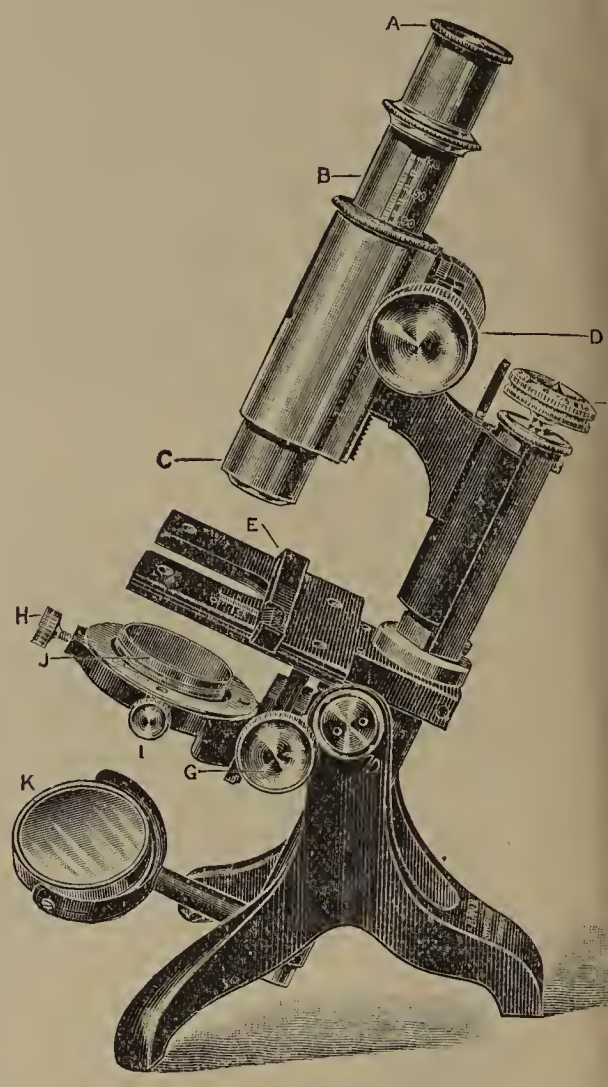
C. Baker, 243 and 244, High Holborn, London, W.C.

The Model Histological Microscope by this maker is a highly-finished instrument, with diagonal rack coarse movement, draw-tube, differential screw fine adjustment, large square stage, plane and concave mirrors, and universal sub-stage fitting to carry all apparatus. Its height when in vertical



position and body racked down is 10½ inches; height of stage, 4 inches; width of stage, 3 inches; height of optic axis when in horizontal position, 5¼ inches; spread of foot, 5¼ inches; diameter of mirrors, 1 5/8 inch; internal diameter of draw tube, 11/12 inch. With one eye-piece, mahogany case, with handle, lock and key, the price is £4.

Baker's Advanced Student's Microscope is a slightly larger instrument, and adapted for the most advanced work. With diagonal rack coarse movement, differential screw fine adjustment with graduated milled head, draw-tube graduated in millimeters, large square stage with sliding bar graduated in vertical and horizontal directions for use as finder, stage clips, solid tripod foot, plain and concave mirrors on movable arm, rackwork



centring sub-stage of universal size (1½ in.) in mahogany case with handle, lock and key, the price is £6 15*s*.

G. T. W. Newsholme, 74, Market Place, Sheffield.

The "Science" Microscope, supplied by Mr. Newsholme, has been designed to meet an ever-increasing demand for a good serviceable instrument for all-round use. It is of sound workmanship and high-class finish, having object glasses of the highest quality. The compound body, which has a sliding graduated draw-tube for increasing or diminishing the magnifying power, works smoothly in a cloth-lined collar. This collar is carried by a solid arm, which slides accurately into a broad machine-cut groove, and by means of a fine screw regulator forms a very sensitive and absolutely steady fine adjustment. The stand has a joint for inclining the body to any angle, a rotating diaphragm, plane and concave mirrors, and flexible springs to stage. It is finished with one eye-piece and two high-class achromatic object glasses, namely, a ¼ in. and a 1 in. The object glasses have the standard microscopic screw, and are in engraved brass boxes. The whole packed in portable mahogany case, with strap, handle, and lock, price £3 10*s*.

How to Fit up a Small Laboratory.

Of all the subjects with which the pharmaceutical tyro becomes acquainted on commencing his studies, it may safely be said that practical chemistry is the one which has most charm. In many cases it is with some hazy notion that a chemist divides his time between handing soap and scent across his counter and causing mild explosions in the back shop, that a youth decides to become a member of the pharmaceutical calling, and finds his Utopian dreams quickly dispelled. However that may be, the average apprentice having read and haply digested the first principles of chemistry, generally avails himself of any facilities that his surroundings afford for putting precept into practice.

Fortunately there are at the present day so many opportunities for joining classes in chemistry, either organised by provincial associations and schools, or else in connection with Government departments, that there is but little excuse for an apprentice who does not at an early period in his pharmaceutical career lay hold of a grounding on which may be based a chemical training which will not be limited by the requirements of the examination schedules. It has been proved times without number how helpful the preliminary work is to a student when he goes through a systematic course of instruction previous to the examination, and it gives him an immense advantage over those who rely upon a few months' cram to get through the ordeal successfully.

Generally speaking, employers at the present day are fully alive to the duty which they owe to their apprentices in respect to affording opportunities for study or attending lectures, and some even go further than this, and pay the fees for their instruction. Those who are thus happily situated are not concerned by these remarks. On the other hand, there are many who have no other chance of obtaining an insight into practical chemistry than can be obtained by fitting up a laboratory for themselves. Individual circumstances will decide whether this is to be on the business premises or at home. A place can often be found in the warehouse or laboratory, but a student will probably prefer to have it fixed up at home, and if he can manage to overcome the objections of the "powers that be," and successfully convince the neighbours that the "drains are up" when the manufacture of sulphuretted hydrogen is in full swing, well and good. It may be taken for granted that a spot will be chosen within easy access of the water-tap, and if gas can be had so much the better. The question of apparatus then comes in. We will presume that the student is already familiar with the properties of the common elementary gases, having either prepared them or seen it done. He now wishes to take up the practical work at the metals and their salts.

The cost is the first consideration, and fortunately this is not nearly so serious a matter as it was a few years ago, as prices generally are 30 to 40 per cent. lower. There is, therefore, no necessity for soda-water bottles to be utilised as test tubes, as we knew a now well-known pharmacist do in his student days. In addition, it will be noticed that many of the dealers in apparatus both in London and the provinces afford every facility to the student in equipping him with sets of apparatus at very moderate prices, and some of their suggestions have been utilised in drawing up the undermentioned preliminary list, every item in which may be regarded as indispensable :—

Apparatus.

	s.	d.
1 Bunsen burner (or spirit lamp) ...	1	0
3 feet, india-rubber tubing (or methylated spirit)	0	8
2 dozen test tubes, 6 by $\frac{3}{4}$	1	6
1 test tube stand with pegs for 12 ...	2	0
1 test tube cleaner	0	2
1 Black's blowpipe	0	9
1 asbestos and iron-wire gauze, 5 by 5	0	6
6-in. platinum wire	0	6
1 sq. in. platinum foil	0	6
3 beakers, Nos. 1, 2, 3	1	3
1 washbottle	1	0
1 dozen litmus books	1	6
1 retort stand, 2 rings	1	6
1 sand bath, 6 in.	0	6
1 tinned iron wire tripod stand	0	4
1 test tube holder	0	4
1 8-oz. flask, 5d ; 1 4-oz. ditto, 3d....	0	8
1 2-oz. beaker, 3½d.; 1 4-oz. beaker 4½d.	0	8
1 3-in. funnel, 2d.; 1 acid funnel 1½d.	0	3½
½ lb. glass tubing	0	6
½ lb. glass rod.....	0	6
Crucible tongs	1	0
2 feet i.r. "feeding bottle" tubing	0	6
1 evaporating basin, No. 0	0	6
Filter papers, 4½-in.	0	6
1 rat tail, 6d., and 1 triangular file, 6d.	1	0
1 pipe-clay triangle	0	2
	£1	0 3½

This list calls for little comment, but it is obvious that the expenditure can be brought well within a sovereign, as the prices appended are in all cases those charged by apparatus dealers to the public, but they will give a general idea of the cost. It will be noticed that a test tube cleaner is mentioned. This is not the ordinary brush, which is simply an abomination, and generally breaks more tubes than it cleans, but a flat piece of india-rubber inserted in a slit at the end of a wooden handle, which will be found to answer capitally. The asbestos and iron gauze should certainly be used in place of the ordinary thin wire material. It will last for any length of time, and there is no fear of cracking a beaker or flask on it. It can be had from Gallenkamp and Co., Cross Street, Finsbury, E.C. The wash bottle can be bought fitted with cork and tubes for 1*s.* 6*d.* or 1*s.* 9*d*, but it will be better to do the cork boring and tube bending oneself. A piece of flannel is best stitched round so as to protect the fingers when used for boiling water. A sand bath has been included, since it is only a question of a few pence, but as a matter of fact the top of an empty enamelled tin can be used equally well. The test tube holder is the wooden variety with india-rubber spring.

Do not buy polished steel crucible tongs. They look very nice for a day, but their glory soon fades, and they are covered with rust. A brass pair can be had for a trifle extra, and are far preferable. If it be thought worth while, the pipe-clay triangle can be made equally as well as bought ; a yard of wire and a churchwarden pipe supplying the materials. There will no doubt be many who will be wishful to go in for a more elaborate outfit than this, but generally it will be found sufficient for preliminary requirements, at any rate. It may, however, be noted that should the student wish to make the elementary gases, he will also need a pneumatic trough, which will cost him about 2*s.* 6*d.*, a few gas collecting bottles at 4*d.* each, and stoneware trays for the same at 3*d.* each. With regard to reagents, it is quite impracticable to enter into the question of cost, as the majority of students will be able to obtain most of the chemicals they need from the pharmacy at which they are engaged. It is not advisable to go in for too extensive a range of solutions at first, it being preferable to prepare just those which are certain to be used, and keep small quantities of the ones only occasionally required in the solid state. The liquids will, of course, be kept in stoppered bottles, which will cost only 4*s.* 6*d.* per dozen for white glass bottles with flat stoppers. In fact the prices for bottles are now so reasonable that many will be disposed to keep the solid in stoppered bottles also. A wide-mouth bottle uniform with the other variety can be bought at 3*s.* 9*d.* per dozen for the 2 oz. size. Those who do not see their way to go in for the latter will no doubt find the wide-mouth "glycerin jelly" bottle, which holds about 2 ozs., answer their purpose very well, but it is mistaken economy to try and make corked bottles serve for some of the liquid reagents ; of the latter the following will be acquired :—

Hydrochloric acid, strong	Ammonium acetate
Sulphuric acid, strong	Sodium phosphate
Nitric ,, ,,	Barium chloride
Acetic ,, ,,	Calcium ,,
Ammonium hydrate	Ferric ,,
Potassium ,,	Silver nitrate
Sulphuretted hydrogen water	Lead acetate
Ammonium chloride	Ammonium molybdate
,, sulphide	Stannous chloride
,, oxalate	Potassium ferrocyanide
,, carbonate	,, ferricyanide
	,, chromate
	Calcium sulphate

With regard to the above, it will readily be seen that the cost is not very serious. The first six on the list are of everyday use in the pharmacy. The cheapest form of sulphuretted hydrogen apparatus would cost about 2*s.* 6*d.*, but a perfectly satisfactory one can be made with a couple of 1 oz. ordinary wide-mouth bottles, one of which can be fitted with the acid funnel, and a bent tube to pass the gas into the wash bottle, and another tube thence into the reagent bottle. Do not buy the iron sulphide in lump ; it can be had in broken lengths convenient for use at 1*d.* per lb. more, which answers better in every way. The same apparatus can, of course, be used for preparing the ammonium sulphydrate solution. It is hardly necessary to advise the student to economise his silver nitrate, and save the residue from silver precipitate. Ammonium molybdate is best made in the following proportions : Ammonium molybdate, 6 ; nitric acid, 1·4 s.g., 50 ; ammonia, ·96 s.g., 40 ; water, 40. Dissolve the salt in the ammonia, and decant into the acid until the precipitate at first formed disappears. Stannous chloride is not stable in aqueous solution, so should be dissolved in hydro-

chloric acid. We may here note that a very satisfactory book for students in practical chemistry is Bloxam's 'Laboratory Teaching,' a new edition of which was issued last year. It gives many useful hints on apparatus and directions for the preparation of solutions, in addition to the ordinary matter, and will well serve for introductory work. Those who do not care to go to the trouble of writing the labels for the bottles and varnishing them themselves can buy them in books containing many duplicates at 9*d.* the book. Of chemicals, the following will be required at the outset:—

Two ounces of each of the following:—

Sodium carbonate	Fusion mixture
Ammonium chloride	Manganese dioxide
,, carbonate	Potassium chlorate
Magnesium sulphate	Sodium bicarbonate
Tartaric Acid	Copper turnings
Sodium phosphate	Granulated zinc

One ounce of each of the following:—

Potassium ferrocyanide	Zinc sulphate
,, ferricyanide	Borax
Barium chloride	Potassium nitrate
Potassium chromate	Copper sulphate
Calcium chloride	Alum
Citric acid	Sulphur
Sodium hyposulphite	Copper foil

One-quarter ounce of each of the following:—

Silver nitrate	Platinum chloride
Bismuth nitrate	Nickel nitrate
Cadmium chloride	Manganese sulphate
Chromium chloride	Strontium nitrate
Gallic acid	Benzoic acid
Tannic acid	Fluor spar
Turmeric	Phosphorus
Iodine	Copper oxide

Eight ounces of each of the following:—

Ether, methylated	Lump charcoal
Alcohol, methylated	Iron sulphide

As to the cost of the reagents and chemicals, the bottles really constitute the greatest expense, with the exception of a few of the chemicals. Approximately the cost would be as follows:—

	£	*s.*	*d.*
Apparatus	1	0	0
2 doz. 6-oz. stoppered w.m. bottles at 4s. 6d.		9	0
9 by 6 oz. reagents (average) at 2d.		1	6
1 doz. 2-oz. corked w.m. bottles at 1s.		1	0
1 doz. 2-oz. chemicals (average) at 1d.		1	0
14 1-oz. corked w.m. bottles at 1s. per doz.		1	2
14 1-oz. chemicals (average) at 1d.		1	0
16 2-drachm corked bottles at 1s. per doz.		1	4
16 ¼-oz. chemicals (average) at 3d.		4	0
½ lb. ether and bottle		1	0
½ pint alcohol and bottle		0	8
½ lb. lump charcoal		0	2
lb. iron sulphide		0	4
	£2	2	2

The above figures have been reckoned on a high scale, and no doubt two pounds would suffice for all requirements, necessitated in following out a systematic course of study in the reactions of the metals and acids and the preparation of their compounds. A very good plan to adopt, especially from the point of view of preparing for the examinations, is to go through Attfield's 'Chemistry' systematically, commencing on p. 63, making the compounds described according to the directions given, and paying attention to the reactions. The tendency of examiners, both in pharmacy and medicine, seems to be in favour of requiring candidates to prepare stated amounts of various compounds, hence the experience gained by following out this plan will prove very useful if only for examinational purposes. Another point that should not be lost sight of is to pay great attention to the dry reactions of the metals. An examiner in the North, now retired, used to say a candidate was on his last legs who went through the chart in order to identify a substance, and he expected it to be done by the aid of the dry reactions alone.

There are many firms throughout the country who are ready to fulfil the requirements of students in every way, and amongst them may be mentioned Woolley, Sons and Co., of Manchester; Southall Bros., and Barclay, of Birmingham; Reynolds and Branson, of Leeds; Brady and Martin, and Mawson and Swan, of Newcastle-on-Tyne; and Newsholme, of Sheffield. In London every facility is afforded by such well-known firms as Baird and Tatlock, Cross Street, Hattton Garden; Gallenkamp and Co., Cross Street, Finsbury, and Townson and Mercer, Bishopgate Street, and we must express our indebtedness to them for much useful information, as well as to Messrs. Woolley and Co., whose name is familiar to every tyro in chemistry.

Pharmaceutical Society of Great Britain.

The Pharmaceutical Society was established in 1841 "for the purpose of advancing chemistry and pharmacy, and promoting an uniform system of education of those who should practise the same; and also for the protection of those who carry on the business of Chemists and Druggists"; and "to provide a fund for the relief of the distressed Members and Associates of the Society, and of their widows and orphans."

The affairs of the Society are managed by a Council elected by the general body. The Council consists of twenty-one members, of whom fourteen retire each year, but are eligible for re-election.

Privileges of Subscribers to the Society.

Members.

Annual subscription, £1 1*s.* Life subscription, £10 10*s.*

Persons who have passed the Major examination, and persons registered as chemists and druggists in business before August, 1868, are eligible to be elected members.

Members have the following privileges:—

The right to attend all meetings of the Society, and to hold office as members of the Council and auditors.

The use of the Museum.

The use of the Library, from which they can obtain books on written or personal application.

Copies of the *Pharmaceutical Journal* regularly as published.

Votes for the election of the Council and auditors.

Votes for the election of annuitants on the Benevolent Fund.

Associates in Business.

Annual subscription, £1 1*s.* Life subscription, £10 10*s.*

Persons who have passed the Minor or Modified examinations, and who are in business on their own account, are eligible for election as Associates in business. Associates in business have the same privileges as members, except the right of holding office as members of Council, or as auditors.

Associates.

Annual Subscription, 10*s.* 6*d.*

Persons who have passed the Minor or Modified examinations are eligible to be elected Associates.

Associates have the following privileges:—

The right to attend the Evening Meetings of the Society.

The use of the Museum.

The use of the Library, from which they can obtain books on presenting a recommendation from a Member or Associate in business.

Copies of the *Pharmaceutical Journal* regularly as published.

Votes for the election of Annuitants on the Benevolent Fund.

Pharmaceutical Chemists who were Associates at the time of passing the Major examination are entitled to compete for the Council examination prizes.

Students.

Annual Subscription, 10*s.* 6*d.*

Persons who are registered as having passed the "First" examination are eligible for election as Students of the Society, and become entitled to the same privileges as Associates, except the votes for the election of annuitants on the Benevolent Fund. They are eligible, under certain conditions, to compete for the Jacob Bell Memorial Scholarships, the Manchester Pharmaceutical Association Scholarship, and the Herbarium Prize.

Persons desiring election may obtain a form of application from the Secretary, 17, Bloomsbury Square, London, W.C.

CONTENTS OF EDUCATIONAL SUPPLEMENT.

How to Become a Pharmacist in Great Britain	i
Prizes and Scholarships	v
Text-Books Recommended	v
How to Become a Pharmacist in Ireland	vi
How to Get a Science Degree	vii
How to Become a Fellow of the Chemical Society	vii
How to Take the Fellowship of the Institute of Chemistry	vii
How to Become a Fellow of the Royal Microscopical Society	viii
How to Become a Fellow of the Linnean Society	viii
Reminiscences of the School of Pharmacy. By a Former "Square Man."	viii
Pharmaceutical Football Club	x
Educational Facilities for Pharmaceutical Students	x
The Choice of a Microscope	xiii
How to Fit up a Small Laboratory	xv
Pharmaceutical Society of Great Britain	xvi

SUPPLEMENT

TO THE

PHARMACEUTICAL JOURNAL.

Contents of Supplement.

Market Report i
Liverpool Market Report iii
Trade Marks Applied For iii
Exchange iv
Trade Notes and News iv
New Book and New Editions iv

PROCEEDINGS UNDER THE PHARMACY ACT.

At the moment of going to press we learn that at the hearing on Thursday of the case against William McCallum (see *ante*, p. 212) the objections as to relevancy of the complaint were repelled. The defendant pleaded not guilty, but was convicted of four offences, and fined fifty shillings for each offence, with two guineas costs. A case for appeal was granted. The hearing of the other undecided cases (see p. 257) was still proceeding.

MARKET REPORT.

[*Specially compiled for the Pharmaceutical Journal.*]

CHEMICALS AND DRUGS.

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

THE CHEMICAL MARKET.

LONDON, SEPTEMBER 19, 1895.

There has been considerably more activity in the chemical market during the last week, and the prices of several articles have advanced! the more important features are as follows:—Carbolic acid is generally dull of sale. Citric acid is very strong, and manufacturers have advanced their price, and it is correspondingly firmer in second-hand. Tartaric acid also is a brisk market, and higher prices have again been paid for both English and foreign acids. Sulphate of copper is again dearer, whilst cream of tartar is very firmly held, although owing to the advanced prices asked business is more or less nominal. Full details will be found below of the various articles of interest:—

ACID, CARBOLIC—A quiet market generally, and prices have a downward tendency. The current quotations are as follows:—*Crystals*, 34° to 35° C., 5d.; 39° to 40° C., 5½d.; 39° to 40° C. (*detached crystals*), 6½d. per lb. *Crude*, 60 per cent., is quoted at 1s. 6d. per gallon, with 75 per cent. at 1s. 10d. *Liquefied* and *cresylic* are unchanged at 1s. and 11d. per gallon respectively.

ACID, CITRIC.—This has been throughout the week a strong market, and manufacturers' prices have been raised ¼d. per lb., the current quotations being 1s. 2d. per lb., but it can be bought in second-hand at 1s. 1¾d.

ACID, TARTARIC.—Again a very firm market, and prices are again advanced. Manufacturers of *English* acid will not sell under 1s. 2½d. per lb. on the spot, whilst *foreign* brands, both in *powder* and *crystal*, are also dearer, and now quote at 1s. 1½d. to 1s. 2d. per lb.

AMMONIA SALTS.—*Carbonate*: 3½d. to 3¾d. per lb. *Liquor*: 3¼d. to 3½d. per lb., less 5 per cent. *Sal ammoniac*: *Firsts* still quote at 39s., with *seconds* at 37s. *Sulphate*: Very dull of sale at a decline of about 6s. per ton; grey 24 per cent. being now quoted at £8 17s. 6d.

ASHES—Steady. Best Montreal *potashes* quote nominally at 35s. to 37s. 6d., whilst *pearlashes* offer at 22s. 6d. to 23s.

ARSENIC—Remains rather slow of sale, and best white powder quotes at 15s. 3d. to 15s. 6d. per cwt., whilst lump offers at 29s.

COPPER SULPHATE.—Again a very strong market, and for ordinary brands £16 is now asked, this being about the lowest figure. The *Anchor* brand is unchanged in price, and quotes at £17 per ton.

CREAM OF TARTAR. — This continues a very firm market, although owing to the advanced views of holders business is somewhat restricted. At the close best white *French crystals* are held for 95s., whilst for *German* brands of powder 95s. to 97s. per cwt. is asked.

POTASH SALTS.—*Bichromate*: Unchanged at 4⅝d. to 4¾d. *Chlorate*: Dull of sale at 4⅝d. on the spot, whilst the Liverpool price remains at 4½d. per lb. *Permanganate*: Very firm, and prices have advanced, as much as 62s. 6d. being asked for small, and 67s. 6d. for large *crystals*. *Prussiate*: Quoted at 8d. per lb. on the spot. The Liverpool price is 8d. to 8¼d.

QUICKSILVER.—*Rothschild's* price remains £7 5s. per bottle, whilst second-hand holders ask £7 3s. to £7 3s. 6d.. There is not much enquiry at present.

SODA COMPOUNDS.—*Bicarbonate* quotes at £7 5s. in London and £6 15s. in Liverpool. *Caustic*, 70 per cent., is still quoted £7 15s., with £6 15s. the price for 60 per cent. *Crystals*: 43s. *ex.* ship. *Hyposulphite*: Steady at £7 5s. to £7 10s. per ton in Liverpool.

TAR DISTILLATION PRODUCTS.—*Toluol*, *Pure* quotes at 1s. 4d. per gallon. *Benzole*: Steady, 50 per cent. being quoted at 1s. per gallon, and 90 per cent. the same price. *Crude Naphtha*: 30 per cent. at 120° C., 5d. per gallon. *Creosote*: 1¼d. per gallon. *Solvent Naphtha*: 90 per cent. at 160° C. 1s. 1d., per gallon. *Pitch*: 38s. per ton, *f.o.b. Tar*, *Refined* quotes at 2¼d. per gallon.

THE DRUG MARKET.

LONDON, SEPTEMBER 19, 1895.

A very quiet week in the drug market must be reported, and only a few articles seem to attract any attention at all. Camphor is quite a dead letter, although nominally prices are firm. Quinine is quiet, but fully steady rates have been paid for small quantities of the best German brands. There is no change to report in any of the other alkaloids, except that caffeine is now much easier. Glycerine is a very firm market, and the prices have been considerably advanced. Of the essential oils there is little of importance to note, cassia and star anise being both firm with nominal quotations. Orris root and saffron are both dearer. At the drug sales to-day the general tone of the market was very quiet. Aloes were in only moderate supply, and only Cape claimed attention. Ipecacuanha was in fair supply, and sold at steady rates, but only to the extent of a few bales of Rio root. The new arrivals of senna leaves were largely offered, and steady but irregular prices were realised. Some fine lots of cardamoms were offered and full prices were realised. Full details will be found below of the various articles of interest:—

ACACIA.—The total amount offered at to-day's sales was 134 cases, but only one lot was sold. *Trieste* gum was all bought in at prices ranging from £9 for good pale hard, down to 90s. for yellowish sorts. A parcel of 20 bales of bold glassy amber sorts from *Aden* sold at 40s. per cwt. Mixed yellow sorts from *Suez* were bought in at 65s. to 75s., and small ordinary ditto at 40s. per cwt.

ALOES.—Moderate supply only was shown to-day. Of *Cape* aloes 42 cases were offered, and sold at rates which show a decline of about 6d. per cwt., good bright hard quality fetching 24s.; fair ditto, slightly drossy, 23s. to 23s. 6d.; ordinary 20s. 6d. to 22s. 6d. down to 19s. for soft dull. Of *Socotrine* only 20 kegs were offered in auction, and these were bought in at 70s. for good softish, and 65s. for fair ditto. Privately there have been sales of good quality at the full rate of 70s. per cwt. *Curaçao*: Only 49 boxes were offered, and part sold at 10s. per cwt. for ordinary drossy dark grades.

AMMONIACUM.—There was a better inquiry shown for this drug to-day, but sales were mostly made when offered without reserve. A parcel of 7 cases of softish block, part pale almonds, sold cheaply as 18s. to 23s. per cwt., and one case of low drossy lump at 6s. per cwt. Another parcel consisting of seedy drop, part loose almonds fetched 27s. 6d., with a single case of very seedy gum at 7s. 6d. A lot of nice loose almonds were bought in at 25s. per cwt.

ANNATTO SEEDS— Steady. 29 packages of *Madras* seed were offered. Of these 5 bags of rather dull colour, but good quality, fetched 3¾d. per lb.

ASAFŒTIDA.—In auction 37 cases were offered, of these 8 cases of ordinary lump, part pinky, and few almonds, fetched 40s. per cwt.

BENZOIN. — Absolutely without inquiry, although some nice lots were shown to-day. In all 152 cases were offered, the majority being *Sumatra* gum. Good seconds, with nice almondy centres, were bought in at

£8 10s. 6d., £8 12s. 6d.; medium ditto, £7 5s. to £7 15s.; and ordinary dark ditto, with fair centres but very false packed sides, £6 5s. to £6 15s. Of *Siam* gum, 8 cases good pale almonds, part block, were bought in at £21 to £24; good bright lump, with small almonds, at £4, and ordinary small loose dusty gum at 72s. 6d. Of *Penang* gum only 7 cases were offered, and bought in at 85s. for glassy seconds. Medium *Palembang* was bought in at 27s. 6d. per cwt.

BUCHU—Dearer. *Round* leaves were in fair supply, and met with a good demand. Four bales of fair greenish, stalky leaves fetching 3¾d.; yellowish ditto, 3d.; and 7 bales of good, bright green leaves, 4½d. per lb. None of the long variety was sold; ordinary to good dull being bought in at 6½d. to 8d. per lb.

CAFFEINE.—Tending lower. For prompt delivery 21s. per lb. will now be accepted, whilst from October to November delivery the price is 20s., and for December ditto, 18s. per lb.

CALUMBA.—No inquiries at all. Of the few lots shown to-day, none of which were of exceptional quality, small sorts were bought in at 18s. to 25s., and wormy ditto at 12s. per cwt.

CAMPHOR (CRUDE).—The market is very firm, but there is really nothing doing at present. Nominally, both *Japan* and *China* quote at 210s. per cwt. *c.i.f.* for June to August shipment. At the drug sales 44 buts of *Japan* (recent import) were bought in at 220s., 200s. being asked in vain, and 5 cases of *China* at 210s. per cwt.

CAMPHOR (REFINED).—The position is unchanged from that noted last week, English refiners quoting 2s. 3½d. for *bells* and *flowers* in 10 cwt. lots, with *squares* at 2s. 4½d. and proportionate rates, but there is little disposition to accept these prices, seeing that this rise was not followed by the *German* refiners, who quote at 1s. 11½d. per lb. and proportionate rates. At to-day's sales 5 cases of *Japan* refined camphor in squares were bought in at 2s. 2d., the price being 2s. 1½d., whilst another parcel of *Japan* was held for 2s. 4d. to 2s. 5d. per lb.

CANELLA ALBA—Steady. Six bales of small broken bark from *New York* sold at 24s. 6d. per cwt.

CANNABIS INDICA.—No inquiries whatever. To-day 40 robbins of brown tops were bought in at 3d. per lb., and another parcel of stalky tops at 2d. per lb.

CANTHARIDES.—None was sold in auction. Fair *Chinese* flies being bought in at 1s. 2d. per lb.

CARDAMOMS.—The supply at the sales to-day was again but small, but it included some nice lots of *Mysore*. The prices realised were rather irregular but generally fully steady to firmer rates were paid, although in one or two instances an exceptional figure was obtained. *Ceylon Mysore*: Fine bold, pale plump, 3s. 3d.; medium to bold pale, 2s. 7d. to 2s. 9d.; small to medium pale, 2s. 1d. to 2s. 6d.; small pale, 1s. 9d. to 2s.; medium yellowish, 1s. 7d. to 1s. 9d., and yellow to brown, part split and speckled, 1s. 6d. down to 1s. 1d. *Ceylon Malabar*: A single case of ordinary mouldy split sold at 1s. 1d.; *Seed* sold at 2s. 1d. per lb.

CASCARA SAGRADA.—None was sold in auction, 23 bales of small to bold pale bark from San Francisco being bought in at 17s. 6d. per cwt.

CASCARILLA.—Only 13 bags were offered. These consisted of small to medium bright quill. The buying-in price was 40s. per cwt.

CASTOREUM.—First quality is very scarce and held for high rates, 120s. per lb. being asked. For ordinary damp thirds, 75s. is the price.

CINCHONA.—The periodical sales were held on Tuesday, when a small catalogue was offered, although rather in excess of last auction. The demand was good, and prices generally ruled firm, the average unit remaining, however, at ⅝d. per lb. The prices were as follows:—*Ceylon*, *Succirubra*: Renewed stem chips, 1⅜d. *Ledger*: Natural stem chips, 1⅜d. to 1⅞d.; hybrid ditto, 1¼d. to 1½d.; root, 2d.; hybrid ditto, 1¾d. Renewed chips and shavings, Ledger, 2⅛d.; hybrid, 1½d. to 2d. *Officinalis* chips and shavings, 1½d.; renewed ditto, 2⅝d. *Indian* bark nearly all was sold, fair *Succirubra* chips and shavings fetching 1¼d. *Officinalis* common to good, ⅞d. to 1⅞d.; root, 2⅞d. Renewed chips and shavings, good rich, 2⅞d. to 3¼d. *Ledger*: Fair to good stem chips 1½d. to 3d., root 2⅛d. to 2¼d. *South American*: *Calisaya*: Cultivated Bolivian quills sold at 2⅞d. to 5d., with damaged at 2d. to 4⅞d. *Cuprea*: Four bales flat sold at ¼d., with water damaged at 1d. per lb. The next *Amsterdam* sale will be held on October 3, when 5073 packages will be offered, whilst the next London sale is on October 15. At the drug sales a parcel of *Huanoco* bark comprising 36 serons sold freely, but at rather easier rates generally, 8½d. being paid for good sound grey quill and 5¼d. to 6½d. for fair ditto, with 4¾d. for damaged grades. Another lot, consisting of flat *Calisaya* bark, was mostly bought in at 9d. for sound, but damaged grades sold at 6d. down to 3d., according to condition. Flat *Carthagena* sold freely at 7¾d. for fair sound, and 5¾d. down to 5¼d. for damaged.

COCA LEAVES.—Four bales of ordinary yellow *Truxillo* leaves were catalogued, but disposed of previously for 8d. per lb. Privately 11d. to 1s. is asked for broken green leaves of good quality, whilst for damaged *Bolivian* leaves 10d. per lb. is the price.

COCCULUS INDICUS.—A parcel of 60 bags of fair quality berries from *Bombay* were offered, and realised 7s. to 7s. 3d. per cwt.

COLOCYNTH.—Only two cases of *Turkey* were offered to-day. They were good bold apple, and the price asked is 2s. 3d per lb. Of *Spanish* a single case of ordinary broken quality was bought in at 10d. per lb.

COPAIBA.—A fair supply was offered in auction, but none was sold, 6 cases of thick *Maracaibo* imported via Hamburg being bought in for 1s. 7d., and cloudy *Maranham* for 1s. 8d. per lb. For the first lot 1s. 5d. per lb. is the price.

CUBEBS—Absolutely neglected. A large supply was offered to-day but no sales were effected, ordinary *Singapore* berries being bought in for 30s., and good quality for 40s. per cwt.

DRAGONS BLOOD.—At to-day's sales only 11 cases were offered. These were all bought in. Good gum in reeds from Shanghai at £11 10s., and good to fine seedy lump at £9 10s., and ordinary dark saucers at £6 10s.; the price asked for the latter being £6.

ELEMI GUM—Unchanged, but there are no inquiries whatever. To-day 30 cases of good clean *Singapore* gum were bought in at 30s. per cwt.

ERGOT OF RYE—Quite neglected. To-day 2 cases of old sifted *Spanish* were bought in at 8d. after a bid of 6¾d. had been refused, whilst 20 bags of new *Spanish* were also bought in, the limit being 9d. per lb.

GALANGAL—Dull of sale. To-day 50 bags of bold root from Hong Kong were held for 25s. per cwt.

GAMBOGE.—Only 9 cases were shown, and these were all bought in at £9 10s. for broken pipe and medium pickings of fair fracture.

GLYCERIN—Dearer. The prices were yesterday advanced 2s. per cwt. by German firms, the current quotations being 55s. per cwt. for best double distilled *s.g.* 1260.

HONEY.—Better inquiry. In auction a parcel of *Jamaica*, part dark liquid and part candied sold pretty freely at prices ranging from 23s. for good clear down to 21s. for fair ditto. Another lot consisting of *New Zealand* honey, part sold at 27s. 6d. per cwt., whilst a parcel of 190 packages of *Australian* part sold at prices ranging from 14s. down to 11s. per cwt. Thirty kegs of *Chilian* were bought in at 27s. per cwt.

INSECT FLOWERS.—Although prices are at present unchanged, the market is very firm, with a tendency to higher prices. The current quotations are:—Open flowers, 56s.; half closed, 79s. 6d.; closed, 115s. per cwt. *c.i.f.*

IPECACUANHA.—A moderate supply of *Rio* (Brazilian) root was offered to-day, and only a few bales found purchasers, the prices paid showing a steady rate. For fair to good medium annulated root 5s. 3d. per lb. was paid, and for ordinary ditto, 5s. to 5s. 2d. No *Carthagena* was sold in auction. Privately 4s. 6d. per lb. is asked for fair damaged quality.

JALAP.—Only 5 bales were offered in auction. They were bought in for 11d. per lb. for ordinary *Vera Cruz*.

KOLA.—At the spice sales *West Indian* sold cheaply, ordinary dark fetching 4½d., and medium to good fair 6½d. to 7½d. At the drug sales *West Indian* nuts sold freely at the current low rates, 7½d. to 8½d. being paid for fair to good *Grenada*, whilst 6½d. was paid for dark mouldy ditto.

LIME JUICE.—Very slow of sale. On Wednesday ordinary *St. Kitts'* was bought in at 1s. 1d. per gallon. Only 1 barrel sold to-day, this realised 1s. 2d. per gallon.

MENTHOL.—The spot price for good white *Crystals* is 13s. per lb., but this might be shaded. For delivery 12s. 6d. to 12s. 9d. per lb., *c.i.f.*, is the quotation. To-day 2 cases of *Japan* were bought in at 14s. per lb.

MYRRH GUM.—Except for low grades there are no buyers. At the sales 5 bales of ordinary drossy sorts sold without reserve at 20s. per cwt., and another lot at 30s. for ordinary smallish sorts.

NUX VOMICA.—A small parcel of *Madras* was offered to-day, and bought in at 4s. 6d. per cwt. for fair quality.

OILS (ESSENTIAL). *Star Anise*: Prices are steady, but there does not seem to be much inquiry for this at the moment.

Holders ask 7s. 6d. to 7s. 9d. per lb. on the spot. For delivery, 7s. 5d. per lb. *c.i.f.* is the last price we heard. *Anise*: For the *Russian* oil, *Schimmels* quote 9s. per lb. *Camphor*: Twenty cases of *white* oil were bought in at 28s. per cwt., and 10 cases of thick brown at 40s. *Cassia*: The market is steady, but there is not much enquiry at present. Nominally 7s. 3d. to 7s. 6d. per lb. is the price on the spot, and 7s. per lb. *c.i.f.* the price for delivery. *Citronella*: Dull of sale at 1s. 2d. to 1s. 3d. on the spot. For delivery it quotes at 1s. 1d., *c.i.f.* *Eucalyptus*: 10 cases of *Amygdalina* oil (Wheeler's brand) sold at 9¼d. per lb., whilst *Native Bear* was bought in at 1s. 3d. *Geranium*: Very firm. For the *Russian* variety 22s. per lb. is the price. *Lemon Grass*: Dull of sale at 1⅝d. *Nutmeg*: Bought in at 3¼d. to 3¾d. per oz. *Peppermint*: *H. G. Hotchkiss'* brand is dull of sale at 10s. per lb. nominally. There is rather better inquiry for *Japan* oil testing 40 per cent. of menthol, which quotes at 7s. 3d. to 7s. 6d., whilst *dementholised* offer at 5s. 6d. *Wayne County* oil quotes at 7s. 6d. per lb. for the new crop.

OILS (FIXED) AND SPIRITS. — *Castor. Italian* oil tends somewhat to lower rates, the finest tasteless oil quoting at 29s. 6d. to 30s. 6d. per cwt. *c.i.f.* The market it *Calcutta* is very firm with a tendency to higher prices, stocks being said to be but smull. At the drug sales to-day, 130 cases of No. 1 *Calcutta* oil were bought in at 2⅜d. to 2½d. per lb. *Cotton*; Dull of sale, with prices tending lower. At the close £17 2s. 6d. to £17 15s. is the price for *refined* oil according to brand and package. *Coco-nut*: *Ceylon* is firm, the present price being £23 to £23 5s., whilst *Cochin* was unchanged at £24 on the spot. *Linseed*, unchanged. At the close £20 15s. to £20 17s. 6d. is still the price for oil in barrels. *Olive*: *Syrian*, £33; *Spanish*, £37. *Rape*, unchanged at £22 on the spot. *Turpentine*, rather firmer, *American* spirit being quoted at 20s. 3d. to 20s. 4½d. on the spot. *Petroleum*, unchanged, *American* oil quotes at 5¾d., *water white*, 6½d. to 6¾d., and *Russian*, 5½d. to 5⅝d.

OIL (COD-LIVER).—Firm. The spot quotation for prime non-freezing oil is 170s., with 160s. the price for old oil. To-day 10 casks of *Newfoundland* oil were bought in at 5s., but were afterwards disposed of for 4s. 6d. per gallon.

ORANGE PEEL.—In auction 10 bags of coarse cut Maltese peel, fair aroma, sold at 5½d. per lb.

ORRIS ROOT.—*Florentine*. The market is very firm owing to reports received from the producing districts that as much as an equivalent of 77s. per cwt. had been paid at one of the fairs on the 13th inst. The prices have toned down somewhat now, and 73s. per cwt. *c.i.f.* is the nearest price that can at present be given for new selected root. There is every indication that prices will advance considerably, and the market in *Verona* root is similarly active, 68s. 3d. per cwt. *c.i.f.* in bales being now asked for good bold root. In auction to-day good picked root was bought in at 85s., ditto Florentine at 90s., but a parcel of 40 bales of rough dark sorts from Bombay all sold at 35s. per cwt. Seven barrels of *powder* were bought in at 65s.

PERU BALSAM.—The spot price is 8s. 6d. per lb. for genuine balsam of direct import. To-day 4 cases were bought in at that figure.

QUININE SULPHATE.—There is rather more inquiry shown in this article, although the amount of business done has not been so extensive. Sale of *B & S* and *Brunswick* have been made at 1s. 1¼d. per oz.

SAFFRON.—Following on the advance noted last week the price has again been raised, and *Valencia*, finest quality, now quotes at 22s. 6d. per lb.

SEEDS (VARIOUS).—*Coriander*: At the sales on Wednesday ordinary coarse *Bombay* seed sold at 7s., with low ditto of 1892 import at 5s. to 5s. 3d. per cwt. *Canary*: *Mogador* seed sold at 33s. 6d. to 34s. per 464 lbs. *Millet*: Dull of sale. A parcel of 118 bags was bought in at 56s. per 464 lbs. *Anise*: In auction to-day 25 bags fair *Spanish* seed were offered, and bought in at 25s. per cwt. *Cumin Seed*: A parcel of 24 bags of *Malta* seed was held at to-day's auctions for 35s. per cwt., whilst another lot from *Marseilles* was bought in for 27s. 6d. per cwt. *Dill*: To-day 20 bags of *Bombay* seed were bought in at 13s. per cwt.

SENNA.—*Tinnivelly*: The new crop leaves were in large supply, and sold at somewhat irregular, but, generally speaking, steady, rates. The prices were: Medium fair green, 4½d. to 5d.; medium greenish, 3½d. to 4d.; small to medium dull, 2½d. to 3½d.; and ordinary dull, 2¾d. down to 1d. No *Alexandrian* were sold.

SHELLAC.—Since our last report a fairly steady demand has been shown on the spot at full prices. *Second Orange* selling at 118s. for bright cakey *TN*, and good *Button* at 127s. to 128s., with blocky firsts at 117s. to 122s. 6d. At the sales on Tuesday, the catalogue was only a small one, and *TN* sorts sold at fully steady rates, but good *second orange* was easier, as was *Garnet*. All the Button was withdrawn. The prices were as follows:—*Second Orange:* Good *BM*, 124s. to 125s.; cakey reddish, 116s. to 117s.; blocky, 107s. to 111s.; common, 93s. *Garnet:* Blocky *OCC*, 95s. to 96s. Since the sales there has been a fair amount of business done in *A. C. Garnet* at 107s. for free, and 105s. for blocky.

SQUILLS—Sold somewhat freely to-day, Fine pale fetched 3½d., and ordinary palish to yellow 2½d. to 2¾d. per lb.

TURMERIC—Slow of sale. At auction all the *Madras* was bought in, whilst a few bags of *Cochin* rough bulbs sold at 4s. 6d. per cwt.

WAX (BEES).—*Jamaica* was in fairly plentiful supply, and sold at steady rates, £7 10s. to £7 15s. being paid. *Madagascar*, part sold at £6 10s. to £6 12s. 6d. *Zanzibar*, £6 5s.; *Tahiti*, £6 5s.; *Australian*, £6 to £6 10s.

LIVERPOOL MARKET REPORT.

[*From our own Correspondent.*]

SEPTEMBER 18, 1895.

DRUGS.—CANARY SEED.—The market in this is quiet and prices easier; 100 bags of Turkish have been disposed of for 33s. 6d. per 464 lbs. on the spot. Prices of parcels to arrive are steady and without change. HEMP SEED.—A little has been done in Chilian at 32s. per 336 lbs. LINSEED.—No business reported, though sellers look for an advance of 3d. per 416 lbs. for forward shipment. KOLA NUTS.—A small amount of dried realised 5d. per lb. CARNAUBA WAX.—A parcel of dark grey, *ex* store, brought 117s. 6d. per cwt.; 40 bags of good grey to yellow made from 120s. to 130s. per cwt. *ex* store, and another lot of grey also made 120s. BEESWAX.—Eight packages of Sierra Leone brought from £3 10s. to £6 7s. 6d. per cwt., according to quality. GUINEA GRAINS.—Small sales at 16s. per cwt. have taken place. GUM ARABIC—Is selling slowly, but prices are unaltered.

OILS.—CASTOR.—A very firm feeling in this at present, and for parcels to arrive the prices are ruling higher. Fifty cases of good seconds Calcutta reported at 2⅜d. per lb., *ex* quay, and first pressure French and Madras are being held at 2⅝d. *ex* quay. OLIVE—Is steady, with small amount of business doing and very light stocks in hand; prices rule between £31 and £39 per ton. LINSEED OIL.—There is a marked tendency to higher rates, Liverpool makes are now at 21s. 9d. to 22s. 6d. per cwt. in export casks. COTTON-SEED—Is firmly held at 17s. 6d. to 18s. per cwt., English or American, in export barrels. SPIRITS OF TURPENTINE.—Spot value 20s. 9d. per cwt., but price is hardening. PETROLEUM—Values unchanged, Russian 5⅞d. to 6d., American 6d. to 7½d.

CHEMICALS.—SAL AMMONIAC.—37s. to 39s. per cwt. SULPHATE OF AMMONIA.—£9 10s. for good grey *f.o.b.* Liverpool. BLEACHING POWDER.—Hard, £7 *f.o.b.*; soft, £6 15s. on rails. Price steadier. SODA CRYSTALS—Have advanced to £2 10s. per ton. SODIUM BICARBONATE.—£6 15s. per ton. CAUSTIC SODA.—70 per cent., £7 10s.; 60 per cent., £6 10s. BORAX.—Price steady, but evincing a disposition to advance; 20s. per cwt. "lump"; 21s. per cwt. powdered. NITRATE OF SODIUM—In fair demand, and steady at 7s. 9d. to 8s. 3d. per cwt. on the spot. PRUSSIATE OF POTASH—Steady at 8d. to 8¼d. per lb. CHLORATE OF POTASH.—4½d. per lb. CREAM OF TARTAR.—Finest white is 90s. per cwt. on the spot, and sales are reported of parcels at a higher rate to arrive, but particulars are not forthcoming. COPPERAS (Green).—Lancashire, 37s. per ton. SULPHATE OF COPPER.—£17 per ton. SODIUM HYPOSULPHITE.—£7 5s. to £7 10s. per ton.

Trade Marks Applied For.

[From the *Trade Marks Journal.*]

No. 188,758.—CHEMICAL SUBSTANCES used for agricultural, horticultural, veterinary, and sanitary purposes.—Frederick William Fletcher, Beauchamp Lodge, Enfield. July 16, 1895. Word: "Exsol."

No. 187,882.—A MEDICINE FOR HUMAN USE.—David Hunter Oxen, 40, Bridge Street, Newcastle-under-Lyme, Staffordshire. May 28, 1895. Word: "Uka."

No. 186,028.—PLASTERS (medicated for human use) and surgical strappings of all kinds (medicated for human use) and medicated wool and medicated lint (for human use) and medicated gauzes for surgical purposes (for human use) and other medicated articles for human use.—Ferris and Company, 7 and 9, Union Street, Bristol. March 6, 1895. Facsimile signature and address of applicants and other wording on a label. The essential particular is the fac-simile signature.

Exchange.

[*Notices of books, apparatus, etc., for exchange, of reasonable length, are inserted free in this column, if they do not partake of the nature of ordinary advertisements. The notices should be written on post-cards, addressed "Editorial Department, 17, Bloomsbury Square, W.C."*]

WANTED.

Literature.

Squire's 'Companion' 16th edition, and 'Art of Dispensing' latest edition; lowest prices post-free to F. H. Prosser and Co., Chemists, Spring Hill, Birmingham.

Miscellaneous.

Second-hand plain or labelled 10 oz., 20 oz., and 40 oz. globe-stoppered w. and n. m. shop bottles; state number and lowest price.—Walker, Chemist, Bath.

OFFERED.

Literature.

Books; some new, all excellent condition. Ainsworth's 'Lat.-Eng. and Eng.-Lat. Dictionary,' in morocco, newly bound, 5*s.*; Squire's 'Companion,' latest, new, unused, 8*s.* 6*d.*; ditto, 1886, with Suppt., 1890, 3*s.* 6*d.*; Muter's 'Analytical Chemistry,' 4th ed., new, unused, 4*s.*; De Watteville's 'Medical Electricity,' 89 plates and illustrations, 5*s.*; Roscoe's 'Chemistry,' 1*s.*; Stirling's, 1*s.* 6*d.*; Materia, 1*s.* 1*d.*—Hill, 3, Crosby Road North, Waterloo, Liverpool.

Wills' 'Materia Medica,' with plates, 5*s.* 3*d.*; Wills' 'Pharmacy,' 3*s.* 9*d.*; Wills' 'Three Hundred Problems in Chemistry,' 2*s.*; Wills' 'Practical Botany,' 2*s.* 6*d.*; Roscoe's 'Chemistry,' 3*s.* 9*d.* All carriage paid.—Chemist, 151, Lillie Road, S.W.

Offers wanted for the following works:—Wills' 'Companion to Practical Botany'; Wills' 'Vegetable Materia Medica,' 1884; Wills' 'Vegetable Materia Medica,' 1886; Bentley's 'Manual of Botany,' 1882; Balfour's 'First book of Botany,' 1872; Balfour's 'Systematic Botany,' 1878; Lindley's 'School Botany'; Royle's 'Materia Medica,' 1876; Hall's 'Health and Disease,' 1866; Gray's 'Anatomy, Descriptive and Surgical,' 1872; Althems' 'Medical Electricity,' 1873; 'Natural Philosophy' 3 vols.; Attfield's 'Chemistry General, Medical and Pharmaceutical,' 1881; Flückiger and Hanbury's 'Pharmacographia'; Watts' 'Fowns' Organic Chemistry,' 2 vols., 1877; Valentin's 'Inorganic Chemistry,' 1879; Armstrong's 'Organic Chemistry,' 1884; Roscoe's 'Elementary Chemistry,' 1882; Willson's 'Chemical Notes,' 1875.—"Gilson," care of Editor, 17, Bloomsbury Square, W.C.

Müller's 'Pharmaceutical Works,' a thick quarto vol., published in Latin in the 17th century, 5*s.* free. — Davis, "Chestnuts," Gordon Hill, Enfield.

Muter's 'Materia Medica,' last edition; Squire's 'Companion,' 13th edition; Kirke's 'Handbook of Physiology,' 10th edition. What offers?—L. L. Stroud, Chemist, Tewkesbury.

Photographic Apparatus.

Camera and complete outfit; cost nearly £15, 1893. Will sell £10. In excellent condition.—Ker, Chemist, Dunfermline.

Lancaster's Special Patent Omnigraph Hand-Camera, fitted with extra "Hiero" finder for side views. Time and instantaneous shutter, complete with large working outfit. Perfect condition, 30*s.*—W. Lean, 59, High Street, Evesham.

5 in. by 4 in. Camera by Marion, R.R. lens, 2 d.d. slides, tripod, solid leather case, Thornton Pickard time and inst. shutter, all nearly new; accept £4 10*s.*, or exchange for 1/1 plate camera (no lens) and difference in cash.—16, Parade, Forest Hill, S.E.

Lancaster's ¼-pl. Mervellieux, tripod stand, 2 double dark slides, in good condition, 23*s.*—Johnson, 35, High Street, Leominster.

Miscellaneous.

Magneto-Electric Machine, good as new, cost 10s. 6d., maker William Hume, Edinburgh. What offers? Pike, 23, Tevictdale Place, Edinburgh,

Two 90 gallon drums, with taps, covered hinged tops; to be sold cheap.—E. C. Whitby, Chemist, Accrington.

Trade Notes and News.

A FRIENDLY game of bowls was played on the 17th inst., on Partick Green, Glasgow, between teams representing North and South. The North was skipped by W. L. Currie and the South by Mr. J. Moir. After a most enjoyable game, with close play throughout, the North was victorious by two shots. Scores: North, 21; South, 19. Teams:—*North*: R. H. Gordon, G. Robertson, J. McNicol, W. L. Currie; *South*: W. S. Galbraith, James Dickie, Hugh Lambie, James Moir.

WE have received an extensive assortment of filter papers from Max Dreverhoff, of Dresden, adapted for every variety of analytical or pharmaceutical requirement. They bear evidence of careful manufacture, and experience has shown them to be satisfactory in every detail.

SOME interesting comments were published in a recent issue of *To-day* upon the attempt to float the Marza Syndicate for the sale of Marza wine, Neigeline, and Taklis, all more or less well-known specialties, the share capital asked being £12,243. It now seems that the company have gone to allotment upon £1000. Altogether the prospect is not very promising in view of the fact that Mr. Aspinall, the chief vendor in the syndicate, has had to call a meeting of his creditors, the liabilities being £6000, and assets £80. An offer was made of 5*s.* in the pound, the cash being found by a friend, which most of the creditors were disposed to accept; but negotiations are at a standstill for the present, owing to the fact that Messrs. Allen and Hanburys, the principal creditors, are not disposed to accept this, and have given their solicitors instructions to make the debtor a bankrupt. It is hoped, however, that in the interest of the creditors generally, this step will not be taken.

Marriage.

MINCHIN—HAVILAND.—On September 17, at All Saints' Church, Gloucester, by the Rev. H. C. Foster, assisted by the Rev. A. H. Cheeseman and the Rev. W. C. Maclean, William Minchin, Pharmaceutical Chemist, 15, Westgate, Gloucester, to Clara Edith, third daughter of the late Mr. J. R. Haviland, of Woodville, Belgrave Road, Gloucester.

New Books and New Editions.

[*Publishers are invited to forward full particulars of new publications, including price.*]

A SYSTEM OF SURGERY. By C. B. BALL and twenty-four others. Edited by Frederic Treves. Two vols. (vol. 1 ready, with two coloured plates and 463 illustrations), 8vo, pp. 1184. Price 48*s.* (Cassell and Co., London)

POISONS, THEIR EFFECTS AND DETECTION. By A. W. BLYTH. Third edition, revised and enlarged, with tables and illustrations, 8vo, pp. 756. Price 21*s.* (Griffin and Co., London)

A MEDICAL AND SURGICAL HELP for shipmasters and officers in the merchant navy, including first aid to the injured. By W. J. SMITH. With coloured plates and numerous illustrations, cr. 8vo., pp. 350. Price 6*s.* (Griffin and Co., London.)

LEPROSY: In its Clinical and Pathological aspects. By G. A. HANSEN and C. LOOFT. Translated by N. Walker. With numerous photographs and coloured plates, 8vo, pp. 176. Price 10*s.* 6*d.* net. (Wright and Co., Bristol, and Simpkin, Marshall, and Co, London.)

THE LAW AND CHEMISTRY OF FOOD AND DRUGS. By H. M. ROBINSON and C. H. CRIBB. Cr. 8vo, pp. 528. Price 8*s.* net. (F. J. Rebman, London.)

MISSOURI BOTANICAL GARDEN. Sixth Annual Report, W. TRELEASE, Director. 56 plates. 8vo. Price 5*s.* (Wm. Wesley and Son, London.)

HYGIENE AND PUBLIC HEALTH. By L. C. PARKES. 4th edit., with illustrations. Post 8vo, pp. 548. Price 10*s.* 6*d.* (H. K. Lewis, London.)

TEXT-BOOK OF NERVOUS DISEASES; being a Compendium for the Use of Students and Practitioners of Medicine. By C. L. DANA. Third edition with Illustrations. 8vo. Price 14*s.* (Sampson Low and Co., London.)

MICROBES AND DISEASE DEMONS: The Truth about the Anti-Toxin Treatment of Diphtheria. By E. BERDOE. Cr. 8vo, pp. 96, sewed. Price 1*s.* (Swan Sonnenschein and Co., London.)

DISEASES OF THE EAR; a Text-book for Practitioners and Students of Medicine. By E. B. DENCH. Illustrated, 8vo, pp. 668. Price 21s. net. (Henry Kimpton., London.)

Late Advertisements.

Assistants Wanted.

QUALIFIED ASSISTANT, for Dispensing business. Apply, giving usual particulars and enclosing photo, to GEO. E. PERRY, Pharmaceutical Chemist, 171, Hagley Rd., Birmingham.

A QUALIFIED ASSISTANT (in-doors), capable of taking full charge in absence of principal. Apply, with full particulars, enclosing photo (to be returned), to W. T. F. MASON'S Pharmacy, Parson's Green, Fulham. S.W.

"Johannis Shares."

WANTED to buy; quote number with lowest price. BOUTALL, 52, Marchmont St., London.

SUPPLEMENT

TO THE

PHARMACEUTICAL JOURNAL.

Proceedings under the Pharmacy Acts.

The decisions in the cases (see page 269), in which judgment was reserved until Thursday, were received at the moment of going to press.

In J. M. Turnbull's case both charges were found not proven, because it was held that one sale is not sufficient to constitute keeping open shop. The Sheriff also held that the word "photographic" so qualified "chemist" that the Pharmacy Act was not infringed by the use of the two words together.

William Hume was convicted of keeping open shop and fined one shilling, with two guineas costs. He was acquitted, however, on the charge of using the title "chemist," because the word "technical" was held to qualify it as in Turnbull's case.

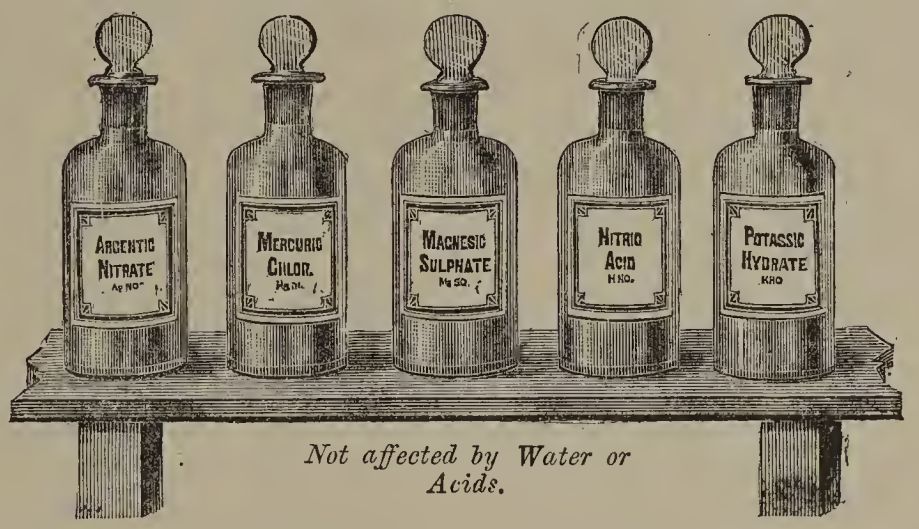
Notice of appeal has been lodged on behalf of the Pharmaceutical Society, in respect of all the points on which adverse decisions have been given.

In the case against William McCallum, the respondent's notice of appeal (see page 269) has been withdrawn.

Trade Notes and News.

Messrs. BURROUGHS, WELLCOME AND Co., Snow Hill Buildings, London, E.C., send specimens of two novel products recently introduced by the firm. The first consists of OPHTHALMIC "TABLOIDS" OF TROPA-COCAINE. — This alkaloid was strongly recommended by Mr. T. J. Bokenham in a paper read before the British Medical Association at Bristol, as being preferable to ordinary cocaine as a local anæsthetic for ophthalmic practice, in that it does not act in any way as a mydriatic. Its anæsthetic effect is much more rapid than that of ordinary cocaine. A "tabloid" may be conveniently dropped into the outer canthus, when it quickly dissolves in the lachrymal fluid and becomes dispersed over the surface of the cornea. These "tabloids" are said to possess distinct advantages over the ordinary solutions, since they may be conveniently carried by the medical practitioner in his pocket case; they may be used as they are, without being previously dissolved; they dissolve at once, unlike gelatin discs, which adhere to the eyelid, and take a long time to dissolve; they keep perfectly in any climate, and are not liable to get washed out of the eye. "TABLOIDS" OF SULPHITE OF MAGNESIUM constitute the second novelty. This salt has been recommended by Dr. Brownlow Martin as a local bactericide in the treatment of follicular tonsillitis, aphthæ, and sarcinæ. When the salt comes into contact with the mucous surfaces it is decomposed into sulphurous acid and oxide of magnesium. The gentleman mentioned has employed the "tabloids" with special advantage.

MESSRS. W. BUTCHER AND SON, Blackheath, London, S.E., have sent for inspection a set of the "Primus" Indestructible Labels for analytical reagents and chemicals. These were briefly mentioned in the Supplement for July 27. The set includes all the ordinary requirements of the analytical chemist, both for reagents and dry chemicals, in very plain type with symbols. Being square they are more convenient than the old form, which often brought the letters to the back of the bottle. They are printed and prepared by a special process, and are easily fixed to glass bottles, from which they cannot be removed by water or acids. The following is the list: —Acetic acid, $HC_2H_3O_2$; Ammonic arseniate, $(NH_4)_3AsO_4$; Ammonic carbonate, $(NH_4)HCO_3$; Ammonic chloride, NH_4Cl; Ammonic hydrate, $(NH_4)HO$; Ammonic molybdate, $(NH_4)_2MoO_4$; Ammonic oxalate, $(NH_4)_2C_2O_4$; Ammonic sulphide, $(NH_4)_2S$; Argentic nitrate, $AgNO_3$; Baric chloride, $BaCl_2$; Black flux, $(K_2Co_3 \times Na_2Co_3 \times C)$; Borax, $NA_2B_4O_7$; Calcic carbonate, $CaCO_3$; Calcic chloride, $CaCl_2$; Chlorine water; Cobaltic nitrate, $Co(NO_3)_2$; Copper, Cu; Cupric sulphate, $CuSO_4$; Distilled water, H_2O; Ferric chloride, Fe_2Cl_6; Ferrous sulphate, $FeSO_4$; Ferrous sulphide, FeS; Fusion mixture, $K_2CO_3 \times Na_2CO_3$; Hydrochloric acid, HCl; Indigo solution; Iron, Fe; Lime water; Litmus solution; Magnesic sulphate, $MgSo_4$; Manganic oxide, MnO_2; Mercuric chloride, $HgCl_2$; Nitric acid, HNO_3; Oxalic acid, $H_2C_2O_4$; Platinic chloride, $PtCl_4$; Potassic bichromate, $K_2Cr_2O_7$; Potassic chlorate, $KClO_3$; Potassic ferricyanide, $K_6Fe_2C_{12}N_{12}$; Potassic ferrocyanide, $K_4FeC_6N_6$; Potassic hydrate, KHO; Potassic iodide, KI; Potassic sulphocyanide, KCNS; Sodic hydrate, NaHo; Sodic phosphate, Na_2HPO_4; Starch, $C_6H_{10}O_5$; Sulphuretted hydrogen, H_2S; Sulphuric acid, H_2SO_4; Sulphurous acid, H_2SO_3; Tartaric acid, $H_2C_4H_4O_6$; Zinc. In fixing, the bottle is made wet by immersing in clean water, the label is then placed in the required position, pressed into contact by the fingers for a minute or two and then the superfluous moisture is wiped off. If the bottle has not a smooth surface the label may require pressing again when partly dry. Allow to stand for two hours. The price is 1*s.* per set of 50, packed in a neat tin box.



Not affected by Water or Acids.

"THE COUNTRY HOUSE" is the title of a new sixpenny illustrated magazine announced to appear in October. The new venture will deal attractively with rural affairs, and appeal largely to country gentlemen. Among the writers who have promised to contribute are the Duke of Argyll, the Earl of Winchilsea, the Marchioness o Carmarthen, Sir John Bennet Lawes, Bart. John Strange Winter, "Son of the Marshes, W. E. Norris, Grant Allen, Robert Barr, Norman Gale, Dr. Gordon Stables, R.N., etc. 'The Country House' will contain 128 pages of letterpress, and be fully illustrated. The editorial and publishing offices are at 30, Fleet Street, London, E.C.

'PHOTOGRAPHIC SCRAPS' (Britannia Works Co., Ltd., Ilford, London, E. *Gratis*) for September deals with the treatment of gelatin prints, process plates, the effects of scarcity of water, etc., etc.

'THE KODAK NEWS' (Eastman Photographic Materials Co., Ltd., Oxford Street, London, W. Price 1*d.*) for September contains articles on the element of luck in photography, platinum toning of printing-out papers, how to succeed with a "Kodak," etc., and it is illustrated with some forty reproductions of pictures made with a pocket "Kodak."

THE LIEBIG'S EXTRACT OF MEAT COMPANY is now supplying, in addition to the well-known Extract of Meat, a Beef Peptone (Peptonum Carnis), prepared by Dr. Kemmerich's method from pure beef only by means of heat and pressure, and possessing the following percentage composition:—

Water	28·95
Gelatin	3·92
Albumin	1·85
Albumoses	23·42
Pancreas Peptone	23·06
Nitrogenous Meat Bases	8·94
Fat	0·18
Sodium Chloride and Phosphates	9·68
	100·00

The total nitrogen is 9·95 per cent., and the total proportion of albumin, albumoses and peptones (nearly 50 per cent.) has never been approached by any similar preparation. The preparation is agreeable to smell and taste, makes a savoury and strengthening broth, and should prove invaluable as a food for invalids. It is supplied in tins with a convenient key arrangement to open them. The 100 Gm. (about 3½ oz.) size retails at 1*s.* 9*d.*, and the 200 Gm. size at 3*s.* 3*d.* Messrs. Corneille, David, and Co., 9 and 11, Fenchurch Avenue, E.C., are the sole agents for the United Kingdom.

THE PASTEUR FILTER, devised by M. Pasteur and Dr. Chamberland—the present director of the Pasteur Institute of Paris—after many years of special investigations, gives reliable protection against typhoid fever, cholera, and all water-borne diseases. It consists essentially of a number of hollow tubes of hard, porous material of a peculiar composition, which it has hitherto been found impossible to imitate or to prepare without the special scientific methods worked out by the bacteriologists in question. It is of the highest importance for all persons who wish to use filters for the protection of their health to remember that the protection which has been shown in practice to be given by the Pasteur Filter is not necessarily obtained by filters made in the same form, and sometimes even of apparently the same material.

JOHANNIS WATER shares seem to be on the fair way to eclipsing those of the Johannesburg Waterworks, remarks the *Financial News*, though there is so little in common between the two that confusion is improbable. "Johannis" has had the honour of being visited at its source, at Zollhaus, by the Prince of Wales, who took a journey of three hours and a half to see the springs and the bottling arrangements. Probably the knowledge that unlimited supplies of this refreshing natural water would be found at the end of the journey enabled the distinguished party to face with equanimity the long confinement in the train. Anyhow, the Prince was delighted with all he saw, and no doubt his visit will do much to increase the popularity of the already well-known water. Although the company was floated so recently as last January, an interim dividend of 6 per cent. has already been paid, and the fact that the £1 shares are at 2¼ indicates what is expected at the close of the financial year.

MESSRS. REYNOLDS AND BRANSON, Leeds, state that their ingenious Bandage Shoot, though only introduced last December, is now in use in Africa, Egypt, New Zealand, Australia, Norway, Japan, America, India, Holland, and Spain.

Company Business.

PRICE AND BURNETT, LIMITED.—Registered by Jordan and Sons, 120, Chancery Lane. London, W.C., with a capital of £2000 in £1 shares (1900 5 per cent. preference and 100 founders'). Objects: To acquire, as going concerns, the business of a chemist and druggist, as lately carried on by William Price, deceased, at 11, Witham, Hull, and also the business lately carried on by William Burnett, at 285, Hedon Road, Hull, and to develop and extend the same. The number of directors is not to be less than two, nor more than three. Registered office: 11, Witham, Hull, Yorks.

F. J. MARTIN AND CO., LIMITED.—Registered with a capital of £2,500 in £1 shares. Objects: To carry on business as chemists, druggists, oil and colour merchants, etc. The principal subscriber is G. A. Worthington, of Southsea, who holds 2494 shares. Registered without articles of association.

THOMAS READ PHILP AND CO., LIMITED.—Registered on August 31 with a capital of £500 in £1 shares. Objects: To acquire the business lately carried on by the late Joseph Philp, at Wadebridge, Cornwall, of a chemist, druggist, grocer, etc., also to enter into an agreement with Susan R. Philp. The number of the directors is not to be less than three nor more than five. The first are: Thomas R. Philp, of Wadebridge, Cornwall (who subscribes for 494 shares out of a possible 500), Mrs. Elizabeth A. B. Philp, and Susan R. Philp. Remuneration as the company may decide.

CRESCO-FYLMA COMPANY, LIMITED.—Registered on August 30, with a capital of £10,000 in £1 shares. Objects: To acquire, develop, etc., certain inventions in photography, and to enter into an agreement with Albert J. E. Hill and Alfred A. Barratt, of the Vicarage, Claygate, Surrey, and to carry on business as photographic dealers, chemists, and manufacturers. The regulations of Table A mainly apply. Registered office: 14, Sherborne Lane, King William Street, London, E.C.

PARKE'S DRUG STORES.—Dividend on the preference for the past half-year of 3 per cent., making, with the interim dividend paid in January last, 6 per cent. for the year, and on the ordinary at the rate of 6 per cent. per annum for the year. £2200 to the reserve fund, and £417 to depreciation account. Forward, a balance of £95.

J. F. MCCLUNE AND CO., LIMITED.—Registered on Sept. 16 by Jordan and Sons, Limited, 120, Chancery Lane, W.C., with a capital of £2000 in £1 shares. Objects: To acquire and carry on the business of a chemist, druggist, patent medicine vendor, and wine and spirit merchant, as now carried on at the Medical Hall, Pontypridd, by J. F. McClune, as J. F. McClune and Co., and to enter into an agreement with the said vendor, and to develop and extend the same. The vendor is to be managing director. Registered office: The Medical Hall, Taff Street, Pontypridd.

A MODERN AMERICAN GALEN.—There is a quaint and original doctor located on one of the islands of Puget Sound, says the *New York Medical Record*. He advertises in posters and placards printed in a home outfit. In one of his announcements he says: "Legs and arms sawed of while you wate without pane. Childbirth and tumors a specialty. No odds asked in measles, hooping cough, mumps, or diarrear. Bald head, bunions, corns, warts, cancer, and ingrowing tow nales treated scientifically. Coleck, cramps, costiveness and worms nailed on sight. Wringworms, pole evil, shingles, moles, and cross eye cured in one treatment or no pay. Private diseases of man, woman, or beast eradicated. P.S.—Terms, cash invariably in advunce. No cure, no pay. P.S. (take notis).—No coroner never yet sot on the remanes of my customers, and enny one hiring me doan't haf to be good layin' up money to buy a gravestone. Come won, come awl." This man is said to do a good business, although you would not expect it, and his patients say he cures diseases and does it thoroughly and quickly.

CHEMISTS' DARK ROOMS.

[*Dark rooms for photographic purposes are provided by chemists in various towns and are free to customers in most cases. Any additions to, or corrections of, the following list should be sent to the Editor.*]

ARBROATH: J. S. WHITE, 57, Guthrie Port.
BIRMINGHAM: SOUTHALL BROTHERS AND BARCLAY, Broad Street Corner.
BOSCOMBE: TAME AND CO.
BOURNEMOUTH: S. HARDWICK, 21, Commercial Road.
BOURNEMOUTH: F. E. BILSON, 1, Lansdowne Crescent.
BRAINTREE: ROW AND SON, High St.
CANTERBURY: E. BING AND SON, St. George's Street.
CHESTER: G. KEMP, 59, Bridge Street.
CHICHESTER: EDWIN THORP.
CLEVEDON: J. H. HART.
CONWAY: L. JONES, Lancaster Square.
DUMFRIES: A. TURNER, Buccleuch St.
HACKNEY, N.E.: W. SHARMAN, 247, Mare Street.
LANCASTER: WYATT AND CO., Stonewell
IPSWICH: WIGGIN AND SON, 34, St. Matthew's.
KESWICK: T. W. TOWNLEY, Market Sq.
LEICESTER: JOHN L. WEST, 3, Market Street.
LONDON: A. D. RAE, 6, Railway Place, Fenchurch Street, E.C.
LOWESTOFT: FRYER AND CO., The Pier Pharmacy.
MIRFIELD: CHARLES CROOK, Easthorpe.
NEWBURGH, FIFE: A. W. SHIRRAS, Dispensary.
RHYL: G. R. LAWRENCE, High Street.
RICHMOND: REX BLANCHFORD, 34, Hill Rise.
RIPON: H. B. RUDD, 29, Westgate.
ROCHDALE: WILLIAM BAMFORD, 242, Yorkshire Street.
ROTHESAY: W. B. JAMIESON, 64, Montague Street.
SCARBOROUGH: WILLIAM PARKER, 96, Westborough and Raneshill Road.
SCARBOROUGH: JOHN WHITFIELD, 113, Westborough, and on the Spa.
SOUTHAMPTON: W. MARTIN, 112, High Street.
SOUTHPORT: J. R. CAVE, 52, Nevill St.
SOUTHPORT: HENRY BALL, 121, Lord Street.
STOKE-ON-TRENT: J. H. ADAMS AND CO., High Street.
TEWKESBURY: A. ENOCH, 124, High Street.
TEWKESBURY: L. L. STROUD, 131, High Street.
UTTOXETER: A. PARKER, High Street.
VENTNOR, I.W.: J. W. LITTLEFIELD, High Street.
WINDERMERE: R. H. BARKER, 13 Crescent Road.
WORTHING: A. B. CORTIS, 30, South St.

Partnerships Dissolved.

[From the *London Gazette*.]

Alfred Henry Harvey and Charles Harvey, Junr., carrying on business as A. H. Harvey and Co., at St. Martin's Lane and Digbeth, Birmingham, as oil and colour merchants, drysalters, and wholesale chemists and druggists. The business will be continued by A. H. Harvey.

Patent Office Business.

[*Specially compiled for the Pharmaceutical Journal.*]

Applications for Patents.

[From the *Illustrated Official Journal.*]

No. 14,489.—An improved wrapping device or holder for facilitating the application of poultices. July 30.

No. 14,555.—Improved vaccination shield or protector. July 31.

No. 14,592.—New or improved means for producing an insecticide spray. August 1.

No. 14,601.—Improvements in surgical bandage materials. August 1.

No. 14,606. — An improvement in the method of making pharmaceutical tinctures, extracts, and liquors. August 1.

No. 14,671.—Improvements in teats for babies' feeding bottles, "comforters," etc. August 2.

No. 14,693.—Improvements in respirators. August 2.

No. 14,845.—A pocket case or receptacle for smelling-bottles and the like. August 6.

No. 14,908.—Improvements in vaginal syringes. August 7.

No. 14,961.—Remedy against sea-sickness. August 8.

No. 15,093.—Improved intensifier, reducer, and toner for photographic purposes. August 10.

No. 15,164.—Improvements in medicine cabinets and chests. August 12.

No. 15,176.—Improvements in spray diffusers. August 13.

No. 15,195.—Braxey prevention specific. August 13.

No. 15,213.—Improvements in abdominal belts or bandages. August 13.

No. 15,383.—Pullan's Harrogate sulphur embrocation. August 16.

No. 15,565.—Improvements in dry and absorbing apparatus. August 19.

No. 15,581.—Improvements in filtering material. August 19.

No. 15,719.—An improved liquid spray. August 21.

No. 15,725.—Hibell's patent truss (being an improvement in a truss for ruptures). August 21.

No. 15,757. — Improved vermin killer. August 21.

No. 15,764.—Improvements in boxes or receptacles for tooth powder and other powders. August 21.

No. 15,856.—Improvements in or applicable to glasses or vessels for containing effervescent liquids. August 23.

No. 15,885.—The manufacture of a new alimentary extract. August 23.

No. 15,888.—Improvements in syringes for injecting morphine and for like purposes. August 23.

No. 15,964.—Improvements in or connected with waist-bands or belts. August 24.

No. 16,505.—Improvements in vaginal syringes. September 3.

No. 16,548. — Photography in colours. September 4.

No. 16,603.—Improvements in dark-room lamps used in the manipulation of photographic sensitive surfaces and substances. September 5.

No. 16,726.—A new or improved appliance for curative purposes. September 6.

Specifications Published July 27.

Carbonate of soda (Peak, C. P., J. and H., and Haddock, A. G.).—When the liquid is near the crystallising point, some colouring solution, such as methylene blue B., is added. The crystals retain a proportion of the colour, and may then be used for laundry, etc., purposes, the blue or other colour neutralising any colour which it is desired to mask, or imparting any required tint to the fabric, etc. No. 14,894 of 1894.

Persulphate of sodium (Loewenherz, R.).—The solid persulphate ($Na_2S_2O_8$) is prepared for bleaching, antiseptic and medicinal purposes, by dissolving solid ammonium persulphate in concentrated soda-lye. Ammonia is liberated, and the strong solution of sodium persulphate remaining is evaporated at a low temperature or *in vacuo*, or alcohol is added, to induce crystallisation. By another method, a solution of sodium sulphate, or bisulphate is placed in a porous cell in a vessel of sulphuric acid, the positive pole of a battery dipping into the former, and the negative pole into the latter. The persulphate is formed within the cell, solid carbonate of soda being added at intervals to neutralise the free acid. The salt is crystallised out as above. No. 16,014 of 1894.

Stoppering bottles, etc. (Lenders, F. H., communicated from Denaeyer, A.).—The top of the bottle is ground flat, and the flat-headed stopper is fitted with an indiarubber ring to rest upon the same. On partly exhausting the bottle, or on warming it and then allowing it to cool, the pressure of the air keeps the stopper in place and seals the bottle. No. 17,207 of 1894.

Precipitating gold and silver from solution (Kendall, E. D.).—For separating gold and silver from solution in potassium cyanide or other solvent, the inventor employs a powdered amalgam of zinc and mercury. The mass produced is treated by an electric current in presence of a dilute acid, whereby the zinc is removed, and the residue containing the gold, silver, and mercury is retorted as usual to remove the latter. No. 8536 of 1895.

Pyrometer (Heys, W. E.).—An ordinary thermometer tube containing mercury in the lower half, and having an inert gas in the upper part, is fitted with a dial and pointer, the latter of which is moved by an ordinary pressure gauge as the movement of the mercury compresses the gas or allows it to expand. No. 10,886 of 1895.

Electrolysing solutions of salt, etc. (Hermite, E., Paterson, E. J., and Cooper, C. F.).—Relates to the production of disinfecting liquids containing chlorine, etc., by the electrolysis of solutions of chlorides, and refers to arrangements of the plant in which the electrolytic cells are tubular and constantly traversed by the liquid under treatment, and to automatic means for cutting off the liquid and electricity when supplied too rapidly. No. 10,930 of 1895.

Specifications Published August 3.

Inhalers (Lake, H. H., communicated from Forné, F.).—Relates to inhalers for application to the mouth or nose, the material to be inhaled being contained in a removable receptacle placed within a compartment in the inhaler. No. 16,855 of 1894.

Oxidising ferrous salts (McCulloch, N.).—To convert ferrous into ferric salts, the action of nitric oxide as a "carrier" of atmospheric oxygen is utilised. The inventor states that about 2-3 parts of nitric oxide will determine the oxidation of a solution of a ferrous salt containing 100 parts of iron. The operation is conducted in a wooden cylinder, in which the solution is agitated by vanes, the nitric oxide having been introduced at the commencement of the operation, and air being passed in as required. No. 17,112 of 1894.

Anhydrous ferric oxide (McCulloch, N.).—For use as a pigment, the inventor dehydrates the precipitated ferric hydrate, which should be free from alumina, by heating it in the water in which it was precipitated, to a temperature of 340° F., or higher. The anhydrous oxide is then run off, filtered, and dried. No. 17,113 of 1894.

Photographing in colours (Mathieu, V.).—Three photographs of the object are separately taken on negatives so prepared as to be only acted upon by the blue, red, and yellow rays respectively. The image on the plate, which is sensitive to the blue rays, is taken through a yellow or orange screen, that for the "red" plate through a green screen, and that for the "yellow" plate through a violet screen. Instead of using these screens, the films of the negatives may be coloured by suitable dyes. Positives are printed from the three negatives on gelatin films sensitised with bichromate and coloured respectively with a blue, red, and yellow pigment, as in the ordinary carbon process, and the three films are stripped from their mounts, and, after washing as usual, are mounted one over the other, whereby the blue, red, and yellow colours of the original are reproduced. No. 17,758 of 1894.

Specifications Published August 10.

Distributing disinfectants, insecticide, etc. (Stott, J. J.).—The disinfectant, etc., is contained in a cylinder fitted and capable of being turned upon the perforated end of a pipe connected with a water supply. The water passes through the disinfectant, etc., and escapes in the form of spray or otherwise, as desired. To ensure solution of the maximum amount of disinfectant, etc., a series of vanes is fitted in the cylinder so as to agitate the contents when the cylinder is rotated by the operator. No. 13,881 of 1894.

Applying local anæsthetics in surgery (Howatson, C. W.). — Relates to lancets, surgical knives, etc., the handles of which are arranged to contain and supply anæsthetics, in the form of spray or otherwise, to the part operated upon. No. 14,727 of 1894.

Ointment for horses, etc. (Budd, H. B.).—The ointment is prepared by boiling together stated proportions of frankincense, beeswax, Burgundy pitch, and salad oil. No. 5659 of 1895.

Disinfectants (Dawson, G.).—For convenience of transport and application, the inventor incorporates carbolic, cresylic, or other disinfectants with paraffin wax or other more or less solid wax. The wax is used in proportions varying from about $2\frac{1}{2}$ per cent., and the resultant is a paste or jelly. No. 11,908 of 1895.

MARKET REPORT.

[*Specially compiled for the Pharmaceutical Journal.*]

CHEMICALS AND DRUGS.

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

THE CHEMICAL MARKET.

LONDON, SEPTEMBER 26, 1895.

The chemical market has again shown considerable activity this week, although the bulk of the trade has been confined to a few articles only. Briefly, the most important features are as follows:—Citric acid has been a very excited market and the makers' prices have been advanced considerably on those of our last report. Tartaric acid has not claimed so much attention, and it is barely steady at the close. Sulphate of copper is again dearer, whilst cream of tartar is also a strong market. Potash compounds show no feature of importance except that permanganate is very firm, whilst hyposulphite of soda tends to higher prices. Full details will be found below:—

ACID, CARBOLIC — Quiet. The current quotations are as follows: — *Crystals*, 34° to 35° C., 5d.; 39° to 40° C., 5½d.; 39° to 40° C. (*detached crystals*), 6½d. per lb. *Crude*, 60 per cent., still quotes at 1s. 6d., with 75 per cent. at 1s. 10d. per gallon. *Liquefied* and *cresylic* are unchanged at 1s. and 11d. per gallon respectively.

ACID, CITRIC.—This has throughout the week been a very strong market, with prices advancing every day. At the close, the manufacturer's price is 1s. 2¾d. to 1s. 3d. per lb., which shows an advance of ¾d. to 1d. per lb. on our last week's price. In second hand 1s. 2½d. to 1s. 2¾d. would probably buy.

ACID, OXALIC.—Steady at the unchanged convention price of 3⅝d. net, delivered free in London.

ACID TARTARIC.—The demand for this article has now toned down considerably, although prices are unchanged. Manufacturers of *English* acid quote 1s. 2d. to 1s. 2½d. per lb. on the spot, whilst foreign brands of acid both in *powder* and *crystal* are unchanged at 1s. 1½d. to 1s. 2d.

ALUM—Unchanged. *Lump* quotes at £5 12s. 6d. to £5 15s. on the spot, and powder at £6 5s. In Liverpool, ordinary *lump* quotes at £4 12s. 6d. to £4 15s. in tierces, £4 15s. in barrels; and *powder* at £5 7s. 6d. to £5 10s. per ton.

AMMONIA SALTS.—*Carbonate*, 3½d. to 3¾d. per lb.; *Liquor*, 3¼d. to 3½d. less 5 per cent.; *Sal ammoniac*: Firsts, 39s.; seconds, 37s. *Sulphate*: Steady. Grey 24 per cent. quotes at £8 17s. 6d.

ASHES—Steady. *Pearl ashes* offer at 22s. 6d. to 23s., and best Montreal *potashes* at 35s. to 36s.

ARSENIC—Unchanged. Best white *powder* still quotes at 15s. 3d. to 15s. 9d., whilst *lump* offers at 29s.

BORAX—Steady at the recent rise, outside makers asking 19s. 6d. for *crystal*, and 20s. 6d. for *powder*, whilst the Convention rates are 20s. and 21s. respectively.

COPPER SULPHATE—Dearer. For ordinary makes the lowest figure is about £16 5s. per ton. The *Anchor* brand is unchanged at £17.

CREAM OF TARTAR.—Very strong market, and a fresh advance of about 3s. per cwt. has occurred. At the close best white *French crystals* quote at 98s. per cwt., whilst for *German* brands of powder 100s. is asked.

POTASH SALTS.—*Bichromate*: Unchanged at 4⅝d. to 4¾d. *Chlorate*: Dull of sale at 4⅝d. on the spot. *Permanganate*: Firm at 62s. 6d. for small and 67s. 6d for large *crystals*. *Prussiate*: Quotes at 8d. per lb. on the spot.

QUICKSILVER.—Quiet. Although the importers' price is still £7 5s. per bottle, it can be bought in second hand for £7 2s. 6d.

SALTPETRE — Steady. British *refined* quotes at 22s. 6d. to 23s. 6d. on the spot, whilst the Liverpool price is 22s. to 23s., according to package.

SODA COMPOUNDS.—*Bicarbonate*: £7 5s. spot, £6 15s. Liverpool. *Caustic* 70 per cent. still quotes at £7 15s., with 60 per cent at £1 less. *Crystals*: A trifle easier at 42s. 6d. *Hyposulphite*: Very strong: £7 15s. to £7 17s. 6d. is the spot price for kegs, whilst in Liverpool it quotes at £7 5s. to £7 10s. per ton.

TAR DISTILLATION PRODUCTS.—*Benzole*: 50 per cent. is firmer at 1s. per gallon, with 90 per cent. quoted on the same mark. *Toluol*: *Pure* quotes at 1s. 4d. per gallon. *Creosote*: Dearer at 1½d. per gallon. *Solvent Naphtha*: 95 per cent. at 160° C. 1s. 3d. per gallon, 90 per cent. at 160° C. 1s. 1d. per gallon; 90 per cent. at 190° C, 1s. per gallon. *Anthracene*: 13*A*, 1s. per lb.; *B*, 9½d. per lb. *Pitch*: 38s. 6d. per ton, *f.o.b. Tar*: 13s. per barrel for *refined*.

THE DRUG MARKET.

LONDON, SEPTEMBER 26, 1895.

The produce markets directly and indirectly connected with the drug trade do not present any very noticeable features this week, although business generally seems to be considerably improved. Of the essential oils, star anise and cassia are firm, but without much inquiry at the moment. Peppermint oils are generally unchanged, whilst rosemary oil have been again advanced in price. The Messina essences are all very firm. Cod-liver oil is now a very brisk market, and advanced prices have been paid. In view of the scarcity of good oil, we are sure to see very high prices this autumn. There is nothing of interest to note amongst the alkaloids, except that quinine is decidedly better. Of raw drugs, scammony is held for higher prices, ipecacuanha sells at full rates for Carthagena, whilst tolu balsam is very firm. Santonin has been advanced in price, and orris root must also be quoted dearer. Spices generally are rather slow of sale, and shellac was very flat at the auctions, although at the close it is firmer. Camphor is quite a dead letter at present. Full details will be found below:—

ACACIA.—*Persian*: Stocks of the so-called insoluble gum remain high. Privately there have been sales of fair sorts at 10s. 6d. to 12s. per cwt., and fine picked at 18s. to 20s.

ALOES—Our contemporary, the *O. P. and D. Reporter*, remarks that the consumption of Curaçoa aloes has been steadily on the increase for the past ten years, and that of the other varieties has gradually declined, in fact, no Barbados aloes has been imported into New York since 1891, that which is sold as Barbados being merely Curaçoa in gourds. It is said to be just as good, inasmuch as the new process of boiling produces a very fine-grained article. It is said that the real reason for the falling off in the imports of the other varieties to the gain of Curaçoa is to be found in the introduction of aloin to take the place of the gum in the making of pills, etc., and Curaçoa was found to contain, on the average, a much greater proportion of this principle, the average being 10 to 16 per cent., whilst in Cape it is only 4 to 8 per cent., and in Barbados 8 to 10 per cent. Socotrine continues to be used almost as much as ever, as its largest consumers are the makers of many liver pills, well known to the public through liberal advertising. The proprietors cannot with safety reduce the size of their pills, which they would be obliged to do if they employed aloin, and, furthermore, their customers, the public, are used to the peculiar taste of the Socotrine aloe. Some of them, however, have made the change.

ARAROBA.—No fine quality has been offered for some time, and it would command 2s. 6d. per lb. readily if available. A parcel of inferior quality offered some few months ago has recently been sold in Hamburg for a parity of 1s. 4d. per lb., a full rate. *Chrysophanic acid* is consequently very firm, and holders ask 15s. 6d. to 16s. per lb.

CAFFEINE—Unchanged. On the spot 21s. to 21s. 6d. would probably buy in second hands. For delivery in October one of the makers quotes 20s., and for December ditto, 18s. per lb.

CAMPHOR (CRUDE).—The market in this article is decidedly easier, in fact it attracted no attention until Monday, when a sale of *China* and *Japan*, June to August, was made at 202s. 6d. per cwt. An American contemporary anticipates considerable attention being devoted to naphthaline as a camphor substitute should the present price be maintained.

CAMPHOR (REFINED).—There has been no change in the official quotations of this article, and *English* refiners still quote at 2s. 3½d. for *bells* and *flowers* in 10 cwt. lots, with *squares* at 2s. 4½d., and proportionate rates. The second-hand stock, especially *English*, is very low.

CANTHARIDES.—The stock of old *Russian* flies seems to be about cleared. The new crop, which is said to be of good quality, offers at 2s. 2d. per lb., *c.i.f.*, or about 2s. 6d per lb. on the spot.

CASSIA LIGNEA— Very firm. A good demand has been shown during the last few days, with sales of fair quality to the extent of 2000 boxes at 31s. to 32s. per cwt.

COCAINE.—Quotations are unchanged, but the market is said to be very firm, the price ranging from 14s. 3d. to 14s. 9d. per oz. in 100 oz. lots, according to brand.

Coca Leaves—Decidedly better. For broken green *Truxillo* leaves 1s. per lb. is the price, and this variety is in better inquiry than either *Bolivian* or *Ceylon* leaves.

Colocynth.—Nominally the market is firm, but there seems little inquiry at the moment, although stocks are low. For good *Turkey* apple, 2s. 3d. per lb. is the price, and for *Spanish* 10d. to 1s, according to quality. The New York market in *Trieste* is uncertain, although stocks are said to be small and little arriving. Quotations range from a parity of 2s. 3d. to 2s. 6d. per lb., and *Spanish* at 1s. 1d. to 1s. 2d.

Copaiba—Generally dull of sale. Good *Maranham* can be bought for 1s. 7d. to 1s. 8d. per lb., with *Para* at 1s. 5d. to 1s. 6d., and *Maracaibo*, at 1s. 3d. to 1s. 5d.

Glycerin—Very firm. *Schering's* double-distilled from water saponified raw glycerin has been advanced, and now quotes at 60s. per cwt. For the *B. & S.* brand, 57s. is quoted, and for others, 54s. to 57s. per cwt.

Insect flowers—Unchanged at 56s. for *open* flowers, 71s. 6d. for *half closed*, and 115s. per cwt. *c.i.f.* for *closed* flowers.

Ipecacuanha — Steady. *Carthagena* (Columbian) root is in fair inquiry at full rates, 4s. 9d. per lb. being the price for good damaged root. Some fresh arrivals have come to hand during the week, and will be offered at the next drug sales. *Rio* (Brazilian) root sells privately at late rates.

Mastic.—There is not much inquiry for this article at present. Of the new crop fine bright drop offers at 1s. 6d. to 1s. 7d. per lb. *c.i.f.*, Smyrna.

Menthol— Very firm. Holders now ask 13s. 3d. to 13s. 6d. on the spot for good white *crystals*. For delivery there is no change, 13s. 6d. per lb. *c.i.f.* being the price for September to October shipment.

Morphine.—There is no change in this article, and the manufacturers' prices are 4s. to 4s. 2d. per oz. in 1000-oz. lots, and *crystals* 2d. per oz. more. *Codeine* quotes at 10s. 3d. to 10s. 6d. per oz. according to quantity and brand.

Oil (Cod-Liver). — This is decidedly dearer. The *Bergen* market is becoming very bare of good quality oil, and 180s. per barrel *c.i.f.* is asked for *Isdahl's* brand, with prime old oil offering at 170s. On the spot 170s. and 175s. have been paid for the present season's oil. Holders now ask 180s. per barrel. *Newfoundland* oil is also in good odour, and 5s. per gallon has been paid during the week.

Oils (Essential).—Generally speaking the essential oil market is steady with but little change in the prices. Reports from *China* indicates a firm market in both *Star Anise* and *Cassia* oils, and a further advance is anticipated in the value of the former. As to *Cassia* oil, the new season's product seems to be very poor in quality, with but small supplies of any kind. On the spot 7s. 6d. per lb. has been paid during the week for *Star Anise* oil, and holders ask 7s 7½d. For delivery we have not heard a price recently; the last was 7s. 5d. per lb. *c.i.f.* *Cassia* oil is firmly held. Nominally 7s. 6d. per lb. is the spot price for oil testing 70 to 75 per cent. cinnamonic aldehyde, whilst for delivery, 7s. 3d. per lb. *c.i.f.* is the price. For 75 to 80 per cent. oil, 8s. per lb. is asked. There are no offers of 62 per cent. oil on the spot, but it seems probable in view of the scarcity of good oil, that considerable quantities will be put on the market. *Ginger Grass* oil is dull of sale at 2½d. per oz. *Camphor*: For dark oil of which a parcel imported *via* Hamburg was bought in at the last sales, 30s. per cwt. is asked. *Citronella*: Steady, but somewhat slow of sale. On the spot, 1s. 3d. to 1s. 3½d. per lb. is asked, and for delivery, 1s. 1d. per lb. *c.i.f.* terms. *Bergamot*: Quotations very firm, 9s. 6d. to 10s. per lb. *f.o.b.* Messina. *Lemon*: Dearer. Quotations vary from 3s. 5d. to 4s. per lb. *f.o.b.* Messina. For extra super essence, *Fratellia* asks 3s. 5d. per lb. *f.o.b.* *Lemon Grass*: Dearer. On the spot 1⅞d. per oz. has been paid, and holders now ask 2d. per oz. *Rosemary*: Genuine *Dalmatian* oil has again advanced in price, and 158s. per cwt. *c.i.f.* is now asked. *Peppermint*: *H. G. Hotchkiss'* oil is unchanged at 10s. per lb. nominally on the spot, but this price could probably be shaded. *Japan* oil, testing 40 per cent. menthol, is unchanged at 7s. 6d. per lb. on the spot, and for delivery, September to October shipment, 7s. to 7s. 3d. per lb. *c.i.f.* is the price. *Dementholised* is steady at 5s. 6d. to 5s. 9d. per lb. on the spot, with 5s. 6d. per lb. *c.i.f.* asked for delivery. *Wayne County* oil quotes at 7s. on the spot, and the *Mc. and R.* brand at 7s. 6d. per lb. *c.i.f.* terms. Contrary to what one would expect, in face of the shortage in the new crop of oil, the *American* market is said to be easing off, and advices from the West state that holders are more anxious to sell new oil than they have been. An exception to this is *Wayne County* oil, which is not being offered so freely.

Oils (fixed) and Spirits. — *Castor*: Fine *Italian* tasteless oil still quotes at 29s. 6d. to 30s. 6d. per cwt., *c.i.f.*, terms. *Cotton*: Steady nominally, but the demand is slack. The price for *refined* oil is £17 5s. to £17 15s., according to brand and package. *Coco-nut*: *Ceylon* is quiet, with little change in price, the current rate being £23, whilst *Cochin* is unchanged at £24 on the spot. *Linseed*: Lower by 2s. 6d. The price is now £20 12s. 6d to £20 15s. for oil in barrels. *Olive*: *Syrian*, £33; Spanish, £37. *Rape*: Unchanged at £22 on the spot. *Turpentine*: Dearer. For *American* spirit the spot price is now 20s. 4½d. to 20s. 6d. *Petroleum*: Very dull of sale at lower rates. *American* oil now quotes at 5½d. to 5⅝d; *water white*, 6½d. to 6¾d.; and *Russian* at 5½d. on the spot. *Petroleum Spirit*: *Ordinary*, 9d. to 9¼d; *deodorised*, 9¼d. to 9¾d.

Opium.—There is no particular feature to note in this article, and quotations rule as follows:—*Turkey*: good to fine *soft shipping* 10s. 6d. to 12s. per lb. *Smyrna*: 8s. to 9s.; *druggists' firsts*, 8s. 6d. to 9s.; *ditto seconds*, 7s. 6d. to 8s. *Persian*: The stocks are very low, and good to fine qualities quote at 12s. to 13s. Sales of fine, in bricks, have been made at 12s. 9d. per lb.

Orris Root—*Florentine*. The market seems now to have settled down somewhat, but the prices show an advance on what was originally anticipated. At the close the price asked for best selected root is 76s. per cwt. *c.i.f.*, whilst for good bold *Verona* 69s. to 70s. per cwt. *c.i.f.* is the price.

Otto of Rose—Advancing steadily, and 31s. per oz. Turk is quoted for one well-known brand.

Peru Balsam.—There seems to be little inquiry in this article at present, and the same applies to the New York market, where it is on offer at a parity of 8s. 10d. to 9s. per lb. On the spot, 8s. 6d. per lb. is the nominal price, but probably a trifle less would be accepted for genuine balsam.

Pilocarpine—Very scarce. Nominally the current price for *nitrate* and *hydrochlorate* is still 9s. 6d. per gramme.

Quinine Sulphate.—The market is very firm. Closing last week, at 1s. 1¼d., sales have been made since at 1s. 1⅜d. and 1s. 1½d., including 20,000 ozs. of *B. & S.* and *Brunswick* at the latter figure. At the close there are further buyers at 1s. 1⅜d., but holders still ask 1s. 1½d., and even at that figure are not inclined to do much business.

Saffron.—Steady at unchanged rates. Super extra *Valencia* quotes at 22s. 6d., and *Bajo* at 19s. per lb.

Salicin.—The current quotation is still 8s. per lb. for 1 cwt. lots, with 28 lbs. at 8s. 6d.

Santonin—Dearer. The makers have advanced the price of this drug, and 5s. 6d. per lb. is now asked.

Scammony—*Root* is very firm, and none is to be had under 40s. per cwt. This price seems likely to be maintained owing to the embargo laid by the Turkish Government being still in operation. *Turkish* virgin resin is also firmly held, and quotes at 31s. to 32s. per lb., whilst *Skillipe* is worth 11s. to 12s. nominally. *Scammony resin* is still quoted by the manufacturers at 9s. per lb.

Shellac.—The market generally is very slack, and sales have been only small at late rates. Arrival prices are unchanged, *TN Orange* quoting at 110s. per cwt. *c.i.f.*, Nov. to May steamer. At the sales on Tuesday a quiet demand only was shown for a small catalogue, *Second Orange* selling at fairly steady rates, whilst *Button* and *Garnet* were cheaper. The prices paid were as follows:—*Second Orange*, bright red, part block, 112s. to 113s., whilst good bright cakey was bought in at 120s. *Button*, ordinary circle 1, sold at 106s., and common resinous circle 4, at 64s. to 65s., whilst firsts were bought in at 119s., seconds at 110s., and thirds at 98s. Of *Garnet*, a few cases of ordinary glassy sold at 91s. to 92s. per cwt. Since the sales the market has been firmer, but with no appreciable change in price.

Spices (various).—*Cloves*: Dull of sale. In auction only a small proportion found buyers, and then mostly without reserve. Good to fair *Zanzibar* sold at 2¼d., and medium at 2⅛d., whilst fair quality *Amboyna* was bought in at 4¾d. per lb. *Pepper*: Nearly all was bought in at the sales, a few bags only of *Singapore* selling at 2½d., whilst heavy ditto were bought in at 2⅜d. to 2½d. per lb. *White Pepper* was in good supply, and the demand was also good. Fair quality *Penang* sold at 2⅛d. Good, *Singapore*, 4⅛d. to 4¼d., and fair *ditto*. 3⅞d., while fine bold Singapore sold at 4⅝d. to 4¾d., and very fine bold at 5⅜d. to 5½d without reserve. *Chillies*: Small supply only. Twenty-one bales damaged *Zanzibar* sold at 28s. per cwt. *Capsicums*: Small *East Indian* were bought in at 23s. *Pimento*: Steady. Ordinary grey sold at 2¼d. and fair ditto at 2⅜d. to 2⅛d. *Ginger*: *Cochin* is still dull of sale, and only a few bags sold, fair medium and small washed fetching 34s. and dull to medium bold cut sorts (A) 68s.

to 70s. *Bengal* was bought in at 23s. per cwt.

SENEGA ROOT.—Dull of sale, at the present low rates. Nominally the price asked for good quality root is 1s. 3d. per lb., whilst for delivery it quotes at 1s. 1½d. per lb. Reports from New York state that little root is offering, but demand is slight at present, *Minnesota* quoting at a parity of 1s. 0½d. to 1s. 1d., and *Manitoba* at 1s. to 1s. 0½d.

SERPENTARY.—There is not much inquiry for this drug. Nominally 1s. 3d. per lb. is the spot price.

SOY—Remains dull of sale, fair *China* quoting at 1s. to 1s. 1½d. per gallon nominally.

SPERMACETI—Firm. Refined *American* quotes at 1s. 4¼d. per lb.

STORAX.—Best quality liquid quotes at 60s. per cwt. in casks, and 65s. in tins or cases, both *f.o.b.*, Trieste.

SUGAR OF MILK.—Very strong. It is doubtful if best white powder could be now bought under 60s. per cwt.

TOLU BALSAM.—Firmer. Really good old-fashioned tolu is decidedly firmer, and holders now ask 1s. 9d. per lb. For fair "glassy" balsam 1s. 6d. per lb. is the price.

TRAGACANTH,—A fair business has been done at the following rates:—Firsts, £13 to £13 10s.; seconds, £11 5s. to £12 10s.; thirds, £10 to £11 10s.; fine pinky and yellow, £5 15s. to £6 15s. Prices for *hog* are nominal at 50s. to 80s. per cwt.

TURMERIC — Lower. At the sales on Tuesday only a moderate amount sold, 7s. 6d. to 10s. being paid for ordinary to good bright *Madras*, and 7s. 6d. for *Cochin* bulbs. Ordinary *Bengal* was bought in at 9s.

WAX (JAPAN)—Remains slow of sale, with small sale only of good white *squares* at 26s. to 26s. 6d. per cwt.

LIVERPOOL MARKET REPORT.

[*From our own Correspondent.*]

SEPTEMBER 25, 1895.

DRUGS.—CANARY SEED.—In slightly better demand for Turkish, which is at 34s. to 34s. 6d. per 446 lbs., and 460 bags have been disposed of at the first figure. LINSEED—Is very dead, no sales are reported either on the spot or to arrive. GINGER.—Twenty bags of Cochin have brought 35s. per cwt. *ex* store, and 17 bags of good quality Sierra Leone 27s., as well as some Monrovian at 25s. 6d. CHILLIES.—Small sales of good medium Sierra Leone have been made at 30s. per cwt. TURMERIC.—Of Madras "finger," 20 bags *ex* store realised 10s. 3d. per cwt. KOLA NUTS.—At auction 8 packages of dried went for 5¼d. per lb., whilst 14 bags ditto *ex* store also made the same figure; 11 bags of Gaboon dried changed hands at auction for 5¾d. *ex* quay. CARNAUBA WAX.—Some sales of yellow of poor quality are reported at 130s. per cwt., and grey at 122s. 6d. GUM ACACIA.—Arabic varieties slow of sale at recent rates.

OILS.—LINSEED.—Liverpool makes are quieter, and in export casks the present rate is 21s. 3d. to 22s. 6d. per cwt. COTTON SEED.—Liverpool makes steady at 17s. 6d. to 18s., and American firmly held at 17s. 9d. to 18s. per cwt. OLIVE.—In fair demand at steady prices, which lie between £31 to £39 per tun. CASTOR OIL.—Market is steady at previous rates. Calcutta good seconds 2⅛d. per lb.; French, 1st pressure, and Madras, 2⅛d. spot prices. TURPENTINE.—Firm and in good request at 20s. 9d. to 21s. per cwt. PETROLEUM.—Slow of sale. Russian refined, 5⅞d. to 6d. per gallon; American, still at 6d. to 7½d.

CHEMICALS.—SODIUM SALTS.—*Caustic Soda*: 70 per cent., £7 15s. to £8; 60 per cent, £6 15s. to £7. *Soda Crystals*: Quiet. £2 10s. *f.o.b.* *Bicarbonate*: £7 per ton. *Borax*: Lumps, 20s. per cwt.; powder, 21s. *Nitrate*: 7s. 9d. to 8s. 3d. per cwt. AMMONIUM SALTS.—*Sal Ammoniac*: Steady at £39 per ton, 1st; £37 per ton, 2nd. *Sulphate*: £9 5s. per ton, *f.o.b.* POTASSIUM SALTS.—*Chlorate*: Quiet, spot and forward value 4½d. to 4¾d. per lb. *Prussiate*: 8d. to 8¼d. per lb. *Potashes*: 22s. per cwt. *Pearlashes*: 37s. 6d.. to 40s. per cwt. BLEACHING POWDER.—£7 per ton, hardwood casks, *f.o.b.*, Liverpool. COPPERAS.—37s. per ton, Lancashire (green). SULPHATE OF COPPER.—£16 10s. to £17 per ton, *f.o.b.*

Obituary.

TUGWELL.—On September 20, William Henry Tugwell, Pharmaceutical Chemist, Greenwich. (Aged 64.) Mr. Tugwell had been a member of the Pharmaceutical Society of Great Britain since 1865.

HOWARD.—On September 22, John Howard, Chemist and Druggist, Ely. (Aged 52.)

ALLSWORTH.—On September 20, Norman Allsworth, Pharmaceutical Chemist, Bromley. (Aged 40.) Mr. Allsworth had been a member of the Pharmaceutical Society of Great Britain since 1884.

RANDALL.—On September 13, F. J. Randall, Chemist and Druggist, Chelsea. (Aged 43.) Mr. Randall was an Associate of the Pharmaceutical Society of Great Britain.

THOMSON.—On Saturday, September 8, at Ryde, Isle of Wight, E. A. Thomson, a south coast traveller of Messrs. Burroughs, Wellcome and Co., Snow Hill Buildings, London, E.C. The deceased gentleman had had a very varied experience in all parts of the world. He had travelled through China, Japan, and America, and lived for some time in Singapore. Mr. Thomson lived at Taunton, and leaves a widow to mourn his loss.

KIRBY.—As briefly announced last week, Mr. William Henry Kirby died from the effects of a gas explosion on the 18th inst. He was born on August 27, 1858, at High Wycombe in Buckinghamshire, and after completing the usual course of scholastic training at the Grammar School of his native town, he entered the office of a merchant. After some two years' work as a clerk, he left for a better appointment under a local architect. Next leaving his native town for London, he soon obtained a position as junior clerk in the firm of Burroughs, Wellcome and Co., of Snow Hill Buildings, at the beginning of their career. His fine business qualifications, his sterling worth, his scrupulous honesty, and his careful grasp of detail soon brought him prominently under the notice of the partners, and before long he had rapidly risen to one of the important and responsible posts in the establishment, that of chief accountant and assistant general manager to the firm. The funeral took place on Saturday, September 21, at High Wycombe.

BEALE.—Frederick O. Beale, Pharmaceutical Chemist, South African travelling representative of Messrs. Burroughs, Wellcome and Co., died suddenly on the morning of the 29th ult., at the Grand National Hotel, Johannesburg, where the deceased went in the hope of obtaining some benefit from the African climate, as his constitution was naturally weak and he suffered from consumption.

Trade Marks Applied For.

[From the *Trade Marks Journal.*]

No. 186,621.—PATENT MEDICINES for human use for the cure of gout and similar complaints, and for the cure of whooping cough and similar complaints. — John Richards and Co., 22, Tremlett Grove, Junction Road, London, N. March 30, 1895. The words: "The Hawk's-eye Remedies" in a square. The essential particular is the word "Hawk's-eye."

No. 187,037.—A MEDICATED FOOD FOR HUMAN USE. — Robert Free, Harwich Road, Mistley, Essex. April 13, 1895. A design and the words "Edme Brand."

No. 188,292.—MEDICINE FOR HUMAN USE. —Wynne Tighe and Son, 3 and 4, High Street, Exeter. June 20, 1895. Device of St. John's Hospital School Gate and the words "Tighe's Ammonine."

No. 188,802.—COMPRESSED DRUGS and medicines for human use.—Samuel Bergheim, 62, Gray's Inn Road, London, W.C. July 18, 1895. Word: "Zalone."

No. 188,493.—A MEDICINE for Cows.—Yates Brothers, 49, Friargate, Preston. June 29, 1895. Device: A cow's horn with applicant's name and address, and other wording on a label. The essential particular is the device of the cow's horn.

No. 188,584.—CHEMICAL SUBSTANCES used for agricultural, horticultural, veterinary, and sanitary purposes. The Dinting Soap and Chemical Company, Limited, Newton Chemical Works, Hyde, near Manchester. July 4, 1895. Word: "Macrozel."

No. 188,101.—MEDICINES IN TABLETS for human use.—Keene and Ashwell, 74, New Bond Street, London. June 10, 1895. The word "Keenwell," combination of devices, and name and address of applicants on a label. The essential particulars are the word "Keenwell" and the combination o devices.

No. 188,673.—A MEDICATED PREPARATION for chapped hands and sunburn.—Allan M. Nicolson, 64, Victoria Street, Newton Stuart, Scotland. July 11, 1895. Words: "Nalla Jelly." The essential particular is the invented word "Nalla."

No. 188,759.—CHEMICAL SUBSTANCES prepared for use in medicine and pharmacy. —Frederick W. Fletcher, Beauchamp Lodge, Enfield. July 16, 1895. Word: "Solex."

No. 188,865.—AN OINTMENT for human use.—Frederick May, 23, Grove Road, Bow, London, E. July 22, 1895. Words: "May Queen" in a square.

Chemists' Assistants' Association

Programme for the Half-Session, October to December, 1895:—

October 3.—Inaugural Address. By the President.

October 11.—(Friday) Smoking Concert, Frascati Restaurant.

October 17.—Paper: "Some London Waters." By Frank R. Stephens.

October 24.—Short Papers by Members.

October 31.—Paper: "The Commercial Application of Electrical Energy." By John F. C. Snell, A.M., Inst. C.E., A.M., Inst. E.E. (At the conclusion of this paper the members are invited by Mr. Snell to visit the St. Pancras Electric Light and Power Station, and thus see many points of the paper practically illustrated.)

November 7.—Paper: "Pharmaceutical Politics. By J. Harrison, J.P., Vice-President of the Pharmaceutical Society.

November 14.—Annual Conversazione, Portman Rooms, Baker Street.

November 21.—Discussion: Work and Policy of the Federation of Local Associations. Introduced by a paper from Dr. Symes, of Liverpool.

November 28.—Paper: "Jaborandi Leaves of Commerce." By E. M. Holmes, F.L.S.

December 5.—Paper: "Some B.P. Infusions and their Concentrated Representatives." By R. A. Cripps, F.I.C.

December 12.—Paper: "Alchemy." By A. C. Meyjes.

December 19.—Cinderella Dance, Portman Rooms.

Meetings at 8.30 p.m. Chair to be taken at 9 o'clock precisely.

Commercial Notes.

SANDAL WOOD AND OIL.

BY P. L. SIMMONDS, F.L.S.

The demand for sandal wood in Europe is inexhaustible, but it is chiefly sent from Bombay and Mangalore in India, and from Western Australia to China, where it is used for ornamental work of different kinds and for incense.

In Southern India the small tree grows naturally in the drier parts of Mysore, Coimbatore and Salem districts, extending south to Madura and north to Kolhapur. It is met with generally at an elevation of from 2000 to 3000 feet. The maturity of the tree is judged to be as soon as possible after the formation of the heart wood. The crop value of a fully stocked plantation, cut at forty years, supposing it at that time to contain 100 mature trees per acre, of a net value of £3 each, will be £300 per acre.

In Mysore the tree is a monopoly of the Indian Government, which brought them in a surplus profit in the decennial periods as follows:—

1833–43	£12,789
1843–53	14,568
1853–63	17,558
1863–73	23,147

The yearly cuttings of sandal wood were formerly restricted to 500 tons of growing trees, but in 1878 this was extended to 1000 tons extra, making 1500 tons in all.

In the year 1878-79 the sales in Mysore were 1080 tons, averaging £34 a ton. In the following year 1396½ tons were sold, at £35 a ton, bringing in a profit to the Government of £39,431. At the annual sale in India in 1889, 2420 tons of sandal wood were sold, value £80,000 to £90,000.

The value of the exports of sandal wood from India were in 1880 but £38,000. They have been of late years (for the financial years ending in March):—

1890	£63,945
1891	79,482
1892	81,083
1893	64,755
1894	89,495
1895	56,736

The imports of sandal wood into China were, in 1867, 35,279 piculs, and in 1877, 72,935 piculs. The picul is about 1¼ cwt., since then they have been as follows:—

	Piculs.
1880	73,246
1881	108,262
1882	103,302
1883	82,136
1884	53,437
1885	86,114
1886	83,601
1887	75,432
1888	88,590
1889	107,810
1890	116,966
1891	97,458
1892	120,866
1893	117,887
1894	103,749

The imports have doubled in the last twenty-five years, and now average about 140,000 cwt.

The average exports of sandal wood from all countries to the Straits and China are from 6000 to 7000 tons a year. The sandal wood of Western Australia (*Santalum cygnorum*) is spread over an area extending from the Great Australian Bight to Shark's Bay. In order to protect the sandal wood cutting industry, and prevent the cutting and grubbing up of immature wood, the Goverment recently proclaimed an area within which no live or growing tree should be grubbed up during a period ending on April 26, 1895.

Licences to cut sandal wood from waste lands of the Crown are issued at 2*s.* 6*d.* per month per cutter.

The sandal wood trade, which in the year 1891 showed undoubted evidence of stagnation in Chinese markets, now evinces a revival, owing to an upward tendency in prices. Large stores of sandal wood are lying ready in the colony, awaiting a favourable opportunity for shipment.

The value of the sandal wood exported from Western Australia in the last eleven years has been as follows:—

1883	£57,250
1884	20,960
1885	36,216
1886	27,450
1887	34,532
1888	33,525
1889	57,465
1890	51,355
1891	32,600
1892	42,870
1893	32,160

Sandal wood contains a large percentage of oil, and this has lately been exported from Western Australia to a small extent. The yield is about 2½ per cent. It is important not only for cosmetics but also for medicinal use. The shipments of the oil were to the value of in—

1890	£1675
1891	1530
1892	330
1893	2242

The bulk of it came to the United Kingdom.

Santalum preissianum, Miguel, of South Australia is very rich in oil, which is much sought after in China. The wood in the rasped condition has a peculiar balsamic odour suggestive of roses. A brown redwood of Madagascar yields a so-called sandal wood oil, but like the West Australian is of no practical importance. The distinguishing characteristics of the three principal oils are:—

	sp. gr.	rotary power
East Indian	0·978	− 17°20′
Macassar	0·976	− 18°40′
West Australian	0·953	+ 5°20′
English	0·971	

The other species of sandal wood utilised are:—

S. freycinetianum, Gaudichaud, which produces wood of a particularly rich perfume, in the mountains of Hawaii.

S. yasi, Seeman, a powerfully scented wood in Fiji.

S. austro-caledonicum, Viellard, the Erimango of New Caledonia, which furnishes a wood excellent for the strength and agreeableness of odour. Other species occur in Polynesia. The roots, which are the richest in oil, and the chips go to the still, and the Hindus can afford to show their wealth and respect for their departed relatives by adding sticks of sandal wood to the funeral pile. The wood, either in powder or rubbed up into a paste, is used by all Brahmins in the pigments for their distinguishing caste marks. In the manufacture of rose oil a little sandal oil is usually introduced into the still. Not even the richest native will give the price at which the purest rose attar can be obtained. At the time of sale a few drops of sandal oil are placed in the neck of the carboy to give it fresh scent, and to many of the natives it appears perfectly immaterial whether the scent arises solely from the sandal oil or from the roses. The chief use of this sandal attar is at the period of festivals and weddings. It is then distributed largely to the guests as they arrive, and sprinkled with profusion in the apartments.

BANANA YEAST.—According to the *British Trade Journal*, banana flour, from its richness in starch and good flavour, is said to be particularly suitable for the manufacture of yeast, the product having a good colour, all the requisite properties of an excellent class or yeast, and keeping well. Alcohol obtained by means of it leaves nothing to be desired. Satisfactory experiments have been made in some breweries, where 20 per cent. of malt has been replaced by the less expensive flakes and flour of bananas. The flavour of the beer was not altered, but the quantity of liquid was increased.

Exchange.

[Notices of books, apparatus, etc., for exchange, of reasonable length, are inserted free in this column, if they do not partake of the nature of ordinary advertisements. The notices should be written on post-cards, addressed "Editorial Department, 17, Bloomsbury Square, W.C."]

WANTED.

Cotton's Guttæ Surditæ, or maker's address.—Croyden and Co., chemists, 45, Wigmore Street, W.

'Hargreaves on Venereal Diseases,' last edition, and Green's 'Short History of the English People.' Books in exchange for either 'Qualitative Chemical Analysis,' by Thorpe and Muir; Watts' 'Chemistry,' ed. 1889; Strasburger's 'Practical Botany' and 'Wills' Pharmacy.'

Second-hand gilt show mortar wanted. State size and price—Mitchell, 19, High Street, Fort William.

OFFERED.

Literature.

Watts' 'Fownes' Organic Chemistry,' edited by Tilden, last edition, new, unused, carriage free, 6*s.* 8*d.*; Wills' 'Volumetric Analysis, 1*s.* 8*d.*; or would exchange for Squire's, 16th edition.—G. W. Kendall, Market Place, Bedale.

Cassell's 'Family Physician,' 1st edition; 'Year-Book of Pharmacy,' 1874 to 1886, with index, fourteen books; 'Book of the Dog,' Vero Shaw, numerous beautiful life-like coloured illustrations, published at 35*s.*, in good condition.—Picken, Chemist, Newport, Salop.

Thome's 'Botany,' 2*s.* 6*d.*; Wills' 'Qualitative Chemical Analysis,' 1*s.*; Wills' 'Inorganic Chemistry,' vol. i., 1*s.* 6*d.*; Armstrong's 'Organic Chemistry,' 6th edit., 1890, 1*s.*; Shepard's 'Inorganic Chemistry,' 1*s.*; Thorpe's 'Inorganic Chemistry,' vol. i., non-metals, and vol. ii., metals, latest edition, 1*s.* 6*d.* each vol.; Bloxam's 'Laboratory Teaching,' 6th edit., 3*s.*; all in excellent condition; post free.—Eugene Henry, Loampit Vale, Lewisham.

Bentley's 'Manual of Botany,' 7*s.* 6*d.*; Wills' 'Elements of Pharmacy,' 3*s.* 3*d.*; Wills' 'Materia Medica,' 3*s.* 6*d.*; Cook's 'Botany'; Wills' 'Analysis'; Wills' 'Physics, and Wills' 'Dictionary of Botanical Terms.' Price, 3*s.* the lot, post paid.—R. W. E. Hall, 7, Morpeth Street, Hull.

Culpepper's 'Complete Herbal,' published 1820, by Thomas Kelly, with illustrations of upwards of 400 different plants.—Cory, Newport, Isle of Wight.

Pereira's 'Selecta è Prescriptis,' 2*s.*; Helbing's 'Modern Materia Medica,' revised, 2*s*; Müller 'Opera Pharmaceutica Chymica,' 1686, quaint old work of about 1000 pages, 5*s.* All post free.—Davis, "Chestnuts," Gordon Hill, Enfield.

Photographic Apparatus.

5 in. by 4 in. Camera by Marion, R.R. lens, 2 d.d. slides, tripod, solid leather case, Thornton Pickard time and inst. shutter, all nearly new; accept £4 10*s.*, or exchange for 1/1 plate camera (no lens) and difference in cash.—16, Parade, Forest Hill, S.E.

Lancaster's Watch Camera, five slides and printing frame; cost 39*s.* 6*d.*, price 20*s.*; new condition.—Tully, chemist, Hastings.

Underwood's Sphynx. A first-class ¼ plate hand camera, excellent rectigraph lens, blind shutter, Iris diaphragm, focussing arrangement, etc., cost new £3 15s. Take £2 10s. Also small telescope 1½ in. object glass, by Wray, London. Beautifully mounted in brass with ¼ in. Huyghenian eyepiece, worth £3 10s., take £2 5s. Both above in splendid condition.—F. Brauer, Middlewich.

Shop Fittings.

Three specie jars; scroll labels, height 16 inches, diameter 9 inches, metal covers; 6 show jars, glass covers, height 15 inches, diameter 8 inches; Two marble and one iron mortars, diameters 10½, 12, 13 inches; 2, 4, and 18 gallon pear-shaped carboys; 20 three-lb. and 11 one-lb. blue covered pots; five-grain pill machine; marble slab.—Offers to Carter, Chemist, Woolwich.

Miscellaneous.

Surplus Stock of Poppy-heads. For sample and price apply—J. Flemons, chemist, Dunstable.

Late News.

POISONING CASES IN MANCHESTER.—Two cases of poisoning were investigated by Mr. S. Smelt, at the City Coroner's Court, on Wednesday. The first case was that of Thomas Doyle, aged twenty-one months, the son of a tripe dealer, living in Barratt Street, Ancoats. On Sunday Mrs. Dyle was preparing to wash her daughter's hair with some acetic acid, and left the cup containing the acid on the kitchen table while she went into the scullery. In her absence the deceased drank some of the acid. Emetics were administered, and a doctor subsequently attended the child up to his removal to the Royal Infirmary, where death took place on Tuesday. The cause of death was found to be asphyxia, from inflammation of the lungs, probably excited by the entrance of some irritant into the windpipe. Acetic acid, the doctor said, would probably produce these results.—The jury returned a verdict of accidental death from inflammation of the lungs, set up through drinking acetic acid by mistake.

In the second case the deceased was named Cornelius Satterthwaite, 73 years of age, a fire light maker, of Mason Street, Swann Street. It was stated that the old man had been suffering from a disease for some time, and had been in the habit of taking opium pills to relieve the pain. He suffered greatly on Sunday night, and got a box of morphine pills from a doctor with instructions to take one late at night and another four hours afterwards if the pain continued. Instead of obeying the doctor's orders the deceased took all the six pills that were in the box, and was found next morning partially unconscious. He was taken to the Infirmary and died the same day from narcotic poisoning. A verdict was returned of accidental death from an overdose of morphine pills taken to relieve pain.

Diary of the Week.

[Notices for insertion under this heading should reach the Editor on or before Wednesday.]

SATURDAY, SEPTEMBER 28.
Royal Photographic Society, at 8 p.m.
Soirée at 5a, Pall Mall East, S.W.
MONDAY, SEPTEMBER 30.
Royal Photographic Society.
Opening of the Fortieth Annual Exhibition at 5a, Pall Mall East, S.W.
TUESDAY, OCTOBER 1.
Pharmaceutical Society of Great Britain.
Benevolent Fund Committee.
Finance Committee.
General Purposes Committee.
WEDNESDAY, OCTOBER 2.
Pharmaceutical Society of Great Britain.
Council Meeting, at 11 a.m.
Opening of the School of Pharmacy, at 3 p.m.
Pharmacy Club, at 6.15 for 6.30 p.m.
Dinner at the Café Royal, Regent Street, W.
THURSDAY, OCTOBER 3.
Chemists' Assistants' Association, at 8.30 p.m.
Presidential Address.

Late Advertisements.

Premises for Disposal.

PHARMACEUTICAL SCHOOL to be disposed of. The convenient premises lately occupied by the Central School of Chemistry and Pharmacy, 173, Marylebone Rd, are now for disposal. Excellent and well-lighted laboratory and class rooms. Good opportunity for a Pharmaceutical School. Apply to GEO. HEAD & Co., 7, Upper Baker St., N.W.

Business for Disposal.

CASH Retail, Dispensing and Prescribing BUSINESS for disposal. Returns between £9 and £10 per week, at nearly full prices. Long lease, low rent. Every investigation allowed. To an immediate purchaser the low sum of £250 will be accepted, as advertiser has an appointment to go abroad. STATIM, "Pharm. Journal" Office, 5, Serle St., W.C.

Assistants Wanted.

A QUALIFIED, gentlemanly ASSISTANT, quick and accurate Dispenser, accustomed to first-class business. 3 others employed. Full particulars and photo to EARNSHAW, Royal Victoria Pharmacy, Eastbourne.

AT once, for a country business. Qualified. In-doors. Comfortable home and duties light. Apply, stating age, salary required, and references, with photo, to be returned, to THOMAS, Chemist, Cowbridge, South Wales.

Engagements Wanted.

EMPLOYMENT by a registered L.S.A. (London). Age 35. Good references. Would travel. GENTIAN, 5, Serle St., W.C.

BY Gentleman (29), full medical curriculum, partly qualified, employment with Chemist or Surgeon. Would travel. 10 years' experience. Good references. TIBIA, "Pharm. Journal" Office, 5, Serle St., W.C.

SUPPLEMENT

TO THE

PHARMACEUTICAL JOURNAL.

Contents of Supplement.

Late News i
Market Report ii
Liverpool Market Report iii
Newcastle Chemical Report iv
Exchange iv
Diary of the Week iv

Late News.

New Species of Bromus.—Mr. G. Claridge Druce, of Oxford, writes as follows:—"In 1888 I found in Berkshire and Oxfordshire a curious form of *Bromus*, which was named *B. mollis*, var. *interruptus*. From subsequent study I have been led to consider it a distinct species. It will be figured and described in an early number of the *Journal of Botany* under the name of *Bromus interruptus*."

Professor Percy Frankland and the Late M. Pasteur.—The opening of the session at Masons College, Birmingham, took place on Tuesday afternoon, when Professor Percy Frankland delivered his address on "Pasteur and his work; the debt of Medicine to Chemistry." Before dealing with his subject proper, he said that when he chose his subject some few months ago, he little thought that his address would not be delivered until the whole of the civilised world was gathered in mourning around the open grave of this great hero of science. M. Pasteur had for some years past been in failing health, and it might be said, without in any way detracting from his great prestige, that his productive life ended when he attained the age of three score years and ten, for as in the case of so many other men who had exerted an enduring influence in the world, M. Pasteur's fertility in his old age had not been shown so much by new labours of his own as by the ceaseless toil and brilliant achievements of those who owed their success to the inspiration received from the master. Assuredly this was the true philosopher's truest immortality. In reviewing on that solemn occasion the course of Pasteur's versatile genius, it might be remarked that the general public, though it took an interest in a great scientific discovery, was not as a rule much concerned about the causes which led up to that discovery. These causes, however, were often more worthy of attention than the discovery itself. It was only by studying these causes that we could hope to obtain guidance as to the methods by which further successes were to be obtained. It was rarely the case that the results of scientific investigation could be immediately applied to the problems of practical life. Some of the ablest men of science worked in comparative obscurity, and their labours only bore practical fruit many years after they themselves had passed away. In Pasteur, however, they had an example of the opposite. For thirty years his name had been before the public as a successful investigator, and while not courting publicity he had achieved a celebrity rarely achieved by any savant. It might be said, without exaggeration, that there was no scientific name known so universally, and in so many different connections, as that of Pasteur. The chemist, physicist, biologist, and medical man each viewed Louis Pasteur as the founder of some of the most important, novel, and fruitful departures in their several branches of knowledge, whilst in the worlds of industry and agriculture his influence had also been deeply felt and gratefully acknowledged.

St. Thomas's Hospital.—The first Entrance Scholarship in Natural Science, of the value of £150, has been awarded to Mr. Frank B. Skerrett, the second, of the value of £60, being divided between Messrs. Walter B. Fry, George W. Hare, and Alfred B. Lindsey, bracketed equal. The Entrance Scholarship, value £50, for students from the Universities, has been awarded to Mr. Percy W. G. Sargent, B.A., of St. John's College, Cambridge.

MARKET REPORT.

[*Specially compiled for the Pharmaceutical Journal.*]

CHEMICALS AND DRUGS.

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

THE CHEMICAL MARKET.

London, October 3, 1895.

Although the chemical market has not maintained the activity which was noticeable last week, still prices generally are very firm, and where changes have occurred they have mostly been for an advance. The chief points of interest may be briefly summarised. Carbolic acid is a quiet market generally. Citric acid is again very firm, the minimum manufacturers' price being now the top rate of last week. Tartaric acid has not received so much attention, but the market is firm. Sulphate of copper and cream of tartar are both very firm, the latter at a further advance in price. Potash and soda compounds are unchanged, except that permanganate of potash and hyposulphite of soda are very firm. The makers of tartar emetic have again advanced the price, whilst on the other hand importers of quicksilver have lowered their quotations, this move being followed by a decline in mercurials generally. Full details will be found below of the various articles of interest:—

Acid, Carbolic.—The current quotations are as follows:—*Crystals*, 34° to 35° C., 5d.; 39° to 40° C., 5½d.; 39° to 40° C. (*detached crystals*), 6½d. per lb. *Crude*, 60 per cent., quotes at 1s. 6d. nominally, with 75 per cent. at 1s. 9d. per gallon. *Liquefied* and *cresylic* are worth 1s. and 11d. per gallon respectively.

Acid, Citric.—There is no change to record in the price of this article, but the market is very firm. For *Lawes'* brand of acid, 1s. 3d. per lb. is now the price on the spot. In second hands 1s. 2¾d. has been paid, and this may be regarded as the general price. For *concentrated juice* £15 5s. per pipe *f.o.b.* is the price.

Acid, Tartaric.—The position is practically unchanged, although *foreign* acid is rather easier. For *Lawes'* and *Kemball's* makes 1s. 2d. to 1s. 2½d. per lb. is the price on the spot, whilst *foreign* brands of acid, both in *crystal* and *powder*, quote at 1s. 1½d.

Ammonia Salts.—*Carbonate*: 3½d. to 3¾d. per lb. *Liquor*: 3¼d. to 3½d. per lb., less 5 per cent. *Sal ammoniac*: *Firsts* still quote at 39s., with *seconds* at 37s. *Sulphate*: Still a very flat market, and prices have again declined a fraction, £8 15s. being now the price for grey 24 per cent.

Arsenic.—There is not much offering, but there is, on the other hand, little inquiry at present. For best white *powder* 15s. 3d. to 15s. 6d. is the price, whilst *lump* offers at 29s.

Ashes — Unchanged. Best Montreal *potashes* quote nominally at 22s. 6d. to 23s., whilst *pearlashes* offer at 35s. to 37s. 6d.

Copper Sulphate.—A fair market at the advance noted last week. For common makes £16 5s. remains the price, whilst the *Anchor* brand is unchanged at £17.

Cream of Tartar.—Renewed attention has been paid to this, and prices have been again advanced for *crystal* and *powder*, both of which are about 2s. per cwt. dearer. Best white *French* crystals now quote at 100s. per cwt., whilst for *German* brands of powder 102s. is the closing price.

Mercurials.—In consequence of the 5s. decline in quicksilver declared on Monday, the manufacturers of mercurials have lowered their prices 1d. per lb. all round, and the current quotations are now as follows for quantities up to 28 lbs.:—*Calomel*: 2s. 10d.; *corrosive sublimate*, 2s. 6d.; *red precipitate*, 3s. 1d.; *ditto levigated*, 3s. 1d.; *white precipitate*, 3s. 1d.; *persulphate*: 2s. 2d.; *sulphur with sulphur*: 2s.; *mercury with chalk*: 1s.

Potash Salts.—*Bichromate*: Unchanged at 4⅝d. to 4¾d. *Chlorate*: Slow of sale at 4⅝d. on the spot, whilst the Liverpool price remains at 4½d. *Permanganate*: Very firm, quotations ranging from 60s. to 62s. 6d. for small, and 65s. to 67s. 6d. for large *crystals*. *Prussiate*: Quoted at 8d. per lb. on the spot.

Quicksilver.—The importers on Monday lowered their quotations 5s. per bottle, and now ask £7 per bottle, and it cannot be bought for much less in second hand, £6 19s. 6d. being the price.

Soda Compounds.—*Bicarbonate* quotes at £7 5s. on the spot, and £6 15s. in Liverpool. *Caustic* 70 per cent. still quotes at £7 15s., with 60 per cent. offering at £1 less. *Crystals*, 42s. 6d. *Hyposulphite*: Again very firm, £7 17s. 6d. to £8 2s. 6d. is now asked for kegs. In Liverpool the price remains £7 5s. to £7 10s. *Nitrate* (*Refined*), £8 5s.

Tartar Emetic.—The manufacturers have again advanced the price of this article, and *crystals* now quote 8½d., and *powder* at 8¾d. per lb.

Tar Distillation Products.—*Benzole*: 50 per cent. is unchanged at 1s., with 90 per cent. at the same price. *Toluol* quotes at 1s. 4d. per gallon for *pure*. *Creasote*: 1½d. per gallon. *Pitch*: 38s. 6d. per ton *f.o.b.* *Tar*: 13s. per barrel for *refined*.

THE DRUG MARKET.

London, October 3, 1895.

There seems to be considerably more business doing in the drug market during the past week, and the general tone is improved. Of the various essential oils, star anise has again received attention, and prices are considerably advanced, whilst cassia is also very firm. Japan peppermint oil must also be reported dearer, both for the 40 per cent. and dementholised varieties. Eucalyptus oil sold at the drug sales at an advance in price. The Messina essences continue to advance in price, and seems likely to go higher. Cod-liver oil remains a firm market at fully steady rates. Quinine has declined somewhat in value, and does not attract much attention, whilst caffeine is considerably cheaper. Camphor is quite a dead letter at present, little or no business being reported. Glycerin is again a very firm market, and the prices of some brands have been further advanced. At the drug sales the general tone showed an improvement, and fair inquiry was shown all round. Ipecacuanha was in moderate supply, and sold at fully steady to dearer rates for Rio, whilst Carthagena also sold well when compared to last auction prices, bnt at a decline on those paid privately. Aloes was in small supply only, and both Socotrine and Cape sold at steady rates. A very large catalogue of senna was offered, and sold at irregular, but on the whole dearer rates. Cardamoms were in moderate supply only, and the prices paid show a steady market. Of other drugs, buchu leaves, gambcge, honey, and cassia lignea are dearer, whilst cascara sagrada, ergot, myrrh, and saffron are steady. Wax was in fair supply, and sold at fully steady rates. Fnll details will be found below of the various articles of interest:—

Acacia.—None was sold in auction to-day, although a considerable supply was offered. *Trieste* picked gum was bought in at prices ranging from £6 10s. to £7 5s. for medium to bold pale, with sorts at 72s. 6d. to 80s. Good bold sorts from Suez were bought in at 80s., ordinary yellow ditto from Alexandria at 65s., and ordinary to medium sorts from 30s. to 37s. 6d. per cwt.

Aloes—A very small supply was catalogued to-day. Of *Cape* aloes, 39 cases were offered; of these fine bright hard was bought in at 25s., and good hard at 23s. 6d. to 24s.; but four cases of medium hard sold at 23s, whilst 20s. 6d. was paid for medium, part drossy, and 19s. for soft dull. Of *Socotrine* 94 packages were offered. Of these 10 kegs of good softish of fair aroma sold at 65s. per cwt. The remainder was bought in at 65s. to 75s. per cwt. No *Curaçoa* aloes was shown.

Ammoniacum.—The only lot offered to-day was 2 cases of good pale loose almondy gum, slightly blocky, which sold without reserve at 36s. per cwt.

Areca Nuts.—In small supply at auction. Ten bags of fair quality nuts from *Colombo* sold at the steady rate of 12s. 6d. per cwt.

Asafœtida.—At to-day's sale 71 cases were offered, but none was sold in auction. Privately 50s. per cwt. has been paid for ordinary blocky gum, part pinky, and few almonds.

Benzoin.—Better enquiry was shown to-day, when 341 cases were offered. Of *Siam* gum only three cases were shown; of these one case of mixed dull almonds in block sold at £8 7s. 6d., and *Sumatra* gum, good seconds, fairly well packed, sold at £8 5s. to £8 10s., whilst ordinary seconds, very false packed, fetched £5 10s. *Palembang* gum was in larger supply, and medium seconds in tins fetched 34s., and ordinary thirds 16s. per cwt. Of *Penang* gum none was sold, 15 cases of good glassy seconds being bought in for 80s. per cwt.

Buchu—Dearer. Some very fine *round* leaves were shown to-day, and six bales of fine bright green leaves fetched 5¼d. per lb., whilst of the long variety 6d. per lb. was paid for six bales of rather dull narrow leaves. Of other qualities stalky yellowish *round* leaves were bought in at 5d., and fair dull *long* leaves at 5d. to 6d.

Caffeine.—Decidedly easier, and for prompt delivery 20s. per lb. would now be accepted, and for December delivery 18s. per lb.

Calumba—Freely offered to-day, but few sales were effected ont of nearly 300 bales. A parcel of 22 bags of fair medium sorts, rather wormy, all sold at 9s. 3d. per cwt. The other lots were bought in; ordinary sorts at 12s., and yellowish medium ditto, at 20s. per cwt.

Camphor (Crude).—All interest in this article seems to have died out for the present, and quotations which are merely nominal remain unchanged at 205s. per cwt. *c.i.f*, for both *China* and *Japan*.

Camphor (Refined). — There is no change in the makers' quotations to note, and *English* refiners still quote *bells* and *flowers* at 2s. 3½d. per lb. for 10 cwt. lots, with *squares* at 2s. 4½d. and proportionate rates.

Canada Balsam.—No inquiry. A single cask of fair quality balsam was bought in at 1s. 6d. per lb.

Cannabis Indica.—In moderate supply only, and no demand shown. At the drug sales 18 robbins of brownish stalky tops were bought in at 3d. per lb. The price asked is 2¾d. per lb.

Cantharides.—Only 5 cases were offered. These were ordinary small mixed *Chinese* flies, and part sold at 1s. per lb., which shows a decline.

Cardamoms.—A moderate supply only was offered at the drug sales, and the catalogue did not include any very fine varieties. The prices realised were somewhat irregular, but generally steady. *Ceylon-Mysore*: Medium to bold good pale, 2s. 6d. to 2s. 11d.; small to medium ditto, 1s. 11d. to 2s. 3d.; small pale, 1s. 9d. to 2s.; medium yellowish, 1s. 7d. to 1s. 9d.; and ordinary yellow to brown, part split and speckled, 1s. 6d. down to 1s. 2d. per lb. *Ceylon-Malabar*: Yellowish medium, 1s. 6d. per lb. *Seed*: Sold at a decline, 1s. 10d. to 2s. being paid.

Cascara Sagrada.—Steady. In auction 70 bales of fair mixed bark from *San Francisco* were offered and realised 17s. per cwt.

Cascarilla.—The small supply of 5 bags was offered to-day and fetched 34s. per cwt. for small to medium bark part broken.

Cassia Lignea—Has been again in good demand, and must be quoted dearer. For 1000 boxes of good quality 32s. to 32s. 6d. per cwt. has been paid, and 32s. 6d. to 33s. is now the price.

Chamomile Flowers.—Quotations for good quality *Belgian* flowers vary according to holders. In some cases 40s. 6d. per cwt. is asked on the spot, and on the other hand 38s. per cwt. has been accepted. The market generally is very firm.

Cinchona.—A newly imported parcel of *Huanoco* bark was offered to-day, and sold at steady rates, 6d. to 6½d. being paid for sound grey quill, and 3½d. for damaged ditto. Another lot consisting of flat *Calisaya* was mostly bought in, but damaged grades sold at 6d. down to 3¾d. per lb., according to condition. Flat *Carthagena* was bought in at 8d. to 1s. for fair to good sound.

Coca Leaves.—None was sold in auction to-day, when only damaged *Bolivian* leaves were offered, but privately 1s. per lb. has been paid for broken *Truxillo* leaves of good quality.

Cacao Butter—Dearer. At the sales on Tuesday 200 cases of *Cadbury's* make, representing 20 tons, sold at an average of 13⅞d. per lb. against 13⅝d. per lb., which was the average in September.

Colocynth—Remains dull of sale, although only two cases were offered to-day. These were good *Turkey* apple, part broken. The price asked is 2s. 3d. per lb.

Copaiba.—At to-day's sales three casks of cloudy *Maranham* of good quality were offered. Of these, one sold at 1s. 7½d. per lb. Of *Maracaibo* 6 cases of thick balsam, imported via Hambnrg, were shown. Privately 1s. 5d. per lb. has been paid for them.

Cubebs—Very dull of sale at the present low prices. Some fair quality *Singapore* and *Bombay* berries were shown to-day, but the only lot sold consisted of 3 bales of damaged *Singapore* in sonnd condition, which realised 22s. 6d. per cwt.

Cuttlefish.—This article has not been offered so freely of late. To-day 25 casks of fair bone of good colour fetched 1¾d. per lb.

Dragons Blood.—Some nice parcels were shown, especially *Singapore* in reeds, of which three cases of good quality sold at the steady rate of £11, whilst fair to good bright lump fetched £8 to £10, and fair quality but very seedy £6 12s. 6d. to £7. Of other grades, ordinary dark sancers were bought in at £6 11s., and bold ditto at £7 10s.

Elemi Gum. — There is absolutely no inquiry for this drug at present, and 30 cases, which have been previously shown several times, of good clean Singapore gum were bought in at 30s. per cwt.

Ergot of Rye. — New *Spanish* ergot offers at 1s. per lb. *c.i.f.* There were several lots offered to-day, but no new *Spanish*. A couple of cases of old weevily *Spanish* sold at 7¼d. to 7½d. per lb., whilst 10 bags of mixed sifted ergot fetched 6d. to 6½d. per lb.

Galangal—Firmly held. For 50 bales of good bold root from Hong Kong, 27s. per cwt. is asked.

Gamboge—Dearer. In auction to-day a

case of mixed pipe and lump of good fracture from *Singapore* fetched £9 17s. 6d., and three cases of medium ditto dull fracture £8 10s. A single case of good *Singapore* pipe of fine bright fracture sold at £10 5s. per cwt. safest.

Gentian.—At to-day's sales 18 bales of good sound *French* root fetched 14s. per cwt.

Lime Juice.—To-day 22 packages of *Jamaica* juice were bought in at 1s. 1d. per gallon, whilst 5 barrels from *Antigua* realised 1s. 3½d.

Mastic.—A single case of rather dull drop gum was offered, and bought in at 1s. 6d. per lb., 1s. 1d. being the highest bid.

Honey.—Better prices were paid for *Jamaica* honey to-day, 28s. per cwt. being the figure for good liquid amber, 23s. to 24s. 6d. for good clean brown, and 21s. to to 22s. 6d. for dull to fair brown. Of *New Zealand* honey a fair quantity was sold at 35s. per cwt., whilst 25s. was paid for *Australian*.

Insect Flowers.—The market is firm, and a good demand prevails for the new flowers at the following rates:—*Open*, 56s.; *half-closed*, 79s., and *closed*, 115s. per cwt. *c.i.f.* In auction 11 kegs of old powder were bought in at 8d. per lb.

Ipecacuanha.—A moderate supply of *Rio* (Brazilian) root was shown to-day, and a fair inquiry was shown, the prices paid showing an advance of 1d. per lb., 5s. 3d. to 5s. 4d. being paid for fair sound annulated root.

Jalap.—Is very slow of sale. Nine bales of fair sound *Vera Cruz* were offered, and bought in at 11d. to 11½d. per lb.

Jaborandi.—In small supply. The only lot shown was 3 bales of ordinary dull greenish leaves, which were bought in at 7½d. per lb.

Kamala.—In auction 2 cases from *Bombay* sold at 8d. per lb.

Kino.—No genuine gum was shown to-day. Four cases of astringent gum mixed with wood which rather resembles kino were bought in at 50s. per cwt., whilst a box of non-astringent gum in tears was bought in at £10 per cwt. Privately there have been sales of genuine gum at 16s. per lb.

Kola.—In good demand to-day. For four bags of sound *West Indian* nuts 10½d. to 11d. was paid, whilst another parcel of *Grenada* part sold at 10d. for sound, and 6d. for mouldy. A few bags of damaged *Grenada* sold at 7½d. down to 4d., according to condition.

Menthol—Deares, and there seems a tendency to higher prices. On the spot 13s. 6d. per lb. is now asked for good crystals, and for delivery 13s. 6d. per lb. *c.i.f.* is the price. At the drug sales 10 cases were bought in at 13s. 6d. to 14s. per lb.

Myrrh Gum.—A large supply was shown to-day, but proved quite unsaleable, except when offered without reserve, and in this instance 2 cases of fine native picked gum realised 85s. per cwt., a good price. Of the bought-in lots, 60s. to 70s. was the price for ordinary to good sorts, 30s. for siftings, and 80s. to 90s. for picked gum.

Nux Vomica.—Quite unsaleable at present. To-day small brownish *Coconada* and *Madras* seed was bought in at 5s. 6d., and *Cochin* at 9s.

Oils (Essential).—*Star Anise* oil continues to advance in price, and according to the latest reports from *China* stocks are still very small; on the spot 8s. per lb. has been paid during the week, which shows an advance of about 6d. per lb., whilst for delivery 7s. 11d. per lb. *c.i.f.* was the price at the beginning of the week. Now, however, 8s. 2d. per lb. *c.i.f.* is asked. *Cassia* oil remains very firm, and 7s. 9d. is reported paid for 70 to 75 per cent. oil, whilst the nominal price for 75 to 80 per cent. oil is 8s. 3d. For delivery holders show no anxiety to quote, owing to the uncertain position in *China*, where it is said that the bulk of the oil is of very poor quality, a good deal only containing about 35 per cent. of cinnamic aldehyde, and there seems to be no probability of any fine quality oil being shipped at present. *Italian* essences continue to advance steadily in price, and the following are the present quotations for oils of guaranteed purity:—*Lemon*, 4s. 6d. per lb. *Sweet Orange*, 5s. 4d. *Bergamot*, 11s., all *f.o.b.* Messina. *Fratellia* also notifies a further advance in *Lemon* oil, the current quotations being 3s. 10d. per lb. *f.o.b.* Messina *Peppermint, H. G. Hotchkiss'* oil is unchanged at 10s. per lb. nominally. This price could doubtless be shaded. *Japan* oil is much dearer, 8s. being reported paid for 40 per cent. oil, and 8s. 3d. per lb. is now asked. For delivery 7s. 6d. per lb. *c.i.f.* is the price. *Dementholised* oil is also dearer, and 6s. per lb. is asked on the spot with the same price quoted for delivery. At the drug sales *Cockings* oil was bought in at 7s., and 40 per cent. *Japan* at 7s. 9d. per lb. *Eucalyptus*: 10 cases of *Wheeler's* brand was sold to-day without reserve at 10¾d. per lb., an advance of 1d. per lb. *Cinnamon bark* oil was bought in at 1s., *Cinnamon* oil at 9d. to 1s., and *Cajeput* at 2s. 4d. per lb., whilst six coppers of old "lemon" essence sold without reserve at 1s. 2d. to 1s. 8d. per lb. *Almond*: The current price is 25s. per lb. *Citronella*: Steady at 1s. 3½d. to 1s. 4d. per lb. on the spot, whilst for delivery it quotes at 1s. 1d. per lb. *c.i.f.* terms. *Lavender*: Extra fine *French* oil quotes at 12s. 6d. per lb. *Lemon Grass*: Firm. On the spot 2d. per oz. is asked, and for delivery, September to January shipment, 1⅝d. per oz. *c.i.f.* *Pimento*: New oil quotes 4s. 6d. per lb.

Oils (Fixed) and Spirits.—*Almon*: The current price is 1s. 1d. per lb. *Castor, Italian* oil is unchanged, 30s. to 30s. 6d. per cwt. *c.i.f.* being the price for fine tasteless oil. It is reported that the quotation for forward delivery of *Calcutta* are likely to advance owing to the poorness of the supply of seed, whilst the stocks of oils are but small at present, little drug sales to-day. Forty cases of *Calcutta* oil were bocught in, the best being 2¾d., and 50 barrels at 2¼d. *Cotton*: The market is steady, but prices are unchanged. The price of *refined* oil is £17 5s. to £17 15s., according to make and package. *Cocoa-nut*: *Ceylon* is quiet without change in price, the current price being £23, whilst *Cochin* is quoted at £24. *Linseed* has again declined in value, but at the close the market is firmer and £20 10s. is the price for oil in barrels. *Olive*: *Syrian* £33, *Spanish* £37. *Rape*: Unchanged at £22 on the spot. *Turpentine*: Lower by 1½d. to 3d. *American* spirit now quotes at 20s. 3d. on the spot. *Petroleum*: Rather firmer. *American* oil quotes at 5⅞d. to 5⅝d. on the spot, with *water white* at 6½d. to 3¾d., and *Russian* at 5⅞d. to 5½d. on the spot. *Petroleum Spirit*: *Ordinary*, 9d. to 9¼d.; *deodorised*, 9¼d. to 9¾d.

Oil (Cod-Liver).—Very firm. Privately 170s. to 175s. has been paid for fine *Norwegian* oil, and 180s. is now asked. Of *Newfoundland* oil, sales have been made privately at 5s. per gallon.

Orris Root.—*Florentine*. The market seems to have fairly settled down now for the new crop of root. Best selected quotes at 76s. per cwt. *c.i.f.*, whilst *Veronese* root is unchanged at 69s. to 70s. per cwt. *c.i.f.* for good bold.

Otto of Rose.—The market is very firm and holders refuse to take further orders at recent prices. A marked advance in value is anticipated,

Peru Balsam.—Very dull of sale. Four cases from *Salvador* were bought in to-day. They were of recent import, and the price is about 8s. 3d. per lb.

Quinine.—The activity which was rather noticeable in this article last week has not been maintained, as at the end of last week 10,000 ozs. of *B. & S.* and *Brunswick* sold at 1s. 1⅜d., which shows a fractional decline. Since then there have been so sale of importance, and the best *German* makes may be quoted at the above figure, although holders ask 1s. 1½d. in some cases. The landings in September were 500 ozs., and the deliveries 60,660 ozs., making the stock on September 30th 2,092,960 ozs.

Sarsparilla.—*Honduras* were bought in at 1s. 1d. to 1s. 2d. per lb. for damaged quality, and sound at Is. 4d. to 1s. 8d. per lb. *Lima* sold freely at 10d. to 11¾d. Der lb., whilst damaged *Jamaica* realised 1s. 3d. *Mexican* was bought in at 4½d. per lb.

Senna.—A very large catalogue of *Tinnivelly* senna was offered to-day, mostly in importers' hands. The prices paid show an advance of ¼d. to ½d. per lb. for medium grades, the following being the prices:—Medium fair green, 4½d.; medium greenish, 3½d. to 4d.; small to medium dull, 3d. to 3½d.; ordinary dull 2d. to 3½d. down to 1d. for common grades. All the *Alexandrian* was bought in.

Wax (Bees).—A fair demand was shown for *Jamaica*, and steady prices were paid, rangidg from £7 7s. 6d. up to £7 17s. 6d. *Australian* is dearer at £6 10s. to £7 per cwt,, whilst *Zanzibar* sold at £6 12s. 6d., and *Mozambqiue* at £6 5s.

LIVERPOOL MARKET REPORT.

[*From our own Correspondent.*]

October 2, 1895.

DRUGS, Etc.—Canary Seed.—Turkish has improved in tone, and some transactions in spot parcels at from 33s. 6d. to 34s. per 464 lbs. are reported, about 680 bags in all. *Spanish*, one lot of 30 bags brought 47s. per 464 lbs. Linseed—Is still extremely flat, and offers no feature worthy of notice. Chillies.—Of common Sierra Leone small sales have been made at 25s. per cwt. Guinea Grains.—10 bags were sold at 17s., and another lot of 34 at the same figure, *ex* quay. About 46 bags went for 16s. 9d. to 17s., according as to whether they were *ex* quay or *ex* store. Beeswax.—Chilian 6 packages changed hands at £7 17s. 6d. per cwt. Carnauba Wax.—Small sales of yel-

low at 132s. per cwt. have taken place. Turmeric.—30 bags of Madras finger have found purchasers at recent rates. Honey.—The inquiry for Chilian has improved, and 140 barrels have been disposed of at 33s. to 34s. 6d. for Pile X, 25s. to 27s. for Pile 1, 24s. for Pile 2, and 33s. for Pile 3 per cwt. Gum Acacia.—Market in Arabic varieties is inactive, and only moderate business has been done at recent rates.

OILS, Etc.—Castor—Is fairly brisk, and French first pressure is dearer, sellers *ex* quay now asking 2⅞d. to 2 3/32d. per lb.; Madras still 2⅞d.; Calcutta seconds 2⅛d. Olive Oil.—There is a fair inquiry, and rates are very steady; small sales of Levant and Syrian are taking place at £31 to £31 10s. per ton. Linseed Oil—Is slightly easier in tone, and Liverpool makes in export casks are now quoted at 21s. to 22s. per cwt. Cottonseed Oil—Is very inactive, but there is no change in prices, which remain firm at 17s. 6d. to 18s. per cwt. for Liverpool, and 17s. 9d. to 18s. for American refined oils. Spirit of Turpentine.—Still steady at 20s. 9d. to 21s. per cwt., at which prices a fair amount of business is passing. Petroleum.—Russian refined 5⅞d. to 6d. per gallon, American ditto 6d. to 7½d., according to quality.

CHEMICALS.—Ammonium Salts.—*Carbonate*: Steady at 3½d. to 3⅝d. per lb. *Sal Ammoniac*: Good demand at 39s., firsts; 37s. seconds, per cwt. *Sulphate*: Weaker; £9 2s. 6d. for good grey per ton, spot price. Bleaching Powder—Exhibits a tendency to firmer prices. Hard free, on rails, £7 per ton. Copperas, Green.—Very firm Lancashire, 37s. per ton. Copper Sulphate—£16 10s. to £17 per ton. Potassium Salts.—*Cream of tartar*: Again dearer; none to be had under 97s. per cwt. *Prussiate*: Steady at 8d. to 8¼d. per lb. *Chlorate*: Steady at 4½d. per lb. *Potashes*: Are generally inactive, and are still at 22s. per cwt. *Pearlashes*: Remain at 37s. 6d. per cwt. Sulphur.—Recovered, £3 17s. 6d. in bags; roll, £5 5s.; flour, £7 10s. per ton. Phosphorus—Dearer. Sticks, 2s. 1d.; wedges, 2s.; amorphous, 2s. 8½d. per lb. Sodium Salts.—*Soda Crystals*: Advanced £2 10s. per ton. *Bicarbonate*: £6 15s. per ton. *Caustic Soda*: 70 per cent. £7 10s., 60 per cent., £6 10s. per ton. *Hyposulphite*: £7 5s. to £7 10s. per ton. *Borax*: Likely to advance in price, and is now very steady at 20s. lump; 21s. for powder, per cwt. *Nitrate*: In moderate demand at 7s. 9d. to 8s. 1½d. per cwt.

Marriages.

Wyatt—Madders.—On September 24, at St. Lawrence's Church, Coppenhall, Stafford, by the Rev. Assheton Weekes, M.A., Vicar, Harold Wyatt, Pharmaceutical Chemist, second son of Harold Wyatt, Bootle, Liverpool, to Edith Mary, second daughter of the late John Madders, of Coppenhall.

Harbin—Silverthorne.—On September 17, at St. Edmund's Church, Salisbury, by the Rev. James, George Albert Harbin, Chemist and Druggist, Newport, I.W., to M. A. (Ciss). youngest daughter of the late Eli Silverthorne, Esq., of Salisbury.

Gadd-Fletcher.—On Thursday, September 26, at St. Mary's Church, Kilburn, Wm. Fletcher Gadd, Pharmaceutical Chemist, Ramsgate, to Miss Fletcher, of Abingdon.

Exchange.

[*Notices of books, apparatus, etc., for exchange, of reasonable length, are inserted free in this column, if they do not partake of the nature of ordinary advertisements. The notices should be written on post-cards, addressed "Editorial Department, 17, Bloomsbury Square, W.C."*]

WANTED.

Ganot's 'Physics' and Vine's 'Botany,' latest editions, must be in good condition, state price, post free.—C. Merry, Chemist, Johnstone, N.B.

Allen's nitrometer, with levelling tube and stand.—J. E. Mason, Pharmacist, Bexley, S.E.

'Hargreaves on Venereal Diseases,' last edition, and Green's 'Short History of the English People.' Books in exchange for either 'Qualitative Chemical Analysis,' by Thorpe and Muir; Watts' 'Chemistry,' ed. 1889; Strasburger's 'Practical Botany' and Wills' 'Pharmacy.'—Green and Son, Chemists, Swindon.

Attfield's 'Chemistry'; state edition and lowest price to Wingfield, 9, Hilden Street, Bolton.

'Pharmaceutical Journal,' August 3, 1895. Full price given.—Secretary, 17, Bloomsbury Square, London, W.C.

OFFERED.

Literature.

Minor Lectures, neatly copied and indexed, cheap. — Cuthbertson, 11, Strand, Torquay, Devon.

'The Microscope,' by Naegeli and Schwendener; perfect condition, 4*s.* 6d. post free.—J. C. Currie, 13, Prince's Street, Stirling.

Muter's 'Materia Medica,' last edition; Kirke's 'Physiology,' 10th edition; Squire's 'Companion,' 13th edition; and Roscoe's 'Elementary Chemistry;' all in capital condition. No reasonable offer refused.—L. L. Stroud. chemist, Tewkesbury.

For sale, Bentley's 'Manual of Botany,' price 7*s.* 6*d.*; Wills' 'Materia Medica,' price 3*s.* 6*d.*; Wills' 'Elements of Pharmacy,' price 3*s.* 3*d.* Will be sent post free on receipt of P.O. for the above amounts.—R. W. E. Hall, 7, Morpeth Street, Hull.

'Attfield's Chemistry,' 6th edit.; 'Edmond's Botany'; 'Bentley's Structural Botany,' 'Ganot's Physics,' 2nd edit.; 'Prantl and Vine's Botany.' All excellent condition. What offers?—Chemist, 34 Crescent Road, Manchester.

Piesse's 'Perfumery,' 6*s.*; Orfila's 'Treatment of Persons who have taken Poison,' 2*s.* 6*d.*; Liebig's 'Organic and Animal Chemistry,' 2 vols. (published, 19*s.*), 5*s.* All free.—Davis, "Chestnuts," Gordon Hill, Enfield.

Maisch's 'Materia Medica,' 7*s.*; 'Natural Science' (unbound), vol. iii., 3*s.* 6*d.*—Mitchell, 11, Rose Street, Glasgow.

Books, chemical and pharmaceutical, good condition, for sale.—Burrows, 5, Weimar Street, Putney.

Shop Fittings.

Two large bottles, such as are used in a chemist's shop for ornament and coloured water. These are old-fashioned and good, with fine cut glass stoppers. Offers requested by W. Chitty, Pewsey, Wilts.

Diary of the Week.

[*Notices for insertion under this heading should reach the Editor on or before Wednesday.*]

Tuesday, October 8.

Royal Photographic Society, at 8 p.m.
"On the Formation of the Dots of the Half-Tone Screen-Image," by W. K. Burton.
The President's Annual Address, and the Presentation of the Medals.

Gresham College, at 6 p.m.
"On Spas and Mineral Springs" (Illustrated), by Professor E. Symes Thompson.

Wednesday, October 9.

Pharmaceutical Society of Great Britain.
Library, Museum, School, and House Committee.

Gresham College, at 6 p.m.
"On Life at a Spa" (Illustrated), by Professor E. Symes Thompson.

Thursday, October 10.

Sheffield School of Pharmacy, at 6 30 p.m.
Distribution of prizes at the Masonic Hall, New Surrey Street, Sheffield.

Gresham College, at 6 p.m.
"On the Choice of a Spa" (Illustrated), by Professor E. Symes Thompson.

Friday, October 11.

Chemists' Assistants' Association, at 8.30 p.m.
Smoking Concert at the Frascati Restaurant, Oxford Street, W.

Gresham College, at 6 p.m.
"Influence of Medicinal Waters in Health and Disease" (Illustrated), by Professor E. Symes Thompson.

NEWCASTLE CHEMICAL REPORT.

[*From our own Correspondent.*]

October 2, 1895.

This district at the moment finds more business passing, but rather of an immediate shipping nature than extra prospective orders. The last steamer for St. Petersburg will complete her loading by the 18th inst., when it is expected pressure will be off for bleaching powder. The warm weather of late has interfered considerably in the crystallisation of soda, and as there is a good demand for home markets, values are firmly quoted. Saltcake is scarce and dearer. Other makes unchanged, late figures still ruling. Recovered sulphur is more sought after, the supply, it is found, being scarcely up to requirements. Freights to Baltic ports are a shade stiffer; 10s. per ton on cask goods containing soda crystals, etc.; other ports in proportion in that direction. Shipments to Genoa and other Italian districts are on the improving side from the Tyne, from which river cask goods are being carried at 8s. per ton to Genoa; 12s. 6d. per ton to Oporto, 12s. 6d. per ton to Venice, and 12s. 6d. per ton to Constantinople. Prices are—Soda Crystals, 42s. home use; 37s. 6d. export. Bleaching Powder, £7 home; £6 5s. to £6 15s. export; 5s. extra in hardwood casks. Oxalic Acid, 3¾d. per lb. Hyposulphite of soda, £6 2s. 6d.; in kegs 12s. 6d. extra. Saltcake, 22s. 6d. nett. Chlorate of Potash, 3¾d. per lb. Alum, £4 10s. *f.o.b.* Hull. Soda Ash, £4 10s. Caustic Soda, 70 per cent., £7 5s. to £7 7s. 6d. Alkali, 52 per cent., £5 5s. Recovered Sulphur, £3 17s. 6d. per ton.

SUPPLEMENT

TO THE

PHARMACEUTICAL JOURNAL.

Contents of Supplement.

Trade Notes and News i
Market Report i
Liverpool Market Report iii
Newcastle Chemical Report iv
Marriages iv
Exchange iv
Diary of the Week iv

Trade Notes and News.

THE LIEBIG'S EXTRACT OF MEAT COMPANY draws attention to the fact that, in addition to the 1*s.* 9*d.* and 3*s.* 3*d.* sizes, they also supply 1*s.* tins of their new Peptone of Beef.

MESSRS. LLEWELLINS AND JAMES, Bristol, recognising the fact that very many chemists do not require a still larger than one which will distil more than a few gallons per day, intimate that they will in future make a specially small and cheap still (Morris and Wethered's patent) to work by gas. It will be most suitable for the laboratory, or for the above-mentioned purpose, and will automatically distil about half a gallon per hour with a normal consumption of gas.

THE AMSTERDAM EXHIBITION.—Amongst those who have been more successful in connection with the Amsterdam Exhibition is the firm of Burroughs, Wellcome and Co., of Snow Hill Buildings, London. A highest award, the Grand Medal of Honour, has been granted in recognition of the perfection of the following chemical and pharmaceutical products:—Kepler Extract of Malt and the Kepler Solution of Cod-Liver Oil in Malt Extract; Hazeline and Hazeline Cream; "Tabloids" of Compressed Drugs and Chemicals, including Hypodermic, Ophthalmic, and Photographic "Tabloids"; and "Soloids" of Compressed Antiseptics. This makes the 115th highest award the firm has obtained since 1884.

PROFESSOR LOISETTE, of 37, New Oxford Street, writes to say he is removing to more commodious premises at 200, Regent Street, W.

MR. CHARLES FRASER, assistant to Mr. R. L. Hendry, is opening a new pharmacy at 158, Dalkeith Road, Edinburgh.

Company Business.

CHARLES MATTHEWS, LIMITED.—Registered by Jordan and Sons, Limited, 120, Chancery Lane, W.C., with a capital of £3000 in £10 shares. Objects: To carry on business as wholesale and retail chemists and druggists, drug and patent medicine manufacturers and vendors, drysalters, etc., also to enter into an agreement with Francis H. and Charles W. Matthews. The directors are F. H. and C. W. Matthews and John L. West. Qualification, twenty-five shares. Registered office: 63, Market Street, Ashby-de-la-Zouch, Leicestershire.

MARKET REPORT.

[*Specially compiled for the Pharmaceutical Journal.*]

CHEMICALS AND DRUGS.

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

THE CHEMICAL MARKET.

LONDON, OCTOBER 10, 1895.

Business in the chemical market may be generally regarded as improved, although the bulk of the trade has been confined to a few articles. The more important features are briefly as follows:—Citric and tartaric acid are both very firm without noticeable alteration in price, but cream of tartar has again received attention at advanced prices. The ordinary brands of sulphate of copper are again dearer, whilst carbolic acid on the other hand is very dull of sale. Quicksilver was not allowed to remain long at the decline noticed last week, as on Monday the importers raised their price to the old figure, and this was followed by a corresponding advance in mercurials. A further advance in quicksilver is imminent. Hyposulphite of soda and permanganate of potash are again very firm. The remaining items will speak for themselves:—

ACID, CARBOLIC.—The market is very quiet, and quotations remain practically as last. *Crystals*, 34° to 35° C., 5d.; 39° to 40° C., 5½d.; 39° to 40° C. (*detached crystals*), 6½d. per lb. *Crude*, 60 per cent., quotes at 1s. 6d. per gallon, and 75 per cent. at 1s. 10½d. *Liquefied* and *cresylic* are unchanged at 1s. and 11d. per gallon respectively.

ACID, CITRIC.—The market continues exceedingly firm, although no further advance has been made by the makers. *Lawes'* acid still quotes at 1s. 3d. per lb. on the spot, whilst in second hand, 1s. 2¾d. has been the price generally paid. *Concentrated juice* quotes at £15 5s. to £15 10s. per pipe *f.o.b.*

ACID, OXALIC.—The Convention rate of 3⅝d. per lb., delivered free in London, remains unaltered.

ACID, TARTARIC—Firm, without any new feature to note except that *foreign* acid is rather better. Both *Lawes'* and *Kemball's* makes quote at 1s. 2d. per lb. on the spot, and 1s. 2½d. forward, whilst for *foreign* brands of acid both in *powder* and *crystal*, 1s. 1½d to 1s. 2d. per lb. is asked.

ALUM—Unchanged. *Lump* quotes at £5 12s. 6d. to £5 15s. on the spot, and *powder*, at £6 5s. In Liverpool ordinary *lump* quotes at £4 12s. 6d. to £4 15s. in tierces and £4 15s. in barrels, and *powder* at £5 7s. 6d. to £5 10s. per ton.

AMMONIA SALTS.—*Carbonate*: 3½d. to 3¾d. per lb. *Liquor*: 3¾d. to 3½d. per lb., less 5 per cent. *Sal ammoniac*: *Firsts* 39s., *seconds* 37s. *Sulphate*: Rather better inquiry, and £8 17s. 6d. is now asked for grey 24 per cent.

ARSENIC.—In very small supply, and prices have hardened considerably. For best white *powder* 15s. 6d. to 16s. is now asked, but *lump* is unchanged at 29s.

ASHES — Unchanged. Best Montreal *potashes* quote nominally at 22s. 6d. to 23s., whilst *pearlashes* offer at 35s. to 37s. 6d.

BLEACHING POWDER.—There is little inquiry at present, and the current quotations are as follows:—*London*, £7 15s. to £8; *Liverpool*, soft on spot, £6 15s., hard *f.o.b.*, £7.

BORAX.—The Convention rates are still 20s. for *crystal* and 21s. for *powder*, whilst outside makers quote at 19s. 6d. and 20s. respectively, and even the latter prices could be shaded.

COPPER SULPHATE—Very firm. Even ordinary quality cannot be bought in London under £16 10s., which shows an advance of 5s. The *Anchor* brand is unchanged at £17 per ton.

CREAM OF TARTAR.—This article continues to advance steadily in price, and the rates paid for both *powder* and *crystal* show an advance of 2s. to 3s. per cwt. on last week's prices. Best white *French* crystals now quote at 102s. to 103s. per cwt. on the spot, whilst for *German* brands of powder 105s. is asked.

MERCURIALS.—Following on the advance in quicksilver notified below, the manufacturers of mercurials raised their prices 1d. per lb. all round on the 9th inst., and the current quotations are as follows for quantities of not less than 56lbs.:—*Calomel*, 2s. 11d.; *corrosive sublimate*, 2s. 7d.; *red precipitate*, 3s. 2d.; *ditto levigated*, 3s. 2d.; *white precipitate*, 3s. 2d.; *yellow subsulphate*, 3s. 2d.; *persulphate*, 2s. 3d.; *sulphur with sulphur*, 2s. 2d.; *mercury with chalk*: 1s. 1d. per lb.

QUICKSILVER.—The "drop" in quicksilver noted last week did not hold long, for on the 7th inst. the importers raised their price 5s. per bottle, making it as before, £7 5s. per bottle. Throughout the week good business has been done at this figure, and a further advance is extremely probable, although at the close it had not yet occurred.

POTASH SALTS.—*Bichromate*: Unchanged at 4⅝d. to 4¾d. per lb. *Chlorate*: Slow of sale at 4⅝d. on the spot, whilst the Liverpool price remains at 4½d. per lb. *Permanganate*: This keeps very firm, and the supply from first hand by no means meets the demand. Possibly 60s. would still be accepted for small crystals, but most holders require 62s. 6d., whilst for large crystals 65s. to 67s. 6d. is the price. *Prussiate*: Flat at 8d. per lb. nominally on the spot.

SODA COMPOUNDS.—*Bicarbonate* is unchanged at £7 5s. on the spot, and £6 15s. in Liverpool. *Caustic* 70 per cent. is still worth £7 15s., with 60 per cent. offering at £1 less. *Crystals*, 42s. 6d. *Hyposulphite*: Very firm at £7 17s. 6d. to £8 2s. 6d. for kegs on the spot. In Liverpool it quotes at £7 5s to £7 10s. *Nitrate* (*Refined*) is worth £8 5s. per ton.

TAR DISTILLATION PRODUCTS.—*Benzole*: Dearer. For 50 per cent. 1s. 1d. per gallon is now asked, whilst 1s. 2d. is the price of 95 per cent. *Toluol* quotes at 1s. 4d. per gallon for *pure*. *Creosote*: Lower at 1⅛d. per gallon. *Crude Naphtha*: 30 per cent. at 120° C. quotes at 6d. per gallon. *Solvent Naphtha*:

95 per cent. at 160° is worth 1s. 3d.; 90 per cent. at 160° C., 1s. 1½d.; and 90 per cent. at 190° C., 1s. 1d. per gallon. *Anthracene*: 13 A, 1s. per unit; B, 9½d. *Pitch*: Dearer at 39s. per ton *f.o.b. Tar*. *Refined* quotes at 13s., and *crude* at 12s. 6d. per barrel.

THE DRUG MARKET.

October. 10, 1895

Business in the produce markets connected with the drug trade has been generally on a firm basis during the week, and several articles have received considerable attention. The more important features are as follows: Amongst the raw drugs ipecacuanha, balsam of tolu, saffron, and orris root must be reported dearer. Of the various alkalioids ouinine has received some attention from buyers both for prompt and forward delivery. The essential oil market generally is very firm, and star anise oil especially is much dearer whilst advanced prices have been paid for cassia oil. The Italian essences are very firmly held at higher prices. Cod-liver oil is a strong market at full rates, whilst Italian castor oil is rather easier. In the other articles, the chief alterations are as follows:—Santonine is much dearer, and advanced prices have been paid for menthol, otto of rose, ginger, and shellac. Full details will be found below of the various articles of interest:—

Acacia. — Privately a fair amount of business has been done in *Soudan* gum at 45s. per cwt. for sorts, 50s. to 52s. 6d. for medium pale, and 65s. to 70s. for fine soft pale. Picked *Trieste* gum is very slow of sale, the amount of business done being nominal; on the other hand, there has been a fair business done in the so-called *Persian* insoluble gum, with sales of fair sorts at 11s. to 13s., and fine picked at 20s. per cwt.

American Drugs.—The following are the current quotations for some of the more important drugs imported from the States:—*Cascara Sagrada*: 17s. per cwt.; *Wild Cherry bark*: 3d. to 4d. per lb.; *Snake root*: 1s. 2d. per lb.; *Senega*: 1s. 3½d. per lb. This drug seems to attract little notice at the present time. It is said that New York houses have bought freely at the low prices ruling at present, and no further drop is anticipated, as the season has now commenced, when it will be generally used. *Black willow*: 6d. per lb.; *Golden seal*: 11d. per lb., *c.i.f.*

Asafœtida.—Little of this article is sold in auction. Privately it moves off slowly at fairly steady rates, ranging from 100s. for fine free pale almondy gum, down to 30s. for ordinary low lump.

Cocaine.—The position is unchanged, prices ranging from 14s. 3d. to 14s. 9d. per oz., in 100 oz. lots, according to brand.

Caffeine—Readily procurable at 20s. per lb. for prompt delivery, whilst for December delivery, 18s. per lb. would buy. The demand for the American market seems to have toned down, although there is still a difficulty in filling orders. New York prices rule at a parity of 34s. to 36s. per lb.

Calabar Beans.—The demand for this drug is very limited, and low prices are accepted. The nominal price is 2d. to 3d. per lb. on the spot.

Camphor (Crude).—There is nothing fresh to note in this article, which remains quite a dead letter. The quotations for both *Japan* and *Formosan* camphor, which are only nominal, remain at 205s. to 210s. per cwt. *c.i.f.*

Camphor (Refined).—*English* refiners' quotations are unchanged, both *bells* and *flowers* being quoted at 2s. 3½d. in 10-cwt. lots, with *squares* at 2s. 4½d. and proportionate rates.

Cantharides.—New *Russian* flies offer at 2s. 3d. per lb. *c.i.f.* for good quality, or about 2s. 6d. on the spot.

Chamomiles — Tending easier, and for good quality *Belgian* flowers of this year's crop 37s. 6d. per cwt. would be accepted.

Colocynth.—The market is quite cleared of *Turkey* colocynth in first hand. During the week there have been sales of good apple, somewhat broken, at 2s. 3d. per lb., which shows a steady rate, and there is no more to be had at present. *Spanish* is also in small supply, but there seems to be little inquiry for this variety. A parcel of damaged quality will be offered at the next drug sales. New York reports advise a very firm market, and as much as a parity of 2s. 6d. per lb. has been paid recently. Quotations range there from 2s. 3½d. to 2s. 8½d. per lb. for sound *Trieste*.

Copaiba.—Privately there have been sales of *Maracaibo* balsam at 1s. 5d. per lb. for dull thick. Good *Maranham* sells at 1s. 7½d., *Para* at 1s. 5d. to 1s. 6d., and *Bahia* at 1s. 3d. to 1s. 5d.

Ergot.—The new crop does not find buyers very readily. For *Spanish* holders ask 1s. per lb., and for *Russian* 9d. per lb., both *c.i.f.* terms.

Glycerin—Firm at unchanged prices. Some *German* makers quote as high as 60s., but 57s. is the price for the *R.B.G.* brand, whilst some holders will accept 56s. per cwt. in tins.

Guarana.—The market is overstocked with this drug at the present time, and sales are only made with difficulty. Nominally, 2s. 6d. to 2s. 9d. per lb. is asked for fair sausage.

Insect Flowers.—Prices are unchanged, but there is a steady demand at the current quotations, *open* flowers being quoted at 56s., *half-closed* at 79s., and *closed* at 115s. per cwt., *c.i.f.*

Ipecacuanha—Very firm. There has been a good demand during the last few days for *Rio* (Brazilian) root at fully steady to dearer rates, 5s. 4d. being paid for fair sound annulated root. *Carthagena* (Columbian) root is scarce. A parcel, arrived this week, will be offered at the next drug sales.

Mastic.—The demand for this drug is still very poor. We have heard of sales of a few cases of fine bright drop at 1s. 10d. per lb., but the supply far exceeds the demand at present.

Menthol—Dearer. It is said that 13s. 9d. per lb. has been paid on the spot for good dry *crystals*. Anyhow, holders generally ask 14s. per lb., and there is every appearance of higher prices. For delivery 14s. 6d. per lb. *c.i.f.* is now quoted.

Morphine.—Manufacturers' prices remain unchanged at 4s. to 4s. 2d. per oz. for 1000 oz. lots, with *crystals* 2d. per oz. more. *Codeine* quotes at 10s. 3d. to 10s. 6d. per oz., according to quantity and brand.

Musk.—There has been a good demand privately for *Tonquin* pods during the week, with sales of first pile at 80s. per oz.

Oil (Cod-liver).—*Norwegian* is steadily tending upwards. During the week 170s. and 172s. 6d. has been paid for fine non-congealing oil, and 180s. is now generally asked. *Newfoundland* oil sells privately at the steady rate of 5s. per gallon for good quality.

Oils (Essential).—The essential oil market generally is very firm with strong upward tendency. Latest reports from *China* state that the new season's crop of *Star Anise* oil will certainly fall short of last year's, and at the present time the supply is very small, only a few piculs being available at advanced prices. With respect to *Cassia* oil, it is said that the more recent arrivals of new oil from the interior are of somewhat better quality than last, although still much remains to be desired. Even of this inferior quality oil only a small amount seems to be available. On the spot *Star Anise* oil is firmly held. During the week 8s. has been paid, and to-day 8s. 3d. has been paid with holders now asking 8s. 6d. For delivery the price has been 8s. 4d. *c.i.f.* up till to-day, but 8s. 6d. to 8s. 8d. *c.i.f.* is now the nearest quotation. *Cassia* oil is also very firm without change in price, 7s. 9d. per lb. having been accepted during the week for 70 to 75 per cent. oil, and 8s. is now asked. Of 75 to 80 per cent. oil there is practically none offering, 8s. 3d. to 8s. 6d. per lb. being the nearest spot price. There is no change to note in *peppermint* oil, *H. G. Hotchkiss'* brand quoting nominally at 9s. 9d. to 10s. per lb. *Japan* oil testing 40 per cent. of menthol quotes at 8s. on the spot, whilst for delivery 7s. 6d. per lb. *c.i.f.* was the last price we heard. For *dementholised* oil 6s. is asked on the spot, and for delivery 5s. 9d. per lb. *c.i.f.* The market in *Italian* essences continues to harden, and prices have been again advanced since our last report. The current quotations for oils of guaranteed purity are:—*Lemon*, 4s. 9d. per lb; *Sweet Orange*, 5s. 6d.; and *Bergamot*, 11s. 6d., all *f.o.b.* Messina. *Pimento* is dearer, and 5s. 3d. per lb. is now asked for the new crop of oil. *Lemon Grass* is steady at 2d. per oz. on the spot, whilst for delivery, September to January shipment, 1⅞d. per oz. *c.i.f.* is the price. *Citronella* quotes at 1s. 4d. to 1s. 5d. per lb. on the spot, and for delivery at 1s. 3d. per lb. *c.i.f.* in drums. *Otto of Rose*: *Bulgarian*: Dearer. One well-known exporter has now advanced his price to 32s. per Turkish oz.; another asks 37s. per Turk oz. net for *Turkish* otto.

Oils (Fixed) and Spirits.—*Castor*: *Italian* oil is tending rather easier, and 30s. *c.i.f.* would now buy twenty case lots of fine tasteless oil, whilst for fifty cases, 29s. 6d. *c.i.f.* is the price. *Cotton*: Quiet, with unchanged prices. *Refined* oil quotes at £17 5s. to £17 15s. according to make and package. *Coco-nut* is also unchanged; *Ceylon* being slow of sale at £23, with *Cochin* quoted at £24. *Linseed* barely steady, but there is better inquiry at the close. £20 7s. 6d. to £20 10s. is the price for oil in barrels. *Olive*. *Syrian*: £38. *Spanish*: £37. *Rape*: Very firm at advanced prices, £22 5s. to £22 15s. being the price on the spot. *Turpentine*: Steady. *American* spirit still quotes at 20s. 3d. on the spot. *Petroleum*. *American* oil is steady at 5 ⅞d. on the spot, with *water white* at 6½d. to 6¾d., and *Russian* at 5¾d. to 5⅞d. *Petroleum spirit*. *Ordinary*, 9d. to 9¼d. *deodorized*, 9¼d. to 9¾d.

Opium.—*Turkish.* There is nothing of interest to chronicle, and quotations are as follows:—*Soft shipping* varieties, 10s. 6d. to 12s. 6d. per lb. *Smyrna*: Good to fine, 8s. to 9s.; *druggists' firsts*, 8s. 6d. to 9s.; *ditto seconds*, 7s. 6d. to 8s. 3d. *Persian*, very firm, and full prices have been paid during the week at the rate of 12s. 9d. for fine *bricks*, whilst *balls* quote at 12s. 6d. per lb.

Orris Root.—Reports from Leghorn state that the market there is in a very excited condition, and very little is needed to influence it either way. In the present position it is difficult to give any fixed value, and the following prices, which are merely nominal, show a marked advance:—*Florentine*: Best selected root, new crop, 83s. per cwt., *c.i.f.*; good sorts, 75s., *c.i.f.*

Pilocarpine—Very firm, and the nominal price for both *nitrate* and *hydrochlorate* is 9s. to 9s. 6d. per gramme.

Peru Balsam.—There is nothing doing in this article at present. Nominally, 8s. 6d. per lb. is the spot price, but probably 8s. 3d. would be accepted for genuine balsam of recent import.

Quinine Sulphate. — Since our last report a good business has been at firmer rates. At the end of last week, 5000 ozs. *B and S* and *Brunswick* sold at 1s. 1½d. on the spot, whilst for January shipment 1s. 2d. per oz. was paid for 20,000 oz. of the same brands in manufacturers' hands, and 1s. 1¼d. for the same quality in second hand. Since then 1s. 1⅝d. has been paid on the spot for *B and S*, and 1s. 1¼d. for *Auerbach*.

Saffron—Very firm. Super extra *Valencia* cannot be bought under 23s. per lb., and *Bajo* at 19s.

Santonin—Much dearer, and there is very little to be had at any figure. Various prices ranging from 6s. 3d. up to 7s. have been paid during the week, and at the close the manufacturers' price is 7s. 3. per lb. value at present is 7s. per lb.

Scammony.—*Root* is firm, but at the moment there is not so much inquiry. The nearest value is 45s. per cwt. *Resin*: The market has been quite cleared of *Turkish* virgin resin by a large purchase at the beginning of the week at 30s. per lb. *Skillipe* quotes at 11s. per lb. nominally. *English* resin still quotes at 9s. per lb.

Seeds (various).—*Anise*: *Russian* seed is rather scarce. The price asked is 31s. per cwt., whilst *Spanish* quotes at the same figure. *Cumin*: Very firm. On the spot good quality *Maltese* seed cannot be had under 38s. per cwt. *Carraway*: Steady. For good quality *Dutch* seed 25s. per cwt. *f.o.b.* is still the price, but it is expected to be advanced still further. *Coriander*: At the spice sales on Wednesday ordinary coarse *Bombay* seed was bought in at 6s. 6d. per cwt.

Shellac.—Business privately has been on a limited scale, but prices are higher, *TN Orange* selling on a basis of 117s. to 118s. At the sales on Tuesday only a small catalogue was offered, but the demand was good, especially for *TN Orange*, which sold at prices showing an advance of 1s. on the last sale rates. *Garnet* also sold at an advance. *Button* sorts were held for higher prices. The prices paid were as follows:—*Second Orange*: Unworked livery block, 106s.; reddish block, 110s. to 112s.; curly block, 112s.; good bright, 120s., whilst for worked of old import, 116s. was paid for ordinary blocky, and 117s. for fair bright flat. *Garnet* sold at 95s. for blocky G.

Spices.—*Cloves*: In auction no demand was shown. *Zanzibar* and *Amboyna* being all bought in, the latter at 4½d. to 4¾d. The only parcel sold was 6 cases of good picked *Penang*, which realised 7½d. per lb. Privately the market has been firmer and a fair demand has been shown for *Zanzibar*, with sales at 2⅞d. on the spot and for October to December delivery. *Pepper*. A fair inquiry was shown for *Singapore* in auction, with sales of about 400 bags of good quality at 2½d. per lb. *Tellicherry* were bought in at 2⅝d. per lb. *White pepper*: A small supply only at the sales, when fair *Penang* were bought in at 3d., and good bold *Singapore* sold at 5½d. per lb. Privately *Penang* sells freely on the spot at 3d. per lb. *Chillies*: No inquiries. Ordinary *Zanzibar* were bought in at 32s., whilst *Capsicums* sold at 34s. per cwt. for good bright *Bombay*. *Arrowroot*: Dull of sale, only a small proportion being sold at 1⅞d. for ordinary *Saint Vincent*, whilst fine new *Natal* realised 6½d. per lb. *Ginger*: *Cochin* was in good demand at an advance of about 1s. per cwt., 35s. to 36s. being paid for dull to fair washed. Limed *Japan* sold at 22s. 6d., and medium *Jamaica* at 84s. to 86s. 6d., showing a further advance.

Stavesacre Seeds—Are firmly held. Buyers are not disposed to give more than 60s. per cwt. at present for good quality seed of the new crop, whilst holders stick out for 65s. to 70s.

Sugar of Milk—A very firm market at advanced prices, and it is doubtful if the best brands of *powder* could be bought below 65s. Quotations range from 65s. to 67s. 6d., and 65s. for *crystals*.

Tolu Balsam.—Decidedly dearer. Genuine "old-fashioned" tolu has been in good demand during the week, and 1s. 10d. per lb. is readily paid. Holders now ask 2s. For ordinary "glassy" balsam 1s. 6d. would be accepted.

Tragacanth.—There is no change to note in the position of this article. We have heard of sales of fine so-called "first" *Persian*, at £13 10s. per cwt. There is no third quality offering; what little there is being firmly held.

Wax.—*Carnauba*: Firm. There have been sales of good grey privately at 122s. 6d., and yellow at 130s. to 132s. 6d. *Japan*: Firmer. Holders ask 27s. to 27s. 3d. for good pale *squares*, and 26s. 6d. for yellowish ditto.

LIVERPOOL MARKET REPORT.

[*From our own Correspondent.*]

October 9, 1895.

DRUGS AND SEEDS.—Linseed.—Market lifeless. Canary Seed.—Turkish firm, 150 bags sold early in the week at 34s. per 464 lbs., and latterly a small spot parcel at 34s. 6d. Ginger.—40 bags of Bombay sold at 34s. to 34s. 6d. per cwt., *ex* store. Carnauba Wax.—15 bags of light yellow, 132s. 6d. per cwt. Jaborandi Leaves.—At auction 8 bales of *Pilocarpus microphyllus* leaves disposed of privately. Beeswax.—48 packages of Gambia changed hands at £6 15s., and another lot, 14 blocks, also Gambia, brought £6 12s. 6d.

OILS AND SPIRITS.—Castor: French 1st pressure, 2⅜d. per lb. *ex* quay. Calcutta good 2nds, 2⅜d. to 2 5/32d., with a little offering at the lower rate. Madras, 2⅛d., *ex* quay; 2 3/32d. to 2⅛d., *ex* store. Olive.—Steady at recent rates. Linseed.—21s. to 22s. per cwt. Cotton-seed. — Liverpool refined in export barrels, 17s. 9d. to 18s. 3d. per cwt.; American, 17s. 6d. to 17s. 9d. Spirit of Turpentine.—20s. 9d. per cwt. Petroleum.—American, 6d. to 7½d.; Russian, 5⅞d. to 6d. per gallon.

CHEMICALS. — Ammonium Sulphate.—Market quiet; £9 per ton, *f.o.b.* Sal Ammoniac—Steady at £39 per ton, first quality; £37 for second quality. Bleaching Powder—Quiet, *f.o.b.* Liverpool in hardwood casks, £7 per ton. Potassium Salts.—*Chlorate*: Dull. "Spot and forward" value, 4½d. to 4¾d. per lb. *Prussiate*: 8d. to 8¼d. per lb. Cream of Tartar.—Nominally between 97s. 6d. to 98s. per cwt. for finest white. *Pearl ash*: 37s. 6d. per cwt., slow of sale. *Potashes*: 22s. per cwt. Sodium Salts.—*Bicarbonate*: £7 per ton. *Borax*: Quiet; lump, 20s.; powder, 21s. per cwt. *Caustic soda*: 70 per cent., £7 15s. to £8 per ton; 60 per cent., £6 15s. to £7. *Soda crystals*: £2 10s. per ton, *f.o.b.* *Nitrate of soda*: 7s. 7½d. to 8s. per cwt. Sulphur.—Roll, £5 10s.; flowers, £7 10s. per ton. Copperas Green.—Lancashire, 37s. per ton. Sulphate of Copper—£16 10s. to £17 per ton *f.o.b.* "spot."

Late Advertisements.

Assistants Wanted.

FOR a good class Business, a Qualified Assistant (in-doors). Apply stating usual particulars to R. Fitz-Hugh, Chemist, Nottingham.

ROME.—An Assistant required for the season, November to May. Qualified. Accustomed to a first-class dispensing business. Salary, 200 lira per month, out-door, and 150 lira for travelling expenses. Apply, with photograph, to J. S. Ward, 101, Whitecross St., E.C.

CHEMIST'S Assistant (married preferred), good appearance and gentlemanly address essential, for front counter of Drug Department of large house in Dublin. Short hours. Closed Sundays. Salary £2 per week, to live out. State age and experience, with photograph. D., "Pharm. Journal" Office, 5, Serle St., W.C.

IMMEDIATELY. A Qualified Dispenser, with good experience, for a West-end establishment. Salary £2 2s. per week (out-doors). Short hours. No Sunday duty. Apply, Box 1173, Sell's Advertising Offices, London, E.C.

Business for Disposal.

FOR immediate Sale in consequence of illness, an old-established Business, exceedingly well situated in the centre of a prosperous market town in Norfolk. First rate shop, house and premises. Returns over £1300. For terms and particulars apply, Grimwade Ridley & Co., Wholesale Druggists and Valuers, Ipswich.

For Sale.

FITTINGS of a Chemist's shop. Apply, Nepenthe, "Pharm. Journal" Office, 5, Serle St., W.C.

EXCHANGE.

[Notices of books, apparatus, etc., for exchange, of reasonable length, are inserted free in this column, if they do not partake of the nature of ordinary advertisements. Address "Editorial Department, 17, Bloomsbury Square, W.C."

WANTED.

Kilner's 'Compendium,' 5th ed.; Spon's 'Workshop Recipes,' vols. 1 to 4 (any one volume); Dorvault's 'l'Officine'; Hayward's 'Botanist's Pocket Book.' Price for any one of above, post free, to J. O. Braithwaite, The Rhydd, Hampton Road, Twickenham, Middlesex.

Ganot's 'Physics' and Bentley's 'Manual of Botany.' Must be in good condition. State price, post free.—W. B. Rushton, 5, Bolton Road, Walkden.

Beasley's 'Pocket Formulary'; Beasley's 'General Recipe Book.' State what edition and lowest price to O'Connor, 17, Main Street, Cavan.

Thorpe's 'Metals and Non-metals'; Perkins and Kipping's or Bernthsen's 'Organic Chemistry.' Must be the latest editions and in good condition.—Lowest price to E. E. Dickenson, 34, Myrtle Avenue, Nottingham.

Apparatus for volumetric analysis. State lowest price.—James Ferrier, care of Mrs. White, 7, Cornwall Street, Edinburgh.

OFFERED.

Literature.

Kilner's 'Compendium of Pharmacy and Formulary,' 5th edition, pub. at 15*s.*, for 7*s.* 6*d.*; Royle's 'Materia Medica,' 6th edition, for 5*s.*; Bentley's 'Botany,' 3rd edition, for 5*s.*; all in excellent condition.—Moon, 8, Strand, Torquay.

Wills' 'Elements of Pharmacy,' 3*s.* 4½*d.*; Wootton's 'Problems,' 1*s.* 6*d.*; Wills' 'Volumetric Analysis,' 1*s.* 6*d.*; Wills' 'Guide to Prescription Reading,' 1*s.*; Wills' 'Prescripta,' 8*d.*; Wills' 'Autograph Prescriptions,' 1*s.*; Stirling's 'Equations,' 6*d.*; Bland's 'Botany,' 8*d.*; Cook's 'Botany,' 6*d.*; 'Royal Road to B.P.,' 6*d.*; latest editions, good condition. Post free on receipt of P.O., or stamps.—Assistant, 36, Sloane Square, S.W.

Fowne's 'Inorganic,' 12th edition; Fowne's 'Organic,' 12th edition; Thorpe's 'Metals and Non-Metals'; Prantl and Vine's 'Botany,' 5th edition; Cook's 'Botany'; all in good condition. What offers?—"Pinol," 18, Prince's Square, Kennington Park Road, S.E.

Prantl and Vine's 'Botany,' 5th edition, 5*s.*, or offers.—C. W., 29, Grosvenor Park, S.E.

Wills' 'Inorganic Chemistry,' vol. 1, 1*s.*; Armstrong's 'Organic Chemistry,' 1890, 1*s.*; Edmonds' 'Botany,' 1891 edition, 1*s.*; Thomé's 'Botany,' 2*s.* 6d.; all in good condition. Post free.—Eugene Henry, Loampit Vale, Lewisham.

Beale's 'Slight Ailments, and on Treating Disease,' last edition, new, 3*s.*, post free.—Ridgley, Gillingham, Dorset.

Watts' (Fowne's) 'Chemistry,' ed. 1889, 14th edition; Prantl and Vine's 'Botany,' 5th edition; Remsen's 'Organic Chemistry'; Everett's 'Physics,' 7th edition. All quite new, never used.—Offers, H. Dean, 12, Hawthorn Road, Kettering.

Helbing's 'Modern Materia Medica for Pharmacists,' enlarged (4*s.*), 2*s.*; Professor Parker's 'Zootomy' (7*s.* 6*d.*), 4*s.*; Burnett's 'Ecce Medicus,' 1*s.* 6*d.*; Houlton's 'New Remedies,' 2*s.*; Miner's 'Orchids' (£4 4*s.*) 21*s.*, and a few books on microscope. All free.—Davis, "Chestnuts," Gordon Hill, Enfield.

Bentley's 'Manual of Botany'; Wills' 'Materia Medica'; Wills' 'Elements of Pharmacy.' What offers?—R. W. E. Hall, 7, Morpeth Street, Hull.

Prantl and Vine's 'Botany,' 5th edition. What offers.—E.M.S., 27, Burton Crescent, Tavistock Square, London, W.C.

Photographic Apparatus.

For sale.—5/4 Photographic Outfit, camera, optimus lens, stand, 2 double slides, developers, etc., 45*s.* the lot. Cost 90*s.*—Kendall, Market Place, Bedale.

Miscellaneous.

Surplus stock:—30 lbs. best powdered cream tartar, in one lot, 10*d.* per lb.; 4 lbs. bals. copaib. opt., in one lot, 1*s.* 8*d.* lb.; 1 each Bayly's wood oil, Sequah's oil and p. flower, Smith's digestive candy, Thomasso's Erozone and Lactopeptine; 2 Acacian balsam; 3 Lane's Catarrh cure; 2 Dodd's pills; 4 Taylor's Cimolite. All at half list price.—Tovey, Chemist, Shanklin, I.W.

A nearly complete set of Organic Materia Medica Specimens in cartridge-paper envelopes, by Southall, Bros. and Barclay. Original price, 30*s.*, will accept 6*s.*—The Dispenser, Ryde Dispensary, I.W.

Pill machine, mahogany and brass, 5 grain, splendid condition, to cut 24 pills., 12*s.*—Dudderidge, 52, Derby Street, Newcastle-on-Tyne.

Four show carboys; cut-glass stoppers, capacity, two 4½ galls. and two 6½ galls. Also a quantity of chemist's bottles labelled in black and gold; good condition; a bargain; offers requested.—John Hill, Norton Villa, Britonferry, South Wales.

Dunlop tyred safety, in good condition, for microscope and cash, or would sell.—Apply F. W. Hornby, 2, Hilda Road, Mostyn Road, Brixton, S.W.

Powerful Binocular Microscope, Negretti and Zambra's; coarse and fine adjustments, mechanical stage, 3 powers; polariscope, large and small condensers, etc., in mahogany case, recently thoroughly overhauled. Cost £24, price, £10.—W. H. Pardoe, M.P.S., 49, Poland Street, W.

Diary of the Week.

SUNDAY, OCTOBER 13.

Liverpool Sunday Society, at 3 p.m.

"Climbing in the Himalaya" (illustrated), by Sir W. Martin Conway.

WEDNESDAY, OCTOBER 16.

Plymouth, Devonport, Stonehouse, and District Chemists' Association.

Meeting at the Forester's Hall, Plymouth, at 1.30 p.m.

Dinner at the Freemasons' Hall, Plymouth, at 7 p.m.

Western Chemists' Association (of London), at 8.30 p.m.

Annual Meeting at the Westbourne Restaurant, 1, Craven Road, W.

THURSDAY, OCTOBER 17.

Chemists' Assistants' Association, at 8.30 p.m.

"Some London Waters," by Frank R. Stephens.

Liverpool Pharmaceutical Students' Society.

Smoking Concert at the Alexandra Hotel, Dale Street, Liverpool.

FRIDAY, OCTOBER 18.

Glasgow and West of Scotland Pharmaceutical Association, at 8 p.m.

"The Scottish Alps" (Illustrated), by W. Lamond Howie.

NEWCASTLE CHEMICAL REPORT.

[From our own Correspondent.]

OCTOBER 8, 1895.

Activity in the trade is fairly well maintained, shipping orders for bleaching powder for the upper Baltic ports continuing in evidence. However, the 20th inst. will see the last of the season steamer "Grudno" despatched from the Tyne, after which bleach will be more freely circulated on this market. Soda crystals are rather more plentiful but the demand is about equal to supply. The Channel ports are drawing pretty heavily in view of winter requirements, and large parcels are being sent inland by rail, Bradford notably being a large buyer. The glass works at a distance having become busier are buying alkalies freely, causing salves to be firmly quoted. Sulphate of soda remains scarce, and the same may be said of recovered sulphur, prices unchanged, but very steady. Quotations as a rule are without much variation, any changes, however, being likely to be higher, as the combination of the ammonia soda makers is reported to be now completed. Prices are:—Bleaching Powder, £6 5s. to £7 5s., according to destination. Soda Crystals in 2-cwt. bags, 42s. 6d., home use; 37s. 6d. to 38s. 6d. in casks for shipment. Soda Ash, 52 per cent., £3 15s. to £4. Alkali, 52 per cent., £4 15s. to £5. Caustic Soda, 70 per cent., £7 5s. to £7 15s. Sulphur, £3 17s. 6d. Sulphate of Soda, 22s. 6d. in bulk; 32s. 6d. in casks. Oxalic Acid, 3¾d. per lb. Chlorate of Potash, 3¾d. per lb.

Marriages.

CHURCHYARD—BUCKINGHAM.—On October 7, at the parish church, Redenhall, by the Venerable Archdeacon Perowne, B.D., Arthur Ernest Churchyard, Pharmaceutical Chemist, son of the late Isaac Churchyard, of Norwich, to Jeannetta Edith, daughter of Herbert Buckingham, M.R.C.V.S., Harleston.

PATCHITT—KNEE. — On September 19, Richard Patchitt, only son of E. Cheshire Patchitt, of Nottingham, to Agnes Mary Knee.

SOUTHALL—HOLL. — On October 2, at Holy Trinity Church, Dalston, by the Rev. Henry A. S. Pitt, assisted by the Rev. Wood, Horace Southall, M.P.S., Pharmaceutical Chemist, Hoe Street, Walthamstow, son of Samuel Southall, Birmingham, to Beatrice Louisa, youngest daughter of Alfred Samuel Holl, of 1, Chapel Field Road, Norwich. (No Cards.)

SUPPLEMENT

TO THE

PHARMACEUTICAL JOURNAL.

LATE NEWS.

THE PLYMOUTH CONFERENCE.—The Plymouth, Devonport, Stonehouse, and District Chemists' Association held its second annual dinner at the Freemasons' Hall, Plymouth, on Wednesday evening, the President, Mr. Park, in the chair. After the loyal toasts Mr. E. M. Holmes proposed that of the "Association." He said that if the Association was to succeed in future the spirit of give and take, bear and forbear, must prevail. They were practically making an experiment, which he hoped would be copied throughout the country, by running the Association on a broader basis than had hitherto been done. Mr. C. J. Park and Alderman G. Breeze, J.P. (Vice-President), responded, the latter hoping the Association would do some good in shortening hours of business, so that chemists could meet together oftener.

Mr. J. G. Netting (Vice-President), proposed the toast of the "Pharmaceutical Society," and Mr. M. Carteighe, in responding, said that chemists did work for the public in providing out of their own pockets for the education of their students. He then reviewed the position of chemists in relation to the medical profession, and advocated that doctors should act only the part of healer and adviser, whilst chemists should be left to dispense, a work for which they were especially qualified. The doctor had to fight against the prejudice that advice and medicine were part of the bargain made with his patient, but it was degrading that this should be so. He pointed out further that it was to the advantage of the public that there should be interposed between patient and doctor the cool hand of the dispenser. It was a public danger that it should be otherwise, and the alteration would prove a relief to the overworked doctor, besides ensuring the recognition of chemists. Messrs. C. B. Allen and R. Bremridge also responded.

The toast of the "Honorary Members" was proposed by Mr. F. Maitland, that of "The Officers" by Mr. R. F. Roper, "The Junior Section" by Mr. J. D. Turney," "The Visitors" by Mr. H. Woods, "The Ladies" by Mr. P. A. Kelly, and "The Press" by Mr. A. D. Breeze.

During the course of the proceedings, Mr. Turney was presented with a handsome inkstand in recognition of his services in giving a series of lectures on materia medica to the junior members of the Association. It was also stated that there were now ninety-six members of the Association, and that the financial statement showed a balance on the right side. The book containing the *menu* and toast list, by Mr. J. Townsend, of Exeter, was quite a work of art, and there was a most attractive musical programme, which lent additional interest to a most successful gathering.

Trade Notes and News.

MESSRS. THOMAS CHRISTY AND CO. are now distributing to various parts of India small boxes, each containing twenty compressed tablets of theine. Each tablet contains 2 grains of theine, which is a very small dose. It has been thought better to make them small so as to avoid the necessity of the natives breaking them up before using them. They have been purposely put up in small boxes so that the natives can easily carry them in their girdles.

MESSRS. BURROUGHS, WELLCOME AND CO. have been awarded a silver medal at the Ixelles Exhibition for their Photographic "Tabloids."

THE LIQUOR CARNIS CO., LTD., supplies a physician's sample case of Caffyn's raw beef products, which cannot fail to attract the attention of any medical practitioner receiving it. Liquor Carnis, Malto-Carnis, Marrol, and Virol are the preparations of which samples are included, and they well serve to point the moral that "Feeding is a Fine Art."

MR. W. MASKEW, Pharmaceutical Chemist, late assistant with Mr. Swann, Paris, has purchased the pharmacy of Mr. W. Mansergh, Longsight, Manchester, and has added a photographic department.

MESSRS. W. BUTCHER AND SON, Blackheath, S.E., send particulars of several novelties. The "Primus" Gas Lantern for use with ordinary house gas is substantially made of Russian iron and brass, nicely finished. The front portion is extended by means of a bellows and a travelling baseboard. The base and fronts are made of polished mahogany. There is a neat 4-inch plano-convex condenser, massive double pinion, double combination achromatic lens, fitted with the incandescent gas burner with mica chimney; three mantles are supplied with each lantern. The whole is packed in a neat stained and varnished case, with drawer for sundries, and with leather-strap carrying handle, forming a very compact outfit. Price £6 6*s*. complete. The "Primus" Lantern Stand has a rigid, thoroughly well-made two-fold ash rule-joint tripod, folding up into small compass with straps. The head is cut out in the centre, in which the legs fit and are securely clamped. It is provided with a strongly hinged tilting table, and tilting screw for raising and lowering the same. A shelf, which is a special feature of the stand, is placed inside the legs, fitting on to the stays, by this means clamping all the legs so that it is impossible for them to move, making it perfectly rigid. The shelf is in two pieces, hinged for convenience in packing, and will be found most useful in operating, for holding the slides and other requirements. Price 25*s*. complete.

Marriage.

KAY—COOK.—On October 9, at the Parish Church, Peterculter, by the Rev. James Aird, minister of the parish, Harvey G. Kay (of Messrs. Davidson and Kay, chemists, Aberdeen), to Helen Mary Winfield, third daughter of Alex. Cook, of The Birches, Milltimber.

MARKET REPORT.

[*Specially compiled for the Pharmaceutical Journal.*]

CHEMICALS AND DRUGS.

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

THE CHEMICAL MARKET.

OCTOBER 17, 1895.

There is not much of interest to report in the chemical market during the week, but prices are generally well maintained, with a firmer tendency in some instances. The most important features are briefly as follows:—Carbolic acid is very slow of sale for some varieties at a decline, but the value of crystal acid is maintained. Chrysophanic acid must be again reported dearer. The tartaric acid market is again very firm, and prices are fractionally higher all round, whilst citric acid is also very firmly held. Copper sulphate has been a strong market during the week, but at the close the ordinary brands are decidedly easier. Of ammonia salts, sulphate is a very firm market, although prices are unchanged as yet. Cream of tartar continues in steady demand at unchanged prices. As seemed probable from our report last week, the price of quicksilver was further advanced 2s. 6d. per bottle on the 11th inst., but this does not affect the price of mercurials. Of the potash compounds, permanganate is again dearer, whilst hyposulphite of soda is also very firm. Full details will be found below of the various articles of interest:—

ACID, CARBOLIC.—A quiet market generally, although the prices of *crystals* are maintained. The current quotations are as follows:—*Crystals*, 34° to 35° C., 5d.; 39° to 40° C., 5½d.; 39° to 40° C. (*detached crystals*), 6½d. per lb. *Crude* 60 per cent. is lower, at 1s. 5½d. per gallon, with 75 per cent. quoted at 1s. 8½d. *Liquefied* and *cresylic* are unchanged at 1s. and 11d. per gallon respectively.

ACID, CHRYSOPHANIC—Very strong. Manufacturers now ask 16s. per lb., and there is little to be had at the price, whilst in second hand only a few odd lots are available. The price is likely to be maintained, as good quality araroba is as scarce as ever.

ACID, CITRIC.—The market is very firm, without change in price. *Lawes'* make quotes at 1s. 3d. per lb. on the spot, whilst for forward delivery the lowest price is 1s. 3½d. per lb. In second hand 1s. 2¾d. would probably buy on the spot. *Concentrated juice* quotes at £15 10s. per pipe *f.o.b.*

ACID, TARTARIC—Very firmly held, and quotations for *foreign* acid are again higher, both for spot and forward delivery. Both *Kemball's* and *Lawes'* makes still quote at 1s. 2d. per lb. on the spot, and 1s. 2½d. forward, but for *foreign* brands of acid, both

in *powder* and *crystal*, 1s. 1¾d. is asked on the spot, and for delivery, 1s. 2¼d. per lb.

Ammonia Salts.—*Carbonate*: 3½d. to 3¾d. per lb. *Liquor*: 3¾d. to 3½d. per lb., less 5 per cent. *Sal ammoniac*: *Firsts*, 39s., *seconds*, 37s. *Sulphate*: Very strong market, but quotations are unchanged. At the close £8 17s. 6d. is the price for grey 24 per cent. on the spot, with *Hull* at £8 17s. 6d. to £8 18s. 9d., and *Beckton*, £9.

Ashes.—Unchanged. Best Montreal *pot-ashes* quote nominally at 22s. 6d. to 23s., whilst *pearlashes* still offer at 35s. to 37s. 6d.

Arsenic.—Very firm. Best white *powder* is held from 15s. 6d. to 16s. per cwt., whilst *lump* offers at 29s.

Copper Sulphate.—During the earlier part of the week the market was very firm, with sales of ordinary brands at £16 10s. per ton, but during the last day or two the demand has slackened, and ordinary brands can now be bought at £16 5s. per ton. The *Anchor* brand is unchanged at £17.

Cream of Tartar.—Firmly held, and a fair business has been done at fully steady rates. Best white *French crystals* quote at 102s. per cwt., whilst for *German* brands of powder 105s. is asked.

Mercurials.—The further advance in quicksilver noted below was not sufficient to affect the price of mercurials. Had the rise been 5s. instead of 2s. 6d. they would have been advanced another 1d. per lb. Current quotations for 56 lbs. to 2 cwt. lots are as follows:—*Calomel*, 2s. 11d.; *corrosive sublimate*, 2s. 7d.; *red precipitate*, 3s. 2d.; *white precipitate*, 3s. 2d.; *persulphate*, 2s. 3d.

Potash Salts. — *Bichromate*: Unchanged at 4⅝d. to 4¾d. *Chlorate*: Slow of sale at 4⅝d. on the spot. The Liverpool price is 4½d. per lb. *Permanganate*: A very strong market, and prices have been advanced 5s. per cwt. by some holders, the current quotation for small *crystals* being now 65s. to 67s. 6d. per cwt., whilst for large *crystals*, 70s. to 72s. 6d. is the price. *Prussiate*: Flat at 8d. per lb nominally.

Quicksilver.—Following on the strong position at the close of our last week's report, the price was advanced 2s. 6d. per bottle on the 11th inst., importers now asking £7 7s. 6d. per lb. A good business has been done at this figure, and in second-hand it is very firm at £7 7s.

Soda Compounds. - Unchanged at £7 5s. on the spot, and £6 15s. in Liverpool. *Caustic* 70 per cent. still quotes at £7 15s., whilst 60 per cent offers at £1 less. *Crystals*: 42s. 6d. *Hyposulphite*: Steady at £7 17s. 6d. to £8 2s. 6d. in kegs on the spot, and £7 5s. to £7 10s. in Liverpool. *Nitrate: Ordinary* quotes at £7 17s. 6d., and *refined* at £8 5s. on the spot.

Tar Distillation Products.—*Benzole*: Dearer. For 50 per cent. 1s. 1½d. is the price, whilst 1s. 2½d. is quoted for 95 per cent. *Toluol* quotes at 1s. 4d. for *pure*. *Crude Naphtha* quotes at 6d per gallon for 30 per cent. at 120° C. *Pitch*: Very firm at 39s. per ton *f.o.b.* *Tar* quotes at 13s. for *refined*, and 12s. 6d. for *crude*.

THE DRUG MARKET.

London, October 17, 1895.

The improvement in business which has been noticeable in the drug market during the last few weeks continues, and where changes have occurred, they have mostly been towards higher prices. Of the essential oils, we have to report advanced prices in cassia and star anise oil, and both of them are very firmly held. Patchouli oil is also dearer, whilst the Italian essences continue to advance in price. Cod-liver oil remains a firm market, without much inquiry at present, whilst castor oil is dull of sale. The various fixed oils are generally speaking a very strong market, and several of them have been considerably advanced in price. Quinine is the only alkaloid which attracts much attention, and a fair amount of business has been done in the best German brands at full rates. Caffeine is in good demand at the prices given last week, and a good demand is reported from the American market. Crude camphor is still quite a dead letter, although advanced prices are asked, and during the week the agents of some of the German refiners have raised their prices. Santonine is easier, and there does not seem much likelihood of the advanced prices of last week holding good. At the drug sales held to-day the general tone showed an improvement, and a fair number of sales were effected. Ipecacuanha was in fair supply, and the prices paid for Rio root were very irregular, but on the whole shows an advance of 1d. per lb. Carthagena root sold at steady rates. A fair supply of Cape aloes was shown, and sold freely at a decline, whilst Zanzibar fetched prices showing a considerable advance. No good quality Socotrine aloes was shown. A good supply of senna was offered and realised irregular but, generally speaking, steady rates. No very fine grades of cardamoms were shown. The moderate supply fetched steady prices. Of other articles buchu leaves, tolu balsam, Zanzibar beeswax, vanilla, and saffron are dearer, whilst elemi gum, orris root, honey, and cubebs are lower. Full details will be found below of the various articles of interest:—

Acacia.—A moderate supply was offered in auction to-day, and no sales were effected. *Trieste* picked gum was bought in at prices ranging from £6 10s. to £7 for medium to bold pale, and £5 15s. for small pale drop. Medium to good palish to ambery sorts from Suez were bought at prices running from 60s. to 70s. per cwt.

Aloes.—A total of 520 packages were offered to-day. Of these *Cape* aloes sold at prices showing a decline of 6d. per cwt., about 60 cases selling at 23s. to 23s. 6d. for good bright hard, 22s. to 22s. 6d. for medium hard, 21s. to 21s. 6d. for ordinary, and 18s. to 19s. 6d. for soft to medium dull. A parcel of 35 cases of *Zanzibar* aloes in tins all sold at 31s. per cwt., showing an advance of 3s. per cwt. No good *Socotrine* aloes in kegs was shown. A few lots of drossy grades were bought in at 10s. to 15s. per cwt. Privately 85s. has been paid for good and soft, and this quality is getting very scarce, holders now asking 100s. per cwt. A parcel of 20 boxes of good *Curaçoa* aloes sold well at 50s. to 60s. per cwt., whilst 381 gourds were all bought in at 35s. after 28s. had been bid.

Ammoniacum.—None was sold in auction to-day, when some nice lots were shown. For five cases of nice pale loose almonds 55s. is asked, whilst mixed seedy block was bought in at 32s. 6d. to 35s., and ordinary lump, with a few almonds, at 25s. to 35s.

Annatto Seeds.—Firmly held. At to-day's sales only 19 bags were offered. They were bought in at 4d. to 4½d. per lb. for fair, rather dull, *Madras* seed.

Benzoin.—A total of 218 cases were catalogued to-day. Of *Siam* gum, only a few cases were offered. Of these, £26 10s. was the price paid for two cases nice clean pale loose almonds, whilst 5 cases of siftings in block realised 62s. 6d. to 67s. 6d. *Palembang* gum was in moderate supply, but none was sold, fair seconds being bought in at 30s. to 37s. per cwt. Of *Sumatra* gum, which comprised the bulk of what was offered, £8 5s. was paid for good bright pale almondy seconds, and £6 for ordinary seconds, fair almondy centres, but very false packed sides.

Buchu. — Again dearer. In auction 6 bales of nice bright green *round* leaves sold at 6d. per lb., an advance of ¾d. from the last sale price, whilst 5½d. to 5¾d. was paid for *round* leaves, good green colour, but not so bright as the first lot mentioned. Ordinary *round* brown leaves realised 2½d. per lb., whilst rather dull *long* leaves sold at 6d. per lb.

Caffeine.—During the week 18s. has been paid for November delivery, and there have been small sales at 20s. per lb. on the spot. Makers will not quote below 18s. for December delivery, and the general tone of the market is towards higher prices, owing to renewed inquiries from the States.

Calumba Root.—Freely offered to-day, but only a few sales were effected out of 267 bales. 100 bags of ordinary wormy sorts from *Zanzibar* sold at 8s. per cwt.; other lots were bought in at 10s. 6d. to 16s., whilst 3 bags of very fine bold root were held for 75s. per cwt.

Camphor (Crude).—There is nothing doing in this article at present, but the market is very firm. For both *Japan* and *Formosan* camphor 220s. to 225s. per cwt. *c.i.f.* is the nominal quotation.

Camphor (Refined).—The second-hand stock in this country is low, but there is a fair amount in Hamburg. During the week the agents of two of the *German* refiners have advanced their prices to 2s. 1d. and 2s. 2d. per lb. respectively. *English* refiners still quote *bells* and *flowers* at 2s. 3½d. for 10 cwt. lots, with *squares* at 2s. 4½d. and proportionate rates. To-day 3 casks *Japan* camphor were bought in at 2s. 3d. per lb.

Canada Balsam.—Four cases of fair quality balsam were bought in to-day at 1s. 8d. per lb.

Canella Alba.—Firmly held. Five cases of mixed broken quill from New York were bought in to-day at 26s.; a bid of 23s. 6d. per cwt. was refused.

Cannabis Indica. — Moderate supply only, and all was bought in. Fair greenish stalky tops are held for 3½d. per lb., whilst dusty brown tops were bought in at 3d.

Cantharides.—Two cases of small dusty *Chinese* were bought in to-day at 1s. 3d. per lb.

Cardamoms.—A moderate supply only was shown to-day, which did not include any very fine grades. The prices were again irregular, but on the whole steady. *Ceylon-Mysore*: Medium full pale 2s. 8d. per lb.; small to medium pale, 2s. 4d. to 2s. 5d.; small to medium yellowish, 1s. 11d. to 2s. 2d.; medium to bold brownish part split and shrivelled, 1s. 8d. to 1s. 10d.; small split and speckled brown, 1s. 1d. to 1s. 3d. per lb.

Seed: Sold well at full rates, 1s. 11d. to 2s. being paid.

Cascara Sagrada.—A parcel of 118 bales of fair stout bark from *San Francisco* was bought in at 18s. 6d. per cwt.

Cascarilla.—Steady. To-day 9 bags of fair to medium sound silvery quill fetched 38s. to 45s. per cwt., whilst small brown was bought in at 35s. and dust at 27s. per cwt.

Cassia Fistula. — None was sold in auction. For 37 bales of bold rather lean pods from *Calcutta*, 6s. per cwt. was refused.

Cassia.—At the spice sales 120 bales of ordinary *cassia lignea*, common quality, was bought in at 17s. 6d. per cwt., whilst *cassia vera* was bought in at 26s.

Coca Leaves.—Some fine *Ceylon* leaves were shown to-day, but bought in at 2s. The price asked is 1s. 6d. per lb. Fair *Truxillo* leaves were bought in at 1s. 2d. The same quality sells privately at 1s. per lb.

Colocynth.—In auction to-day, 3 bags of ordinary broken damaged *Spanish* colocynth sold without reserve at 8½d. per lb., whilst a case of untrimmed *Spanish* apple was bought in at 1s. 6d. per lb

Copaiba.—None was sold in auction. Good bright *Maranham* was bought in at 1s. 6d., and thick mixed *Maracaibo* at 1s. 8d. The latter quality sells privately at 1s. 5d. per lb.

Cubebs.—Very slow of sale except when offered without reserve. Out of 160 bags offered, only 4 sold, 22s. being paid for damaged Singapore berries.

Dragon's Blood.—No *Socotrine* gum was shown to-day. Of *Singapore* dragons blood in reeds, broken finger, partly separated from the covers, was bought in at £12. Fair bright lump sold at £8 2s. 6d. to £8 5s. per cwt., and dull very seedy lump at £5 12s. 6d. Dark saucers were bought in at £6 10s.

Elemi Gum—Much lower. Out of 38 cases offered in auction to-day 18 sold, 22s. to 23s. being paid for good clean gum from *Manilla*, a decline of about 7s. per cwt.

Ergot of Rye.—The new *Spanish* ergot still offers at 1s. per lb., but no one cares to give the price. All the lots shown to-day were the old crop, and were bought in at 9d. per lb.

Galangal.—Slow of sale. To-day 30 bales of good bold root from Hong Kong were bought in at 25s. per cwt.

Gamboge. — In auction two cases of mixed lump from *Singapore* of fair fracture sold at £9 5s. per cwt., whilst £10 was submitted for a case of good *Singapore* pipe, clean fracture.

Honey.—*Jamaica* sold pretty freely at the present low prices, ranging from 25s. for fine pale, 23s. for fair brown, down to 20s. 6d. for dark foul. *Chilian* was bought in at 50s., and *Californian* at 45s. per cwt.

Ipecacuanha.—A fair supply of *Rio* (Brazilian) root was shown to-day and very irregular prices were paid, but on the whole an advance of 1d. per lb. was shown. The following prices were paid: Very fine picked, 5s. 8d. to 5s. 9d.; fine annulated, 5s. 6d.; good sound annulated, 5s. 4d. to 5s. 5d.; ordinary woody mixed, 5s. 2d. to 5s. 3d. down to 4s. 10d. and 4s. 11d. for very ordinary thin stalky root. 4 bags of *Carthagena* (Columbian) root sold at 4s. 3d. to 4s. 4d. per lb. for good to partly damaged root.

Jalap.—The only lot sold in auction was 3 bales of ordinary softish *Vera cruz*, which realised 10d. per lb.

Kola—Fairly steady. Sound *Grenada* nuts realisen 11d. per lb. to-day, and mouldy, 5½d. per lb. Another parcel of *West Indian* kolas realised 6½d. to 7½d. per lb. for ordinary mouldy and wormy.

Menthol.—During the week 13s, 6d. has been paid on the spot for good dry *crystals*. To-day, cable reports from *Japan* advise an advance to 14s. per lb. with none offering at present. In auction *Cockings* brand was bought in at 17s. per lb.

Nux Vomica.—None was sold in auction in spite of the present low prices. A parcel of fair *Bombay* nuts was bought in at 6s., whilst ordinary small *Madras* seed was bought in at 4s. 6d. to 6s. per cwt.

Oil (Cod-Liver). — *Norwegian* oil is firm, but without much inquiry at the moment. For fine non-freezing *Lofoten* oil, 175s. to 180s. per barrel is asked on the spot according to holder. At to-day's sales ten barrels of old *Norwegian* oil were bought in at 120s. Privately, *Newfoundland* oil sells steadily at 5s. per gallon.

Oils (Essential).—The essential oil market remains very active generally, with several advances to be noted. Recent market reports from *China* confirm the scarcity of *Star Anise* oil, little being offered at present, whilst prices remain very firm. On the spot it is very firmly held. Since our last report sales have been made at prices ranging from 8s. 4½d. up to 8s. 9d. per lb. on the spot, but 9s. is now the price asked, and this has been paid. *Cassia* is also very firmly held, with oil of 70 to 75 per cent. aldeyde strength quoting at 8s.; 75 to 80 at 8s. 6d., and 80 to 85, at 9s. 3d. per lb. There are no quotations for shipment, except for oils of very low aldehyde strength, such as 35 to 45 per cent., and this speaks badly for the quality of this year's crop, which is mostly of low quality. There is no change to note in peppermint oils, *H. G. Hotchkiss'* brand quoting nominally at 9s. 9d. to 10s. per lb., whilst for *Japan* oil, testing 40 per cent. of menthol, 7s. 9d. to 8s. is asked on the spot, and for delivery 7s. 3d. per lb. *c.i.f.* terms. *Dementholised* oil has been sold during the week at 5s. 6d. per lb., and 5s. 9d. to 6s. is now asked, whilst for delivery 5s. 3d. per lb. *c.i.f.* is the latest quotation. In auction to-day, *Cockings'* oil was bought in at 7s., and 40 per cent. *Japan* at 8s. per lb. The market in *Italian* essences continues very firm, and some brands have been again advanced since our last report. For oils of guaranteed purity the quotations are:—*Lemon*: 4s. 9d. per lb. *Sweet orange*: 5s. 6d.; and *Bergamot*: 11s. 6d. per lb., all *f.o.b. Messina*. *Fratelli's* essence of *Lemon* has been sold at 4s. 2d. per lb., *f.o.b.*, but the makers are not disposed to book further orders at the same figure. For finest *Bergamot* essence they ask 10s. 8d. per lb., *f.o.b.* At the drug sales four half cases of *Bergamot* essence sold "without reserve" at 4s. 6d. per lb, whilst a copper of Tangerine *Orange* oil was bought in at 7s. 6d. Battaglini's essence of *Lemon* was bought in at 6s., and *Orange* essence at 4s. 3d. per lb. *Patchouli* oil has again advanced in price, and 1s. 3d. per oz., is now asked. In *Lemon Grass* oil business has been done at 2d. per oz. for native brands, which shows a steady market, whilst *Citronella* is rather easier, 1s. 3d. having been accepted for bottles on the spot. *Cajuput* oil was bought in to-day at 2s. 4d. per lb., whilst 2 cases of *Cinnamon* bark oil sold at 6d. per oz.

Oils (fixed) and Spirits.—*Castor*: *Italian* oil is unchanged, and fine tasteless oil can be bought at 29s. 6d. to 30s. 6d. per cwt., according to quantity. At to-day's drug sales 20 cases of No. 1 *Calcutta* oil were bought in at 2½d. per lb. *Cotton*: Quiet at unchanged rates, with *refined* oil quoting at £17 5s. to £17 15s., according to make and package. *Cocoa-nut* is dull of sale, *Ceylon* being 5s. lower, the current quotation being £22 15s; on the other hand, *Cochin* is much dearer, and £24 10s. has been paid, £24 15s. being now asked. *Linseed:* Very firm and advanced prices have been paid, £20 15s. being now asked for oil in barrels. *Olive*: *Syrian*, £38; *Spanish*, £37. *Rape*: Dearer by fully 5s., and £22 15s. to £23 is now the spot price. *Turpentine*: Quiet but steady. *American* spirit quotes at 20s. 3d. to 20s. 4½d. on the spot. *Petroleum*: Steady. *American* oil still quotes at 5⅞d., with *water white* at 6½d. to 6¾d., and *Russian* at 5⅜d.

Olibanum.—Firmly held. 20 cases were offered at to-day's drug sales, and bought in at 20s. to 21s. per cwt. for medium drop.

Opium.—The market for *Turkish* opium is quiet at present, and there is no change to note in the current quotations, which are as follows:—*Soft shipping varieties*, 10s. 6d. to 12s. 6d. per lb. *Smyrna*, good to fine, 8s. to 9s. *Druggists' firsts*, 8s. 6d. to 9s. *Druggists' seconds*, 7s. 6d. to 8s. 3d. *Persian* is in continued good enquiry, especially for first grades, and 12s. 9d. to 13s. per lb. is paid for fine *Bricks* and 12s. 6d. for *Balls*. At the drug sales 5 cases of damaged *Turkey* opium were bought in at 7s. to 9s. 6d. per lb.

Orange Peel.—An average supply was shown to-day, when 7½d. per lb. was paid for thin cut *Maltese* peel of fair aroma, and 4d. for dark ordinary ditto.

Orris Root.—The Leghorn market is in a very unsettled condition, for although the speculators have been attempting to run the prices up, the demand has not been a genuine one caused by increased consumption, and consequently prices soon decline, and little reliance can be placed upon the current quotations. Reports for Italy state that contrary to expectation, at the fair at the end of last week lower prices were realised. The nearest value for best selected *Florentine* root is 80s. per cwt. *c.i.f*, and for good sorts, 72s. to 73s. *c.i.f.* In auction 10 bales of *East Indian* orris from *Aden* sold at 36s. per cwt. subject, for ordinary dark, whilst 35s. was paid for a similar quality from Bombay.

Quinine Sulphate.—A fair business has been done since our last report at steady rates including 10,000 ozs. of *B. & S.* and *Brunswick* at the end of last week at 1s. 1½d. and *Auerbach* at 1s ¾d. At to-day's sales 5,000 ozs. *H. B.* were bought in at 1s. 1½d. per oz.

Sarsaparilla.—A moderate supply was offered in auction, when good grey *Jamaica* realised 1s. 6d. per lb., whilst a parcel of *Mexican* sold freely at prices ranging from 11d. to 11½d. for ordinary sound, down to 3½d. for damaged. *Honduras* was bought in at 1s. 4d. per lb. A parcel of 18 bales of *Lima Jamaica* sold well at prices ranging from 9d. up to 1s., according to condition

Saffron.—Latest reports from Valencia state that the old stocks are now almost exhausted. The new crop is expected to be very satisfactory, both in quality and quantity, the weather fortunately having been very favourable for the gathering. Ten tins offered in auction were bought in at 19s. per lb.

Squills.—Very slow of sale except when offered without reserve. In this instance a parcel of 14 bags of fair medium pale sold at 2¼d. to 2½d. per lb., whilst fine white were bought in at 4d. per lb.

Tulu Balsam—Dearer. In auction to-day only 2 cases were shown, and 2s. was paid for good "old-fashioned" balsam, showing an advance of 2d. per lb.

Wax (Bees).—An average supply was shown to-day, when a good demand was shown. *Madagascar* sold freely at £6 7s. 6d. to £6 15s. *Zanzibar* was dearer, £6 15s. being paid for good yellow mixed showing an advance of 2s. 6d. *Jamaica* sold at steady rates, £7 12s. 6d. being paid for fair brownish. *Australian* realised £6 15s. to to £6 17s. 6d., whilst £6 5s. to £6 15s. was paid for a parcel of *San Domingo*, and £7 15s. for *Cape*.

LIVERPOOL MARKET REPORT.

[*From our own Correspondent.*]

October 16, 1895.

DRUGS AND SEEDS.—Canary Seed.—200 bags Turkish disposed of at 34s. per 464 lbs., and small sales of River Plate at 31s. Guinea Grains.—46 bags, at 17s. per cwt. Gum.—35 barrels of Sierra Leone, at 9¾d. to 1s. 3½d. per lb. in store.

OILS AND SPIRITS.—Castor Oil.—Calcutta, for good seconds, 2 3/16d., spot; 1st pressure French, 2 1/8d. to 2 5/32d., and Madras, 2 3/32d. to 2 1/8d. per lb. for forward delivery. Olive Oil—At £30 to £38 per tun. Linseed Oil.—21s. to 22s. per cwt. for Liverpool makes. Cotton-Seed Oil.—Liverpool refined, 17s. 9d. to 18s. 3d. per cwt.; American, 17s. 6d. to 17s. 9d. Spermaceti.—30 cases, at 1s. 4¼d. per lb. Spirits of Turpentine—20s. 9d. per cwt. Petroleum.—Russian, 5⅞d. to 6d.; American, 6d. to 7½d. Petroleum Spirit—Deodorised, 6¾d. per gallon.

CHEMICALS.—Ammonium Salts.—*Sal ammoniac*: Firsts, 39s.; seconds, 37s. per cwt. *Carbonate*: 3½d. to 3⅝d. per lb. *Sulphate*: £9 per ton for good grey, "spot" price. Potassium Salts.—*Potashes*: 22s. per cwt. *Pearlashes*: 37s. 6d. per cwt. *Chlorate*: 4½d. per lb. *Prussiate*: 8d. to 8¼d. per lb. Cream of Tartar.—98s. 6d. to 99s., spot price. Sodium Salts.—*Bicarbonate*: £6 15s. per ton. *Soda crystals*: £2 10s. per ton. *Caustic soda*: 70 per cent., £7 10s. per ton; 60 per cent., £6 10s. *Borax*: 20s. for lump and 21s. per cwt. for powder. *Hyposulphite of Sodium*: £7 5s. to £7 10s. per ton. *Nitrate*: 7s. 7½d. to 6s. per cwt. Bleaching Powder.—Hard, *f.o.b.*, £7. Phosphorous.—Wedges, 2s.; sticks, 2s. 1d.; amorphous, 2s. 8½d. per lb. Copperas (Green).—Lancashire, 37s. per ton. Sulphate of Copper.—£16 10s. to £17 per ton. Sulphur.—£3 17s. 6d. in bags, £4s. 5s. in barrels, roll £5 5s., flour £7 10s. per ton.

Exchange.

[*Notices are inserted free in this column, if they do not partake of the nature of ordinary advertisements. They should be addressed "Editorial Department, 17, Bloomsbury Square, W.C," and arrive not later than Wednesday.*]

WANTED.

Fownes' 'Organic Chemistry,' latest edition and in good condition.—State lowest price to A. C. Bateson, 121, Upper Brook Street Manchester.

Everett's 'Physics,' small and latest edition; Wills' 'Autograph Prescriptions'; Southall's 'Materia Medica'; Sutton's 'Manual of Volumetric Analysis.' State lowest prices, including postage, to J. Hockey, Medical Hall, Chard.

'Pharmaceutical Journal,' January, February, March, April 7, 14, all 1894. Good price given.—Ferguson, 18, Paradise Street, Coventry.

Attfield's 'Chemistry,' 15th edition. State lowest price post free to—Thos. W. White, Ballingeich Road, Stirling, N.B.

Wanklyn's 'Analysis of Water and Food,' last edit.—T. Broom, Houghton-le-Spring.

Ganot's 'Physics'; Remsen's 'Organic Chemistry'; Watts' 'Organic Chemistry'; Watts' 'Inorganic Chemistry', Maisch's 'Materia Medica'; Thorpe's 'Metals.' Lowest price for any of above; must be last edition and in fair condition.—Rogers, 36, Sloane Square, S.W.

OFFERED.

Richter's 'Inorganic Chemistry,' 1890, 4s.; Remsen's 'Organic Chemistry,' 1889, 3s.; Bentley's 'Manual of Botany,' fifth edition 5s.; Wills' 'Manual of Materia Medica,' eleventh edition, 5s.; Beale's 'Slight Ailments,' second edition, 2s. All in good condition; post free on receipt of P.O.—A. Baxter, 2, Sandport Street, Leith, N.B.

Oliver's 'Botany,' latest edition, 3s., post free; Holme's 'Botanical Note-Book' (scarcely been used), 2s., post free; Roscoe's 'Chemistry,' 2s., post free, or the three post free for 6s.—T. W. White, Ballingeich Road, Stirling. N.B.

For sale, Bentley's 'Manual of Botany,' 4th edition, price, 6s., post paid. Wills' 'Materia Medica,' 3rd edition, price, 3s., post paid, on receipt of P.O. for above amounts.—R. W. E. Hall, 7, Morpeth Street, Hull.

Whiteley's 'Chemical Calculations,' new, 1s. 6d.; 'Organic Chemistry,' Frankland,' 2s. 6d.; Thorpe's 'Metals,' 2s.; 'Selecta è Præscriptis,' 1s.; Bentley', 5th, almost new, 7s. 6d.; Lindley's 'Manual Botany,' 2s. 6d.; Complete Minor Lectures (cost 30s.), 17s. 6d. Carriage free.—F. H. Slynn, Wroxeter, Rhyl.

Four Kombi Cameras, 1 Magazine, 2 printing frames for ditto, unsoiled; and photos, enlargements, pamphlets for retail sale of the same. Offers. Cash, or ¼-plate apparatus.—Drug Stores, 358. High Street, Rochester.

For sale, cheap, set of chemical reagent bottles, suitable for laboratory; also chemical apparatus.—Macdonald, 124, Crown Street, Aberdeen.

Ross's best quality microscope, with compound mechanical stage and sub-stage; 2 in., 1 in., 2/3 in., 1/2 in., and 1/8 in. objectives; 4 eye-pieces, including Kelner's orthoscopic; large number of costly accessories in two mahogany cabinets, new, with 100 expensive slides, cost £70, price £26.—Halford, Chemist, Hockley, Birmingham.

Four window carboys, with glass stoppers, capacity, two 4½ gall., two 6½ galls.; also quantity of bottles labelled black and gold. A bargain. Offer requested.—John Hill, Britonferry, S. Wales.

New Books and New Editions.

British Fungus Flora: A Classified Text-Book of Mycology. By G. Massee. Vol. 4. Cr. 8vo, pp. 530. Price 7s. 6d. (Bell and Son, London.)

Climates and Baths of Great Britain: being the Report of a Committee of the Royal Medical and Chirurgical Society of London. Vol. 1: The Climates of the South of England and the Chief Medicinal Springs of Great Britain. 8vo. pp. 656, Price 21s. net. (Macmillan and Co., London.)

Diary of the Week.

Secretaries of Societies are requested to send notices of forthcoming meetings not later than Wednesday in the previous week.

Sunday, October 20.

Liverpool Sunday Society, at 3 p.m.
"Sketches in Parliament" (illustrated), by F. Carruthers Gould.

Tuesday, October 22.

Midland Pharmaceutical Association, at 8.30 p.m.
Opening of the new session.
Reception by the President, Mr. Gibbs, at the Grand Hotel, Birmingham.

Royal Photographic Society, at 8 p.m.
"The Art of Lantern Slide Making (illustrated), by John A. Hodges.

Wednesday, October 23.

Brighton Junior Association of Pharmacy, at 9 p.m.
Social and Musical Evening at the Newbury Hall, Cannon Place.

Nottingham and Notts. Chemists' Association, at 9 p.m.
Debate on the Late Shop Hours Regulation Bill, opened by Mr. Lumby.
Distribution of Prizes.

Thursday, October 24.

Chemists' Assistants' Association, at 8.30 p.m.
Short Papers by Members.

NEWCASTLE CHEMICAL REPORT.

[*From our own Correspondent.*]

October 15, 1895.

The heavy shipments of bleaching powder which are now being hurried to the Baltic ports are causing a continued scarcity for home orders, resulting in middle holders demanding a shade higher price for prompt delivery to English and Scotch bleachers. Soda crystals have also been pretty well run on, but more for inland requirements than otherwise. Orders from the cotton-weaving districts are bulky and pressing; in many instances prices, however, are unchanged but firm. Alkali keeps in demand for the glass works. Whilst scarceness of saltcake and recovered sulphur causes values to be firmly quoted. Sulphate of ammonia finds more ready buyers for present and forward delivery. Strong acids and tar bi-products are likewise moving better, coupled with good inquiries for forward business. Prices are: Bleaching Powder, £6 7s. 6d. to £7 5s., according to markets at home and abroad; 5s. extra in hardwood casks. Soda Crystals, 37s. 6d.; in bags, 42s. 6d. to 43s. 6d. Caustic Soda, 70 per cent., £7 5s. to £7 15s.; 76 to 77 per cent., £9 10s. Soda Ash, 52 per cent., £3 15s. to £4. Alkali, 52 per cent., £4 15s. to £5; 36 per cent., £2 15s. Sulphur, 2-cwt. bags, £3 17s. 6d. Salt-cake, 22s. 6d. Sulphate of Ammonia, £8 15s. to £9. Carbolic Acid, 60 per cent. crystals, 1s. 7d.; crude, 40 per cent., 5¾d. Creosote, 2½d. Pitch, 38s. to 36s. 6d. Hyposulphite of Soda, 5 to 7-cwt. casks, £6 10s.; 1-cwt. kegs, £7 5s. Chlorate of Potash, 5d. per lb. South Durham Salt improving in tone, but unchanged in price, which is given at 9s. 6d. per ton *f.o.b.* Middlesbro.

Late Advertisement.

Assistant Wanted.

A QUALIFIED Assistant, of good address, about 24 or 25 years of age, for good-class suburban business. In-doors. One with London experience preferred. State height and salary required to Salicin, Messrs. Hodgkinson & Co., 101, White Cross St., E.C.

SUPPLEMENT
TO THE
PHARMACEUTICAL JOURNAL.

Contents of Supplement.

Trade Notes and News i
Market Report ii
Liverpool Market Report iv
Newcastle Chemical Report iv
Exchange iv
Diary of the Week iv

LATE NEWS.

MR. J. G. F. RICHARDSON.—We regret to learn that Mr. Richardson, of Leicester, a late member of the Council of the Pharmaceutical Society, has had a relapse, and is reported to be dangerously ill.

SUNDERLAND CHEMISTS' ASSOCIATION.—The annual meeting of the above Association was held at the Grand Hotel, Bridge Street, on Wednesday, at 8.30 p.m., when there were present the President, Mr. J. Harrison; Vice-President, Mr. J. Mitchinson; the Treasurer, W. W. Leadbitter; the Secretary, R. H. Bell; Messrs. Fairman, Ranken, Nasbet, Thompson, Cherrett, Todd, Hodgson, Nicholson, Turnbull, Goligthly, and Robinson.

The minutes having been read and confirmed, the Secretary read his report, which was very satisfactory, and showed the Association to be much more enthusiastic, and that more good feeling was existing now amongst the members. The Treasurer's accounts showed the Association to be thriving.

The President, Vice-President, Treasurer, and Secretary were all re-elected. The Council were all re-elected with the exception of Mr. White, Mr. Nasbet taking his place. Messrs. Robinson and Nicholson were elected Auditors.

After business was over those present spent the evening in a most pleasant manner. The annual dinner was fixed to take place on Wednesday, December 11, and the arrangements were left in the hands of the President, the Secretary, Messrs. Robinson, Ranken, and Nasbet.

CHEMISTS' ASSISTANTS' ASSOCIATION.

At the meeting held last week there was a good attendance to hear a paper read by Mr. Frank R. Stephens on "Some London Waters." This embodied the results of a series of analyses carried out to ascertain the relative purity of representative river, well, pond, and bath waters in and about London, but it was not claimed that the examination was a complete one, the question being merely to find out if the water in question was contaminated, and, if so, the cause. For this purpose samples were taken during the latter part of the summer, when the maximum amount of contamination would be found, from various parts and tributaries of the Thames, Lea, New River, and Regent's Canal, and submitted to the ordinary system of analysis. The same was done with Hampstead, Highgate, Regent's Park, and other bathing ponds, whilst representatives enclosed swimming baths were examined. Of the first series the New River water, as might be expected, came out with the best credentials, some of the other waters, especially those taken near Ponder's End at Tottenham, more resembling sewage than anything else. The statistics obtained from examination of the bathing ponds and enclosed baths were of considerable interest, and the author of the paper had evidently put himself to considerable trouble in his inquiry, his varied adventures at Tottenham and Hampstead causing much amusement. It may be noted that some seventeen years since a paper was published on a similar subject, by Mr. A. J. Cownley, entitled "Abnormal Waters," which gave the average contamination per bather in various London swimming baths (*Pharm. Journ.* [3], viii., 381). Mr. Stephens had been enabled, through the co-operation of the manager of the King Street Baths, to examine the water when the bath had just been cleaned and refilled, and afterwards at stated intervals, the number of bathers being known. The latter part of the paper was devoted to an account of the methods adopted for obtaining the results, which were given in detail. A discussion followed, in which the President (Mr. E. W. Hill), Messrs. R. H. Jones, Melhuish, Robbins, Aubrey Hill and others joined, and a cordial vote of thanks was awarded to the author. Several new members were elected.

Trade Notes and News.

MR. ALFRED A. BARRETT, of Messina, has amalgamated his business as an essence manufacturer with that of the firm of William Sanderson and Sons, also of Messina. This step has been taken in order to extend the home and American connection of the two firms on new and more elaborate lines, and to this end a factory is now being erected in Sicily, which will not only be the largest in the island but will also be fitted with every modern appliance in the way of machinery and patented appliances which can facilitate the manufacture of high-class essences. The firm will be carried on under the style of Sanderson and Barrett, the factory being situated at Tremestieri.

THE CASTNER-KELLNER ALKALI COMPANY (LIMITED) has been constituted by virtue of an arrangement made between the Aluminium Company (Limited), of London, the owners of the Castner Patents, and Messrs. Solvay et Cie., of Brussels, who are, by purchase, the sole owners of the Kellner Patents (except for Austria. The Company has been formed for the purpose of working in Great Britain, Ireland, and the British Colonies (excepting Canada), the combined patents of Mr. Hamilton Y. Castner and Dr. Carl Kellner, for the manufacture of caustic, alkali and bleaching powder, by means of the electrolytic decomposition of salt or alkaline salts.

MR. VINCENT WOOD, 3, St. Andrew's Street, Holborn Circus. London, E.C., has sent samples of a new material, in white and natural colour, which he is making up in the form of chest and lung protectors, belts, knee-caps, etc. The material is a pure woven wool, fleecy on both sides and woven in the middle. It is thoroughly porous and washable, and the new "Vinwool" Chest Protectors ought to become popular. They are beautifully made, and are supplied in the usual sizes at moderate prices.

MESSRS. BURROUGHS, WELLCOME AND CO. have been awarded a gold medal for their pharmaceutical preparations, at the Carlisle Trades, Industrial, and Art Exhibition. This is the third highest award gained by the firm in the space of three weeks.

MESSRS. R. W. GREEFF AND CO. of London and Messrs. Gilliard, P. Monnet and Cartier, of Lyon, agents for the sale of Saccharin A (Monnet), are advised that the statement made in a circular issued recently on behalf of Messrs. Wilson, Salamon and Co., Ltd., in the action "Greeff and Co. and Gilliard and Co. *v.* Wilson, Salamon and Co., Ltd.," to the effect that the Letters Patent No. 22,787 of 1891, and No. 21,417 of 1893 cover the only processes by which Saccharin of 500 strength can be made practically, is incorrect, and the necessary steps are being taken to defend the action on their behalf.

MESSRS. F. NEWBERY AND SONS, 1 and 3, King Edward Street, London, E.C., send a medical practitioner's sample case just issued by MESSRS. W. R. WARNER AND CO., Philadelphia. This contains several of the well-known preparations of the latter firm, in addition to a number of novel combinations. Thus, there are 5-grain powders and tablets of "ingluvin," elegant parvules of podophyllin (1/40 gr.), pil. antiperiodic (cinchonidin. sulph., 1 gr.; podophyllin, 1/20 gr.; strych. sulph., 3/100 gr.; gelsemin., 1/20 gr.; ferri sulph. exsicc., 1/2 gr.; ol. res. capsici, 1/10 gr.), pil. cascara cathartic (Dr. Hinkle), pil. chalybeate comp. (containing ext. nuc. vom., gr. 1/8), and effervescent lithia tablets (lithii citras., 3 grs.). In addition, there is a copy of a handy visiting record for physicians, and a gorgeously coloured pen-wiper, on which advertisements flaunt themselves.

MESSRS. W. BUTCHER AND SON, Blackheath, S.E., in addition to the novelties mentioned last week, make the "Primus" Lime-light Projector in good Russian iron, in cylindrical form, fitted with a 6-inch plano-convex lens, Russian iron cowl top (removable for convenience in packing), and tray to carry lime-light jet, also provided with slots for the tinters. The support is made in iron, nicely finished and bronzed, and is arranged so that the body may be fixed into any possible position to a box, ladder, steps, beam, chair-back, etc. The stage or object can be conveniently illuminated from the floor or roof, or from right or left. The tinters are made in the most convenient shape to assist easy and rapid changing. They are made of very transparent, flexible material, bound in metal rims, and will be found a great advantage over the old glass ones. Six primary colours are provided, by means of which a large variety of tints may be obtained when using two or more at one time. The whole is packed into a neat carrying case, with lock and key, and good leather-strap handle. Price, complete, £2 10*s*.

MARKET REPORT.

[*Specially compiled for the Pharmaceutical Journal.*]

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

London, October 24, 1895.

In the chemical market a quiet week must be reported, without very many notable changes in price. Carbolic acid in crystals is unchanged, but other varieties are dearer. Tartaric and citric acid are firmly held at late rates, but cream of tartar has declined markedly in value. Sulphate of ammonia is considerably dearer, and seems likely to be still more so, and coal distillation products are generally advanced. Of fine chemicals santonin remains scare and dear, without any noticeable change. Quinine is quite neglected at present, nor is there any change in any other alkaloids. Sugar of milk remains firmly held. In the drug market the essential oils have generally been a firm market, with good business reported in Bombay rose oil, whilst star-anise and cassia are also firmly held. Cable reports from Japan advise marked advances in 40 per cent. Japan peppermint oil as well as the dementholised variety. In raw drugs balsam tolu is in good demand and much dearer, genuine varieties being now rather scarce. Peruvian balsam which has lately been quite unsaleable has to-day been in better inquiry. Tragacanth gum has sold at advanced rates for first quality. The other articles will speak for themselves under their respective headings:—

Acacia.—*Soudan* gum sells at steady rates privately, 40s. to 45s. 6d. being asked for sorts, 50s. to 52s. 6d. for medium pale, and 65s. to 70s. for fine soft pale. A fair business has been done in the *Persian* so-called insoluble gum, with sales of fair sorts at 12s., and fine picked at 18s. to 20s. per cwt.

Acid, Carbolic.—The prices of *crystals* are unchanged, but *crude* acid is dearer. Current quotations are as follows:—*Crystals*, 34° to 35° C., 5d.; 39° to 40° C., 5½d.; 39° to 40° C. (*detached crystals*), 6½d. per lb. *Crude*: 60 per cent. dearer at 1s. 6½d. per gallon, whilst 75 per cent. has also advanced, being now quoted at 2s. *Liquefied* and *cresylic* are unchanged at 1s. and 11d. per gallon respectively.

Acid, Citric.—Steady, without any change in price. *Lawe's* make of acid still quotes at 1s. 3d. per lb. on the spot, whilst for forward delivery the current quotation is 1s. 3½d. per lb. In second hand, 1s. 2¾d. would probably buy on the spot. *Concentrated juice* is very firm, and would-be buyers are disposed to hold off at present. £15 10s. per pipe *f.o.b.* is still asked.

Acid, Oxalic.—The standing Convention rate of 3¾d. per lb., delivered free in London, remains unchanged.

Acid, Tartaric.—There is no change to note in the position of this article, which remains firm at late rates. *English* makers both quote 1s. 2d. per lb. on the spot and 1s. 2½d. forward, whilst for foreign brands of acid, both in *crystal* and *powder*, 1s. 1¼d. is asked on the spot, and for delivery 1s. 2¼d. per lb.

Ammonia Salts.—*Carbonate*: 3½d. to 3¾d. per lb. *Liquor*: 3¼d. to 3½d., less 5 per cent. *Sal ammoniac*: *Firsts*, 39s.; *seconds*, 37s. *Sulphate*: Good inquiry at advanced rates. £9 2s. 6d. is now the price for grey 24 per cent. on the spot, showing an advance of 5s., with *Hull* at £9 1s. 3d. and *Beckton* at £9 5s.

Ashes—Unchanged. Best Montreal *potashes* quote nominally at 22s. 6d. to 23s., whilst *pearlashes* still offer at 35s. to 37s. 6d.

Arsenic—Very steady. Best white *powder* is not procurable under 15s. 6d. per cwt., landed terms, whilst 29s. is asked for *lump*.

Bleaching Powder.—The current quotations are as follows: *London*, £7 15s. to £8; *Liverpool*, soft on spot, £6 15s.; hard, *f.o.b.*, £7.

Borax.—The Syndicate prices remain 20s. for *crystals*, and 21s. for *powder*, whilst outside makers quote at 19s. 6d. and 20s. respectively.

Buchu.—A good demand continues for *round* leaves, and there have been sales privately of fine bright green at 6½d. per lb.

Caffeine.—Manufacturers' prices are now 19s. per lb. for prompt delivery, whilst for November delivery 18s. per lb. is the price. These quotations are for quantities of not less than 100 lbs.

Camphor (Crude).—There is nothing doing in this article at present. Reports from the East advise a fluctuating market, with small supplies and limited business. On the spot there are sellers of *Japan* camphor, October to November shipment, at 220s. per cwt. *c.i.f.* *Formosan* camphor is much lower, and now offers at 195s. per cwt. *c.i.f.*, October to November shipment.

Camphor (Refined).—The position is unchanged. *English* refiners still quote at 2s. 3½d. per lb. for 10-cwt. lots of *bells* and *flowers*, with *squares* at 2s. 4½d. and proportionate rates, whilst *German* camphor quotes at 2s. 1½d. to 2s. 2d. per lb. for 10-cwt. lots of *bells*, second-hand holders asking 2s. 0½d. to 2s. 1d. per lb.

Carmine.—Prices remain very firm owing to the scarcity of cochineal, good quality can be bought at 12s. 6d. to 13s. per lb.

Chamomiles.—The quality of the *Belgian* flowers of this year's crop now offering is not so good as at first. The present quotation for ordinary quality is 37s. 6d. per cwt.

Colocynth.—There is no *Turkish* colocynth to be had in first-hand, and *Spanish* is almost equally scarce. In second-hand there are a few cases of *Turkish*, and the holders ask 2s. 6d. per lb. for good bold apple.

Coca Leaves.—The parcel of fine *Ceylon* leaves which were bought in at the last sale have since been all disposed of at 1s. 4d. per lb., a very fair price. Good quality broken *Truxillo* leaves of fair colour have also sold at 1s. per lb. There are few of either of these varieties to be had now.

Cocaine.—The position is unchanged. Prices for 100-oz. lots in tins range from 14s. 3d. to 15s. 3d., according to brand.

Cochineal.—There is only a small supply of this offering. Quotations for *Teneriffe* range from 1s. 2d. to 1s. 5d. per lb., according to quality.

Copper Sulphate.—This was in improved demand earlier in the week, with sales of ordinary brands at £16 10s., but prices have again declined to £16 5s., whilst the *Anchor* brand is steady at £17 per ton.

Cream of Tartar.—The demand has slackened considerably, and prices have declined 1s. to 2s. per cwt. Best white *French crystals* can now be bought at 100s. to 101s. per cwt., whilst *German* brands of *powder* offer at 103s. to 105s.

Glycerin.—Very steady. The *B. & S.* brand quotes at 60s. per cwt., whilst other holders offer at prices ranging from 57s. down to 55s. per cwt. in tins.

Insect Flowers—Much dearer. The following are the current quotations:—New *open* flowers, 66s.; *half-closed*, 86s.; *closed cultivated*, 120s.; *closed wild*, 129s. per cwt., *c.i.f.*

Jalap.—Since the drug sales, there have been sales of fair *Vera Cruz* root at 10d. to 10½d. per lb.

Mastic—Still slow of sale. Privately fine bright drop moves off slowly at 1s. 10d. per lb.

Menthol.—During the week the spot quotations have ranged from 13s. 6d. to 14s. per lb., according to holder. To-day orders could not be placed under 14s. per lb., and the market is very firm, whilst for delivery the latest quotation is 14s. per lb. *c.i.f.*

Oil (Cod-liver).—Very firm, although without much inquiry for the present. For fine, non-freezing 1895 *Lofoten* oil, 175s. to 180s. per barrel is the price. *Newfoundland* oil is in good demand, and 5s. to 5s. 3d. per gallon is the price.

Oils (Essential).—Our correspondent at *Messina* writes this week as follows:—Considerable buoyancy exists in all goods in the Messina market; reports from England and the prospects of a lemon crop fully a quarter less than last year having combined to cause an advance of quite 50 per cent. in the value of *lemon essence* for prompt shipment, whilst the new crop is quoted about 30 per cent. above the prices asked at the same period last year. A considerable advance may, therefore, be expected in quotations throughout the whole season. *Essence of Bergamot*: The entire stock of last year's production being now exhausted, and the coming season for the fruit being still very uncertain as to quantity, most sellers are holding aloof from the market, and it is probable that the high rate now ruling will continue to be paid for some time to come. *Essence of Sweet Orange*: The production of this season will again be much less than last, and will probably not exceed one-third of what it did three years ago. In spite of this, the much diminished use of this essence has up to the present precluded any considerable change in price, though some advance has been made.

Oils (Essential).—Latest market reports from China state that *Star Anise* and *Cassia* oils continue to advance considerably in price. The quality of the latter oil offered continues very poor, the average being between 40 and 50 per cent. of cinnamic aldehyde, only small quantities running up to 55 and 60 per cent. In spite of this it is said that even these grades

find ready purchasers at rapidly advancing prices, and it seems that buyers have given up hopes of good quality oil for the present. On the spot, *Star Anise* oil is again very firm, and sales at 8s. 9d. to 9s. have been made during the week. Far delivery near at hand 8s. 3d. per lb. *c.i.f.* was the last price we heard. *Cassia* oil is firmly held. For oil of 70 to 75 per cent. aldehyde strength 8s. to 8s. 3d. per lb. is asked, whilst 8s. 6d. is the orice for 75 to 80 per cent., and 9s. to 9s. 3d. of 80 to 85 per cent. oil. For *Russian Aniseed* oil 8s. 9d. per lb. has been paid during the week. American *peppermint* oil is dull of sale at 9s. 9d. to 10s. per lb. nominally for *H. G. Hotchkiss'* brand whilst 8s. is the price for *McK. and R's.* on the spot. *Japan* oil is dearer: during the week 8s. has been paid on the spot for 40 per cent. oil, but owing to cabled reports from Japan quotations have been advanced considerably, 9s. per lb. *c.i.f.* being now asked. In sympathy with this, *dementholised*, for which earlier in the week 5s. 9d. per lb. was accepted on the spot, is now held for 7s. *c.i.f.* Stocks of *juniper* wood oil are reported small, and the market very firm. At the present time 1s. 4½d. per lb. would be accepted for finest quality. Bombay *Rose* is very firm, and sales have been made during the week at 4d. per oz., whilst *Geranium* quotes at 20s. per lb. for the *Reunion* brand. With respect to *Italian* essences, one brand of *Sweet Orange* has been advanced in price and 5s. 8d. per lb. *f.o.b.* is now asked; others quote from 5s. to 5s. 6d. per lb. *f.o.b.* *Bergamot* oil is quoted at 10s. 8d. to 11s. 6d., with *Lemon* at 4s. 6d. to 5s. 6d. per lb. *f.o.b.* Messina according to brand.

Oils (Fixed) and Spirits. — *Castor*: Best tasteless *Italian* oil quotes at 29s. 6d. to 30s. 6d. per cwt. according to quantity. *Almond*: *Peach-kernel* (*ol. amygd. persic.*) quotes at 73s. per cwt. *c.i.f.*, whilst the oils expressed from *bitter* and *sweet* almonds are quoted at 90s. and 130s. per cwt. *c.i.f.* respectively. *Cotton*: Dull of sale at a decline of 5s., *refined* oil being now quoted at £17 to £17 10s. according to brand and package. *Coconut*: *Ceylon* is steady at £22 15s., whilst *Cochin* is again dearer by 10s., and £25 is now asked. *Linseed*: Firm. £20 15s. is still the price for oil in barrels. *Olive*: *Syrian*: £33. *Spanish*: £37. *Rape*: Very strong market with prices advanced by 5s. to 10s., and there is every indication of a further advance. The spot price is now £22 to £23 10s. for refined oil. *Turpentine*: Steady. *American* spirit quotes at 20s. 3d. to 20s. 4½d. on the spot. *Petroleum*: Quiet. *American* oil quotes at 5⅝d., with *water white* at 6½d. to 6¾d., and *Russian* at 5¾d. *Petrolcum spirit*: *ordinary* 9d. to 9¼d; *deodorised* 9¼d. to 9¾d. per gallon.

Opium. — *Turkish*: A moderate demand only is shown at present, and the current quotations are as follows:—*Soft shipping* varieties, 10s. 6d. to 12s. 6d. per lb.; *Smyrna*, good to fine, 8s. to 9s.; *Druggists' firsts*, 8s. 6d. to 9s.; *Druggists' seconds*, 7s. 6d. to 8s. 3d.; *Persian* is very firm, and sales of fine *bricks* have been made at 12s. 9d. to 13s. per lb., whilst 12s. 6d. is asked for *balls*.

Orris Root.—The Leghorn market remains in practically the same position. For best selected *Florentine* root 76s. per cwt. *c.i.f.* is the price, whilst good sorts quote at 72s. *c.i.f.*

Peru Balsam.—This article is very slow of sale still. Nominally 8s. 3d. per lb. is the spot price, but 8s. would probably buy genuine balsam of direct import. To-day a better inquiry has been shown.

Potash Salts.—*Bichromate*: Unchanged at 4⅝d. to 4¾d. *Carbonate*: Slow of sale at 4⅝d. on the spot, whilst the Liverpool price remains 4½d. per lb. *Permanganate*: Very firm, the quotations for small *crystals* being still 65s. to 67s. 6d. per cwt., and for large 70s. to 72s. 6d., according to quantity, *Prussiate*: Quoted at 8d. per lb. on the spot.

Quicksilver.—Firm. *Importers'* prices are steady at £7 7s. 6d. per bottle, whilst in second-hand it cannot be bought below £7 6s. 6d. to £7 7s.

Quillaia.—Fifteen shillings per cwt. is the price asked on the spot.

Seeds (Various).—*Anise*: *Russian* seed hss sold privately during the week at 30s. per cwt., whilst the same price is quoted for *Spanish* seed. *Cumin*: Steady, 38s. has been paid to.day for good quality *Maltese secd*. *Caraway*. For good quality *Dutch* seed, 25s. per cwt. *f.o.b.* is still the price. *Coriander*: At the spice sale fair *East Indian*, fresh import, sold at 6s., and ordinary coarse at 5s. 3d. per cwt.

Quinine.—The business transacted remains merely nominal, and the nearest price for *B. & S.* and *Brunswick* brands remain 1s. 1¾d. to 1s. 1½d. per oz.

Saffron.—Reports from Valencia state that the new crop is now nearly all gathered, and the quality is good. At present super extra quality quotes at 23s., and *Bajo* at 19s. per lb.

Santonine.—Firmly held. Second-hand holders quote at 7s. 3d. to 7s. 6d. per lb., but there is litle offering at present.

Scammony.—*Root* is in small supply and firmly held, 45s. to 50s. per cwt. being asked. *Resin*: One of the four boxes of *Turkish* virgin resin which were bought in at the last drug sales have since been sold at 32s. per lb., showing an advance of 2s. per lb. *Skillipe* quotes at 11s. per lb. nominally, but there is little or none offering at present. *English* resin quotes at 9s. per lb.

Senega.—Very slow of sale. On the spot 1s. 2d. per lb. would buy fair quality root. Advices from Manitoba state that the cold weather has withered the tops of the plants and consequently no more can be dug this autumn; the crop in that province is estimated at 200,000 lbs., or 50,000 lbs. short of last year's.

Shellac.—Prices remain very firm generally speaking, but the demand has not been very brisk. At the sales on Tuesday, the moderate supplies offered met with a fair demand at prices showing an advance of 1s. to 2s. for *Second orange*, whilst *OCC Garnet* was lower. *Buttons* realised full prices. Prices were as follows:—*Second orange*: Fine qualities were mostly bought in, but good bright cakey *TN* fetched 119s. to 120s.; fair bright curly and blocky, 112s. to 114s.; and small livery 112s. *Garnet* fetched 96s. to 97s. for good *OCC*, whilst *Button* sold at 119s. for mixed firsts. Ordinary to fair seconds at 107s. to 108s., and thirds at 100s. to 104s. Since the sales there have been sales of 200 cases of *TN Orange* at 121s. cash.

Soda Compounds.—*Bicarbonate*: Still quotes at £7 5s. on the spot, and £6 15s. in Liverpool. *Caustic*: 70 per cent. still quotes at £7 15s., whilst 60 per cent. offers at £1 less. *Crystals*: 42s. 6d. *Hyposulphite*: Steady at £7 17s. 6d. to £8 2s. 6d. on the spot in kegs, and £7 10s. to £7 15s. in Liverpool. *Nitrate*: *Ordinary* quotes at £7 17s. 6d., and refined at £8 5s. on the spot.

Soy.—Fair *China* quotes at 1s. per gallon.

Spices.—*Cloves*: An average supply was offered in auction, when a fair proportion of *Zanzibar* sold at 2½d. per lb., whilst picked *Penang* realised 8½d., and *Amboyna* was bought in at 4¼d. to 5d. per lb. *Cassia lignea*: In auction 150 boxes of broken quality were bought in at 25s. *Ginger*: Only a small supply of *Cochin* was offered and was firmly held, rough washed being bought in at 37s. to 38s., *B cut* at 66s., and *A* at 75s. *Chillies*: In sale medium dull *Zanzibar* sold at 30s. per cwt. *Arrowroot* is slow of sale. A few hundred barrels of *St. Vincent* sold at 1¾d. to 1⅞d. for fair to good quality, and in addition, since the auction 350 barrels have realised 1⅝d. to 1¾d. *Pepper*: Nearly all was bought in; *Singapore* fetched 2¾d. for first-class damaged, other qualities 2½d. to 2⅝d., and *Aleppy* 2¼d. *White Pepper*: *Singapore* sold at 4¼d. to 4½d. for good to fine quality, whilst fine bold fetched 5⅛d. per lb. *Capsicums* and *Cinnamon chips* were all bought in.

Spermaceti.—Very firm. *American refined* is still quoted at 1s. 6d. per lb. on the spot, whilst from New York it is quoted at 1s. 6d. per lb. *c.i.f.*

Sugar of Milk.—Continues scarce and dear. Good brands are quoted at 67s. 6d. for *crystals*, and 70s. for *powder* in first hand, but 65s. would probably buy in second-hand.

Tar Distillation Products.—*Toluol*: Dearer. 1s. 6d. per gallon is now the price for *pure*. *Benzole*: Dearer. For 50 per cent. 1s. 2d. per gallon is now the price, whilst 90 per cent. is quoted at 1s. 3d. *Creosote*, 1⅛d. per gallon. *Crude naphtha*, 30 per cent. at 120° C. quotes at 6d. per gallon. *Solvent naphtha*, 95 per cent. at 160° C. quotes at 1s. 3d.; 90 per cent. at 160° C., at 1s. 2d., and 90 per cent. at 190° C., at 1s. 1½d. per gallon. *Anthracene*: 13.4, 11½d. per unit; *B.* 9½d. per unit. *Pitch*: 38s. per ton, *f.o.b.* *Tar*: *Refined*. quotes at 13s. per barrel, and *crude* at 12s.

Tolu Balsam.—During the week there have again been sales of good "old-fashioned" tolu at 2s. per lb., the rate paid at last auction, but to-day 2s. 2d. has been paid, and 2s. 6d. is now asked. There have also been sales of dark "glassy" balsam at 1s. 6d. per lb.

Tragacanth.—Fine qualities of gum are much dearer and firmly held. For fine white *Persian firsts* £15 is now asked, *seconds* quote nominally at £11 5s. to £12 5s., whilst *thirds* are held for £9 10s. to £11.

Wax.—*Carnauba*: Privately there have been sales of good grey at 122s. 6d., and yellow at 130s. to 132s. 6d. *Japan*: slow of sale at 26s. to 26s. 6d. for pale *squares*.

LIVERPOOL MARKET REPORT.

[*From our own Correspondent.*]

October 23, 1895.

Linseed—33s. to 34s. 6d. per 416 lbs. Canary Seed.—*Turkish*: 34s. to 34s. 6d. per 464 lbs. Aniseed.—*Larnaca*: 22s. 6d. *ex* quay. Kola Nuts.—Fresh, 6½d. per lb.; dried, 7½d. to 8¼d. per lb. Ginger.—*Cochin*: 38s. Beeswax.—*African*: £6 5s.; *Gambia*, £6 15s. Castor Oil.—*Madras*: 2 3/32d. to 2⅛d. per lb., first pressure; *French*, 2 5/32d. to 2⅛d.; good seconds, *Calcutta*, 2⅛d. per lb. Olive Oil.—*Levant*, £31 per tun. Linseed Oil.—*Liverpool* makes, 21s. 6d. to 22s. per cwt. in export casks. Cottonseed Oil.—*Liverpool* refined, 17s. 9d. to 18s. 3d.; *American*, in export barrels, 17s. 6d. to 17s. 9d. Spirit of Turpentine—Steady at 20s. 9d. Petroleum.—*Russian*: 5⅞d. to 6d.; *American*, 6d. to 7½d. per gallon; *deodorised spirit*, 6¾d. per gallon. Ammonium Salts.—*Sal ammoniac*: £39 per ton; second quality, £37. *Ammonium sulphate*: £9 2s. 6d. *f.o.b.*, Liverpool. *Bleaching powder*: Steady at £7 per ton net, *f.o.b.* Liverpool. Sodium Salts.—*Caustic soda*: 70 per cent., £7 15s. to £8 per ton; 60 per cent., £6 15s. to £7. *Borax*: Lump, 20s.; powder, 21s. *Bicarbonate of soda*: £7 per ton. *Soda crystals*: £2 10s. per ton, *f.o.b.* *Nitrate of soda*: Quiet at 7s. 7½d. to 8s. Sulphur.—Roll, £5 10s.; flower, £7 10s. per ton. Copperas Green.—37s. per ton Lancashire. Sulphate of Copper.—£16 10s. to £17 per ton. Potassium Salts.—*Prussiate*: 8d. to 8¼d. per lb. *Chlorate*: 4⅜d. to 4½d. per lb. *Saltpetre.*—*Kurrachee*: 18s. per cwt. *ex* quay.

NEWCASTLE CHEMICAL REPORT.

[*From our own Correspondent.*]

October 23, 1895.

A steady business prevails. Although Baltic shipments are about completed, home orders are causing a fair amount of activity. Bleaching Powder is still found to be on the scarce side. Soda Crystals are a fuller supply, but prompt movements are keeping down stocks. Saltcake and sulphur are in more demand. As those articles are scarce, firm prices are quoted. Tar and Ammonia products are the turn better and somewhat higher values are being made. Quotations are: Bleaching Powder, £6 7s. 6d. to £7., according to foreign markets. Home use in softwood casks, £7 5s., hards, £7 10s. Soda Crystals, 37s. 6d. to 42s. 6d. Caustic Soda, 70 per cent. £7 5s. to £7 15s. Soda Ash, 52 per cent., £3 15s. to £4. Alkali, 52 per cent., £4 15s. to £5. Sulphur £3 17s. 6d. Saltcake, 22s. 6d. Hyposulphite, 7 cwt, casks, £6 10s. South Durham Salt, 9s. 6d. block, 15s. Pitch, 38s. to 38s. 6d. Sulphate of Ammonia £9, Hull and Leith.

New Books and New Editions.

An Introduction to the Practice of Wet Collodion Photography. By C. W. Gamble. Cr. 8vo. pp. 106, limp, 1*s.* (*Amateur Photographer's Library.*) (Hazell, Watson and Viney, London.)

The Art of Breathing: As applied to Physical Development, with Respiratory Exercises for both Children and Adults. By A. L. Hoper-Dixon. 16mo, pp. 30. Price, 2*s.* 6*d.* (Gale and Polden, London.)

Herbal Simples Approved for Modern Uses of Cure. By W. T. Fernie. Cr. 8vo (Wright and Co., Bristol), pp. 448. Price, 5*s.* (Simpkin, Marshall and Co., London.)

The Manufacture of Explosives: a Theoretical and Practical Treatise on the History, the Physical and Chemical Properties, and the Manufacture of Explosives. By O. Guttmann. With 147 Illustrations. 2 vols. 8vo, pp. 802. Price 42*s.* (Whittaker and Co., London.)

Diabetes and its Treatment. By A. Vintras. Cr. 8vo, pp. 24. Price 1*s.* 6*d.* (Baillière, Tindall and Cox, London).

A Handbook on Tuberculosis among Cattle. By H. L. Shumway. With Considerations of the Relation of the Disease to the Health and Life of the Human Family, etc. 12mo, pp. 192. Price 3*s.* 6*d.* net. (Sampson Low and Co., London.)

Familiar Flowers of Field and Garden. By F. S. Mathews. Illustrated with drawings by the Author. 12mo. Price 7*s.* 6*d.* (Sampson Low and Co., London.)

Hygiene and Physical Culture for Women. By Anna M. Galbraith. With Commendatory Note by Dr. B. St. John Roosa. With Illustrations. 12mo. Price 7*s.* 6*d.* (Sampson Low and Co., London.)

The Secrets of Health; or, How Not to be Sick and How to get Well from Sickness. By S. H. Platt. Illustrated, 12mo. Price 6*s.* 6*d.* (Sampson Low and Co., London.)

Modern Developments of Harvey's Work: the Harveian Oration, 1894. By L. Brunton. Delivered before the Royal College of Physicians, October 18, 1894. 8vo, pp. 36. Price 2*s.* (Macmillan and Co., London.)

The Retrospect of Medicine: a Half-Yearly Journal. By J. Braithwaite. Containing a Retrospective View of every Discovery and Practical Improvement in the Medical Sciences. Vol. 3: January to June, 1895. 12mo, pp. 426. Price 6*s.* 6*d.* (Simpkin, Marshall and Co., London.)

Tokology: A complete Ladies' Guide in Health and Disease. By Alice B. Stockham. 8vo. Price 12*s.* 6*d.* (Sampson Low and Co., London.)

Experimental Plant Physiology. By D. T. MacDougal. On the basis of Oels' 'Pflanzen-physiologische Versuche.' 8vo. Price 4*s.* 6*d.* (Sampson Low and Co., London).

Animal Tuberculoses, and Their Relation to Human Tuberculosis. By E. Nocard. Translated by H. Scurfield. Cr. 8vo, pp. 144. Price 4*s.* (Baillière, Tindall and Cox, London.)

Maladies of Old Age and their Treatment. By G. H. Doudney. 18mo. (Wright and Co., Bristol.) Pp. 100, sewed. Price 1*s.* (Simpkin, Marshall and Co., London.)

Principles of Forensic Medicine. By W. A. Guy and D. Ferrier. 7th edition revised by W. R. Smith. 8vo, pp. 848. Price 16*s.* (Renshaw, London.)

The Scientific Basis of Medicine. Its Prospects and Limitations: a Dissertation. By E. Hobhouse. 8vo. (Blackwell, Oxford). Pp. 56, sewed. Price 1*s.* (Simpkin, Marshall and Co., London.)

Exchange.

[*Notices are inserted free in this column, if they do not partake of the nature of ordinary advertisements. They should be addressed "Editorial Department, 17, Bloomsbury Square, W.C," and arrive not later than Wednesday.*]

OFFERED.

'Year-Book of Pharmacy,' 1874-5-6-7, 1s. 6d. each, 12 vols. (bound); 'Pharmaceutical Journal,' 1870-82, 30s. d/d; Tomlin's 'Varnish Receipts,' 1s. d/d; 'Oil and Colourman's Journal,' 1889 and 1890, also number of odd Nos., 5s. d/d; Turner's 'Elements of Pharmacy,' 2s. 6d. d/d; French educational books, guides, etc., 5s. the lot, d/d, cost 31s.—W., 44, Howard Street, Salford.

Bentley's 'Botany,' 5s; Royle's 'Materia Medica,' 3s. 6d., both excellent condition, post free.—Moon, 8, Strand, Torquay.

Two 4 and one 8-gallon pear-shaped Carboys, with stands; 5-grain pill machine, marble slab; twenty-three 3-lb. blue-covered pots; three specie jars, height 16 inches, diameter 9 inches, metal covers; one iron mortar, diameter 9 inches; two marble mortars, diameter 9 and 10½ inches.—Offers to Carter, Chemist, Woolwich.

Mahogany Medicine Chest, similar to Maw's No. 2A, fair condition, but two or three bottles missing. Offers in cash or exchange.—Woodhouse, Chemist, Ludlow.

Pereira's 'Materia Medica,' 3 vols., 10s.; Chelius's 'System of Surgery' (South), 2 vols., 5s.; Squire's 'Companion,' 5th ed., 1s. 6d.; Watson's 'Physic,' 4th ed., 2 vols., 3s. 6d.; Dunbar's 'Greek and English Dictionary,' pp. 1610, 3s. 6d.; Parkes' 'Practical Hygiene,' 4th ed., 3s. 6d. All in good condition, and carriage paid from—A. P. S., 549, Green Lanes, N.

Offers wanted for the following works:—Wills' 'Companion to Practical Botany'; Wills' 'Vegetable Materia Medica,' 1884; Wills' 'Vegetable Materia Medica,' 1886; Bentley's 'Manual of Botany,' 1882; Balfour's 'First book of Botany,' 1872; Balfour's 'Systematic Botany,' 1878; Lindley's 'School Botany'; Royle's 'Materia Medica,' 1876; Hall's 'Health and Disease,' 1866; Gray's 'Anatomy, Descriptive and Surgical,' 1872; Althems' 'Medical Electricity,' 1873; 'Natural Philosophy,' 3 vols.; Attfield's 'Chemistry General, Medical and Pharmaceutical,' 1881; Flückiger and Hanbury's 'Pharmacographia'; Watts' 'Fownes' Organic Chemistry,' 2 vols., 1877; Valentin's 'Inorganic Chemistry,' 1879; Armstrong's 'Organic Chemistry,' 1884; Roscoe's 'Elementary Chemistry,' 1882; Willson's 'Chemical Notes,' 1875.—"Gilson," care of Editor, 17, Bloomsbury Square, W.C.

WANTED.

Dr. Muter's 'Manual of Analytical Chemistry,' 5th edition; must be in good condition. Lowest price to—Edm. E. Dickenson, 34, Myrtle Avenue, Nottingham.

Upright glass case to stand on dispensing counter, about 3 feet long, 3 feet high; send price and particulars, or will exchange 4 "Wenham's" Patent Gas Lamps (2 large, 2 small).—Austen Marshall, Waltham Abbey.

Analytical balance, short beam preferred, in good condition; lowest price to—H. G., 38, Parolles Road, Upper Holloway, London, N.

Few odd dental forceps as follows:—Lower molar, upper incisor, and lower bicuspid; must be in good condition.—Arthur Hughes, Abercarn, Mon.

Diary of the Week.

Sunday, October 27.

Liverpool Sunday Society, at 3 p.m.
"The Hogarth of Fiction," by James Ashcroft Noble.

Wednesday, October 30.

Brighton Junior Association of Pharmacy, at 9 p.m.
Lecture—"Another World," with lime-light illustrations.

Thursday, October 31.

Chemists' Assistants' Association, at 8.30 p.m.
"The Commercial Application of Electrical Energy," by John F. C. Snell.

Liverpool Pharmaceutical Students' Society at 8.30 p.m.
Discussion on the Federation of Local Pharmaceutical Associations. Introduced by T. S. Wokes.

Friday, November 1.

Geologists' Association (London), at 8 p.m.
Conversazione.

SUPPLEMENT
TO THE
PHARMACEUTICAL JOURNAL.

LATE NEWS.

CONFERENCE ON THE COMPANIES ACTS.—At the invitation of the London Chamber of Commerce, a conference was opened on Tuesday in the Examination Hall of the Institute of Chartered Accountants, Sir Albert Rollit, presiding. The conference had been summoned to consider the report of the Board of Trade Departmental Committee, which was appointed to inquire what amendments were necessary in the Acts relating to joint stock companies, especially with a view to the better prevention of fraud in relation to the formation and management of companies; to consider further the draft Bill agreed upon by that committee and the report of the Chamber of Commerce upon the subject. The Conference was attended by delegates from a large number of Chambers of Commerce and also trade protection societies, trade associations, and affiliated trade associations, and various professional bodies.

Sir Albert Rollit said he thought there was much need of legislation on the subject, and it appeared to him that some provision was wanted for a registration of debentures, mortgages, and charges, accessible to the public, which would do away with the practice of converting private undertakings into public companies, and of issuing debentures which were not open to inspection, and were the means of defeating the rights of the creditors and in some cases also of the shareholders. He also thought the law in regard to returns of companies was defective, for it gave no effective means of their being rendered to the general stock registry. Some public department should be invested with the responsibility of securing those returns being properly made. It must be their duty to use every effort to secure for the public the fullest and most honest information, and at the same time they must strive to spare restrictions upon legitimate undertakings, and not to repress honest enterprise. But the interest of shareholders must be guarded, the paid-up joint stock capital in the country being upwards of 1000 millions.

The conference then discussed various amendments which had been suggested to the draft Bill prepared by the Board of Trade Departmental Committee. In all there were sixty-seven amendments on the paper, which were taken in the order of the clauses to which they referred. The various points were carefully considered, and the outcome of the conference should be of great value, observes the *Daily News*, in view of the legislation on the subject, which Sir Albert Rollit expressed a hope might soon be taken in hand.

The conference was continued on Wednesday, when amongst those present was Mr. William Hayes, President of the Pharmaceutical Society of Ireland, who thanked the committee for allowing him to bring the grievance of his Society before them. This was the permission accorded to unqualified persons, when associated in a limited liability company, to do what individuals are forbidden by the Pharmacy Acts to do. He asked that a remedy should be applied to this state of things. He proposed resolutions to the effect that it should be unlawful for any number of persons to form a company or corporation to engage in a business or profession in which it would have been unlawful for them as individuals to engage; and that duly qualified persons should be at liberty to associate themselves under the Limited Liability Acts, provided that no unqualified person should undertake responsibilities from which as an individual he would be debarred.

DEATH OF PROFESSOR HELLRIEGEL.—The death of Professor Hermann Hellriegel, at the age of sixty-four, removes the discoverer of the important fact that leguminous plants are capable of absorbing free nitrogen from the air, through the agency of micro-organisms existing in the nodules on their roots. During his career he devoted his attention almost exclusively to researches dealing with chemical and physiological questions relating to the nutrition of plants. For some years he acted as director of the agricultural experiment station at Dahme, Brandenburg, and after occupying other positions, made the great discovery of his life at the experimental station, founded by the Verein für Zucker-Industrie, jointly with the Government of the Duchy of Anhalt.

DEATH OF MR. H. D. POCHIN.—The death is announced of Mr. Henry Davis Pochin, a former mayor of Salford. In his early days Mr. Pochin was a student of pharmacy, and in 1848 he received a certificate of merit in materia medica, whilst a student at the School of Pharmacy. Latterly Mr. Pochin has resided at Bodnant Hall, Eglwysbach, North Wales. He was Mayor of the adjoining borough from 1866 to 1868, and the Corporation records about this period bear evidence to his untiring zeal in the public service. He was also at one time M.P. for Stafford. His loss will be greatly felt in the railway and commercial world. For many years Mr. Pochin was deputy-chairman of the Metropolitan Railway Company, and he was also one of the directors of the Manchester, Sheffield, and Lincolnshire Railway. Largely interested in the iron and steel trades, Mr. Pochin occupied the position of chairman of Messrs. Bolckow, Vaughan, and Co., Limited, and vice-chairman of John Brown and Co., Limited, and he was also directly concerned in the management of the Sheepbridge Coal and Iron Company, Limited, the Staveley Coal and Iron Company, Limited, and the Tower Company, Limited. He died at Bodnant Hall, at midnight on Monday, from apoplexy, in his seventy-second year. In addition to the many positions of trust he held, Mr. Pochin was deputy lieutenant of Carnarvonshire and a magistrate for the Hundred of Salford.

DEATH OF PROFESSOR GODEFFROY.—Richard Godeffroy, Ph.D., of Vienna, "Magister der Pharmacie," and a Corresponding Member of the Pharmaceutical Society, died on Tuesday, October 22. He was Professor of Pharmacy in the Technological Museum, Vienna, and it will be in the recollection of readers of the Journal that Dr. Godeffroy was one of the Secretaries at the Fifth International Pharmaceutical Congress, held in London in 1881. He attended on that occasion as delegate from the Allgemeiner österreichischer Apotheker-Verein.

MARKET REPORT.

[*Specially compiled for the Pharmaceutical Journal.*]

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

LONDON, OCTOBER 31, 1895.

There is not much of interest to report in the chemical market this week. Citric and tartaric acids are unchanged in price, and the market generally is firm, but cream of tartar has declined in value. Potassium permanganate is very firm, but prices are unchanged. Of fine chemicals, quinine is in rather better enquiry, but sales have not not been extensive. Santonin is still scarce at the last reported prices. In the drug market, the line of business has not been very brisk, except in a few special articles. Of essential oils, star anise is again dearer, whilst cassia oil remains unchanged in position. Japan peppermint oils are all dearer, and the same applies to menthol, which promises to go higher at to-day's drug sales. Cape aloes sold at barely steady rates, whilst no Socotrine was offered. A good demand prevailed for East Indian and Zanzibar varieties. Annatto seeds, galangal, and quince seeds sold at steady rates, whilst buchu leaves are very firm. Canella alba bark sold at an advance, whilst some fine lots of cascarilla bark commanded good prices. Copaiba balsam is dearer for Maranham, and tolu balsam has also been sold at an advance. Ipecacuanha has sold at prices showing a barely steady market for Rio root, whilst Carthagena prices are unchanged. Gum benzoin sold freely for all varieties especially Siam and Sumatra whilst a new import of Penang found buyers readily. Sarsaparilla is cheaper for Jamaica and a good supply was sold. Beeswax must be reported dearer for some varieties. Full details will be found below :--

ACACIA.—At to-day's auctions a total of 151 packages were offered, but none was sold. Of *Trieste* gum pale picked grain was bought in at £5 10s., small greyish at £6, and medium pale at £7. Several lots of sorts were bought in at prices ranging from 38s. for small siftings, up to 75s. for medium yellow from Suez. For a parcel of medium hard mixed yellow sorts from *Alexandria* 60s. per cwt. is asked. Privately *Persian* gum is in better enquiry, and there have been sales of fair sorts at 11s. 6d. to 12s. 6d., and fine picked at 20s. per cwt., but the supplies remain very large.

ACID, CITRIC.—The position is practically unchanged. Earlier in the week second-hand holders were rather firmer, 1s. 2⅞d. being asked on the spot, but at the

close 1s. 2¾d. would buy. *Lawes'* make of acid still quotes at 1s. 3d. per lb. on the spot, whilst for delivery 1s. 3½d. is the current price. *Concentrated juice* quotes at £15 5s. to £15 10s. per pipe *f.o.b.*

ACID, TARTARIC.—*English* brands of acid are still quoted at 1s. 2d. on the spot, whilst for forward delivery 1s. 2½d. is asked. For *foreign* acid, both in *crystal* and *powder*, the price is 1s. 1¾d. on the spot, and for delivery 1s. 2¼d. per lb. The market is very firm.

ALOES.—A total of 273 cases was offered in auction to-day. Of *Cape* aloes 30 cases only were shown, and realised barely steady rates, 23s. being paid for good bright hard glassy, 22s. 6d. for medium hard, and 21s. to 21s. 6d. for ditto, rather drossy. *Curacoa* aloes was represented by 119 boxes, of which 114 sold at prices ranging from 39s. to 45s. for fair livery brown, 32s. to 36s. for ordinary ditto, 14s. to 18s. for dark cakey, down to 10s for common drossy. Of *Curacoa* aloes in gourds, forty sold at 39s. to 45s. per cwt. for medium capey. *Zanzibar* was in good inquiry, and sold at an advance, 76s. being paid for good soft of fair aroma, whilst fair to medium treacly fetched 30s. to 40s. A parcel of *East Indian* aloes in skins from Bombay part sold at high prices, £6 being paid for five casks, most of the remainder was held for 75s., after 72s. 6d. had been bid.

AMMONIACUM. — Only four cases were shown. They consisted of medium mixed, loose, and blocky almonds, and were bought in at 35s. per cwt., after a bid of 27s. 6d. had been submitted.

AMMONIA SULPHATE.—The market is dull and prices are lower by 2s. 6d. Grey 24 per cent. now quotes at £9 on the spot, whilst £8 18s. 9d. is the price for *Hull*, and £9 2s. 6d. to £9 5s. for *Beckton*.

ANNATTO SEEDS.—Steady. Of a total of 28 bags offered in auction five sold at 4½d. per lb. for fair bright *Madras* seed. Small dull *Ceylon* was bought in at 3d. per lb.

ANTIMONY.—In auction 50 cases of crude *Japan* were bought in at £17 per ton.

ARECA NUTS.—The small supply of 10 bags of fair *Colombo* nuts were bought at 13s. per cwt.

ASAFŒTIDA—Lower. A parcel of 21 cases were mostly sold in auction at prices ranging from 30s. up to 50s., whilst 4 of good free almondy gum were sold at 55s. to 60s., subject. Of another lot, 60s. per cwt. was paid for 9 cases.

BELLADONNA LEAVES.—Two bales of damaged leaves sold without reserve at 1s. 6d. per cwt.

BENZOIN.—A total of 253 cases was offered to-day. Of *Penang* gum a parcel of good almondy seconds, newly arrived, sold at the good price of 90s. per cwt. whilst ordinary thirds in tins were bought in at 35s. *Siam* gum was represented by 27 cases, of which medium pale almonds in bright block sold at £10 to £10 2s. 6d., whilst £15 was paid for a parcel of nice pale almonds part block part loose. For small to medium bright almondy gum in block, £12 was paid, and siftings in block realised 62s. per cwt., subject. *Sumatra* gum sold at a further advance of 5s., £8 10s. being paid for good seconds, small to bold almondy centres, but rather false packed sides; £6 5s. for fair almondy centres, false-packed sides, and £5 5s. for rather dull seconds. A parcel of ordinary seconds *Palembang* sold at 26s. to 27s. per cwt.

BUCHU.—Very firm. No fine *round* leaves were offered to-day, but for ordinary qualities steady rates were paid, seven bales of medium greenish stalky leaves fetching 5d. to 5¼d. per lb, A parcel of rather dull *long* leaves was bought in at 6d. per lb.

CALUMBA.—In fairly plentiful supply. Of 143 packages offered 14 bags of small to medium sorts, rather wormy, sold at 13s. per cwt., whilst 20 bags of fine mixed washed sorts were bought in at 35s.

CANADA BALSAM.—A single cask of fair quality balsam was bought in at 1s. 5d. per lb.

CANELLA ALBA—Steady. In auction five bales of mixed small to medium quill from *New York* sold at 24s. 6d. to 25s. per cwt.

CANNABIS INDICA.—Still quite unsaleable. To-day 18 robbins of very dusty brown tops were bought in at 3d. to 3½d. per lb.

CANTHARIDES.—Slow of sale. Seven cases of small to medium dusty *Chinese* flies were bought in to-day at 1s. 2d. to 1s. 3d. per lb. The price asked is 1s. to 1s. 1d. per lb.

CARDAMOMS.—The moderate supply of 71 cases was offered to-day, and did not include any fine qualities. Steady prices were paid, whilst seed sold at an advance of 1d. per lb. in some cases., 2s. to 2s. 1d. being paid. Quotations: — Medium to bold yellowish plump, 2s. 2d. to 2s. 3d. per lb.; medium pale, 2s. to 2s. 2d.; small to medium mixed palish, 1s. 10d. to 2s.; small yellow, 1s. 7d. to 1s. 10d.; ordinary mixed brown, part split pods, 1s. 2d. to 1s. 4d., down to 1s. 1d. per lb.

CASCARA.—A parcel of fine bright silvery quill sold to-day with brisk competition, 50s. to 52s. per cwt. being paid, whilst of another parcel of small to medium, rather thin and mixed quill, 5 bags realised 34s.

CASCARA SAGRADA.—Of 83 bags offered to-day, 5 bags of ordinary small bark, rather mouldy, from San Francisco, sold at 14s. per cwt.; fair stout bark was bought in at 18s.

CHIRETTA—Quite unsaleable in auction. Nine bales were bought in to-day at 4d. per lb.

COCA LEAVES.—Privately, good broken *Truxillo* leaves have sold during the week at 1s. per lb. To-day 10 bales of fair *Bolivian* leaves were bought in at 2s., the price required being 1s. 6d. per lb.

COLOCYNTH.—Eight cases of Turkey were catalogued to-day, but not being landed will be brought forward at the next sale. The only lot offered was two cases of medium part broken *Cyprus* apple, which fetched 2s. 1d. per lb.

COPAIBA—Dearer. Three casks of *Maranham* were catalogued, but disposed of previously at 1s. 8d. per lb. The price for good bright balsam is now 1s. 9d. 16 cases of dull thick mixed *Maracaibo* were bought in at 1s. 6d. per lb.

CREAM OF TARTAR.—Still tending easier and both *French* and *German* brands are about 1s. per cwt. lower. The present price of best white *French crystals* is 100s. per cwt. whilst *German* brands of *powder* offer at 102s. to 105s.

CROTON SEED.—Dearer. A parcel of 27 bags of good quality seed from *Colombo* sold to-day at 48s. per cwt.

CUBEBS.—Slow of sale. Out of 128 packages offered, 25s. per cwt., subject to approval, was paid for medium mixed berries from *Bombay*, whilst 15s. was paid for 5 bags of ordinary *Singapore* berries part mouldy.

CUTTLEFISH.—20 barrels of nice whole bone from *Las Palmas* sold at 2¼d. per lb.

DRAGON'S BLOOD.—The only lot sold in auction was 2 cases of good bright *Singapore* lump, which fetched £10. Of the other lots dark saucers were bought in at £6 to £6 10s., and medium squares at £7.

ELEMI GUM.—Thirty cases of pale gum from *Singapore* were bought in at 32s. per cwt.

GALANGAL.—Steady. To-day 20 bales of good bold root from Hong Kong realised 25s. per cwt.

GAMBOGE.—Privately, £10 10s. has been paid for good picked *Singapore* pipe, clean fracture. Six cases only were offered in auction, and were all bought in, medium *Singapore* pipe at £11, and mixed lump and pipe at £10 10s.

GUAICUM.—This article was unusually plentiful to-day, and 21 packages met with a good demand, being all sold at prices ranging from 2s. 9d. for good bright, glassy block; 1s. 10d. for medium ditto, and 8d. to 1s. 3d. for mixed woody gum, whilst drossy pickings realised 3½d. A package of clean loose gum fetched 1s. 10d. per lb.

GUARANA—Remains quite unsaleable at present, A case of fair sausage was bought in at 2s. 9d. per lb. to-day.

GLYCERIN.—The quotation for *Schering's* brand of water saponified glycerin, *s.g.* 1260. has been advanced to 62s. 6d. per cwt. The market generally is very firm, and a further advance is expected.

HONEY.—*Jamaica* honey still sells cheaply, but the prices to-day show an advance of about 1s. per cwt., 25s. to 26s. being paid for clean yellow candied, 23s. for fair brown, and 21s. for dark brown,. A parcel of *Australian* honey all sold at 20s. 6d. to 21s. per cwt., whilst *New Zealand* fetched prices ranging from 32s. 6d. down to 26s. 50 kegs *Texas* were also disposed of at 23s. to 33s., and *Chilian* was bought in at 26s. to 30s.

IPECACUANHA.—An average supply of *Rio* (Brazilian) root was offered to-day, and of this the majority sald at prices showing a barley steady market, 5s. 6d. down to 5s. being paid for good to fair part wiry, and 4s. 11d. to 4s. 9d. for ordinary thin damaged root. *Carthagena* (Columbian) sold at steady rates, 4s. 2d. to 4s. 4d. per lb. being paid for fair damaged qualities.

JABORANDI.—The quality of leaves at present offering is but poor, and prove quite unsaleable. To-day 13 bales of ordinary brownish mixed leaves were bought in, no bid, even at 2d. per lb., being forthcoming.

JALAP—Steady. Out of 16 bales offered, 1 only sold, 11d. per lb. being paid for small to medium *Vera Cruz*.

KOLA.—Of 41 packages offered to-day about 16 found buyers, mostly for the damaged grades. Fair *West Indian* sold at 11d. to 1s. 1d.; ordinary ditto, 9d. to 9½d.; mouldy at 6d. per lb.

LIME JUICE.—In auction 11 packages of fair *Jamaica* sold at 11d. per gallon.

MENTHOL.—Dearer. Yesterday 14s. 3d. per lb. was paid for good *crystals* on the spot, and holders now ask 14s. 6d. For

delivery, the last quotation was 14s. 6d. per lb., *c.i.f.* terms. At to-day's drug sales 3 cases of *Japan* menthol were bought in at 17s. per lb.

OIL (COD-LIVER).—Very firm. During the week 170s. per barrel has been paid for best non-congealing *Lofoten* oil. The current quotation is 170s. to 180s. per barrel according to holder. *Newfoundland* of good quality has sold at 5s. per gallon. For this variety 5s. to 5s. 6d. is the price according, to holder.

OILS (ESSENTIAL).—*Star Anise* oil is still very firm. During the week sales have been made at 9s. per lb. on the spot, and 9s. 3d. is now generally asked. For delivery, 8s. 9½d. per lb., *c.i.f.*, was the latest quotation we heard from October to November shipment. *Cassia* oil is firm, but prices are unchanged, 70 to 75 per cent. oil quoting at 8s. to 8s. 3d., 75 to 80s. at 8s. 6d., and 80 to 85s. at 9s. to 9s. 3d. per lb. American *peppermint* oil quotes at 9s. 3d. to 10s. per lb. nominally. *Japan* peppermint oils are dearer. For oil testing 40 per cent. of menthol, 8s. 6d. per lb. is now asked on the spot 8s. 3d. having been paid during the week, whilst of shipment 9s. per lb, *c.i.f.* is the price. In sympathy with this *dementholised* oil is much dearer on the spot, 6s. 9d. per lb. having been paid, and holders now ask 7s. For delivery 7s. per lb. *c.i.f.* were the latest we heard. At to-day's sales Japan *dementholised* oil was bought in at 8s. per lb. *Eucalyptus* oil was in good supply in auction and sold with brisk inquiry, 1s. up to 1s. 6½d. per lb being paid for 15 cases of *Globulus* oil, and 11½d. to 1s. for 45 cases of the *Eagle* brand. *Lemon*: *Giovanni Hamnett's* essence was bought in at 6s. per lb. *Cinnamon* bought in at 9d. to 1s. *Camphor*, Ten cases of dark oil from *Hamburg* were bought in at 35s. per cwt. *Rose*: During the week 3¾d. per oz. has been paid for *Bombay* oil.

OILS (FIXED) AND SPIRITS.—*Castor*: The *Italian* oil market is reported to be tending higher, owing to the increased cost of seed, but prices at present are unchanged. *Cotton*: Quiet, but steady. *Refined* oil still quotes at £17 to £17 10s., according to brand and package. *Coco-nut*: Unchanged. *Ceylon* still quotes at £22 15s., whist *Cochin* is steady at £25. *Linseed*: In good demand, and prices are higher, with a tendency to further advance, especially for forward delivery. At present £21 is the price for oil in barrels on the spot. *Olive*: *Syrian*, £33; *Spanish*, £37. *Rape*: Very brisk market, and prices have further advanced by 5s. The spot price for *refined* oil is now £23 10s. to £23 15s. per barrel. *Turpentine*: Quiet. *American* spirit now quotes at 20s. 3d. on the spot. *Petroleum*: Steady. *American* oil still quotes at 5⅞d., with *water white* at 6½d. to 6¾d, and *Russian* at 5⅞d. to 5⅞d. per gallon.

ORANGE PEEL.—None was sold in auction, dark quarters being bought in at 4d., thin-cut dark at 7½d., and medium thin *Maltese* at 8d. per lb.

ORRIS ROOT.—There is no change to report in the position of this article. It is said that shipments have been delayed owing to heavy rains having prevented the removal of the new crop of root from the farms to Leghorn. But selected *Florentine* root quotes at 76s. per cwt. *c.i.f.*, whilst good roots quotes at 72s. At to-day's drug sales 33 bales of *East Indian* from Aden fetched 35s. per cwt. a steady rate, whilst a parcel of new picked *Florentine* root which was catalogued had been sold previously at 75s. per cwt.

PERU BALSAM.—There is still said to be a better inquiry for peru balsam, although we have not heard of much business. Probably 8s. 3d. per lb. would buy genuine balsam of direct import on the spot.

QUICKSILVER—Steady. *Rothschild's* price remains £7 7s. 6d. per bottle, whilst second-hand holders ask £7 6s. 6d. to £7 7s. The receipts of quicksilver at San Francisco for the first nine months of the year compare as follows:—

	For Sept.	Jan. 1 to Sept. 30.
1893.....Flasks	1,281	16,841
1894.....	1,575	19,619
1895.....	3,012	23,546

QUINCE SEED.—Steady. Two bags of fair quality seed realised 1s. 3d. per lb.

QUININE.—There is rather better inquiry for the best *German* makes, but the business is unimportant. Holders ask 1s. 1¾d. for *B. & S.*, and *Brunswick*. To-day 6 cases of *H.B.* quinine sold at 1s. 1d, per oz. landing weights.

RHATANIA ROOT.—No inquiries. For fair quality root 7½d. per lb. is the price.

RHUBARB.—Of 179 chests offered to-day, about twenty sold as follows:—*Shenshi*, fine bold, round good fracture 1s. 3d.; *Canton*, small fine trimmings, 1s.; medium fracture, round, 9d.; wormy pickings, mixed round, and flat, 11½d. *High dried* small flat, 8¾d. medium round rough fair pinky fracture, 7d. medium to bold, flat, rather wormy 6¾d. to 7d., small raw rough wormy, 5½d., and very wormy bold rough at 4d. per lb. subject.

SARSAPARILLA.—*Jamaican* was in good supply to-day, and sold at easier rates. About 50 bales selling at 1s. 3d. to 1s. 5d. per lb. *Honduras* was bought in at 1s. 1d. per lb.

SAFFRON.—The super *A* quality of the new crop of *Valencian* saffron is now on the market; the super extra will probably be offering in about a week's time, as also the *Bags*, the quality of which is said to be particularly good.

SCAMMONY.—In auction 11 bags of *Root* were bought in at 55s. per cwt. *Scammonium* quotes at 32s. to 33s. for Turkey virgin, but is very scarce. *English* resin still quotes at 9s. to 9s. 6d. per lb.

SENNA.—In auction about 700 bales were offered, and the prices paid show a steady market as follows: medium to bold bright green, 4d. to 5d.; small to medium greenish, 3d. to 4d.; small to bold yellow, 2d. to 3d.; and ordinary grades, 1¾d. down to ¼d., and ½d. for damp and damaged leaves. *Pods* sold at 1½d. per lb. *Alexandrian*: leaves and pods were all bought in.

SQUILLS—Dull of sale, except when offered without reserve. In this instance 12 bales of brown quality sold at 1d., and 9 bags of medium palish realised 2d per lb.

TOLU.—During the week there have been sales of genuine "old-fashioned" tolu at 2s. 3d. per lb., and holders of this quality now ask 2s. 6d. per lb., and will not take less. To-day all the lots offered were bought in at 2s. 6d. per lb.

WAX (BEES).—In good demand at steady to dearer rates. *Jamaica* sold at £7 12s. 6d. to £8. *Madagascar* at £6 7s. 7d. to £6 15s. *Madras* at £6 10s. to £6 12s. 6d. *Mozambique* at £6 15s. to £7. *Australian* at £7 2s. 6d., and *Zanzibar* at £7.

WAX.—JAPAN: Good pale *squares* were bought in at 27s. to 29s. per cwt.

Trade Marks Applied For.

[From the *Trade Marks Journal.*]

No. 186,029.—PROTECTIVES (included in Class II.) for surgical dressings, including specially prepared gutta-percha tissue, and oiled silk, lint, wools, gauzes, and bandages (all these goods being non-medicated and specially prepared for surgical or medical purposes); and surgical dressings, or material for surgical dressings, capable of being wound or rolled (all these goods being non-medicated and specially prepared for surgical or medical purposes); also receptacles specially prepared for surgical use, containing winders for plasters, dressings, bandages, and other similar materials.—Ferris and Company, 7 and 9, Union Street, Bristol. March 6, 1895. Facsimile signature and address of applicants and other wording on a label. The essential particular is the facsimile signature.

No. 187,884.—CHEMICAL SUBSTANCES prepared for use in medicine and pharmacy, but not including pills and not including any goods of a like kind to pills.—Houldsworth and Cliffe, Perseverance Chemical Works, Heckmondwike, Yorkshire. May 28, 1895. Combination of devices and the words "The Ideal Health Salt" on a label. The essential particular is the combination of devices.

No. 187,983.—A MEDICINE for human use.—Thomas Pragnell, 18, St. George's Terrace, Newcastle-on-Tyne, May 31, 1895. Word "Omogo."

No. 187,724.—A MEDICINAL PREPARATION for human use for the cure of piles and kindred diseases.—Komchacin Caloric Company, 130–132, Lincoln Street, Boston, Massachusetts, U.S.A. May 20, 1895. A device and the words "Komchacin Caloric." The essential particulars are the device and the word "Komchacin."

No. 188,087.—A TONIC WINE prepared for use in pharmacy, and containing the alkaloids of cinchona bark, and of the Erythroxylin coca. Goldthorpe and Cook, 70, Herbert Road, Plumstead. June 8, 1895. The signature of the applicant firm and the word "Cincoca," etc., on a label. The essential particular is the signature of the applicant firm.

No. 188,257.—CHEMICAL SUBSTANCES used in manufactures, photography, or philosophical research, and anti-corrosives.—The Petroleum Products Syndicate, Limited, 1, Whittington House, Leadenhall Street, London. June 19, 1895. Device of a square, triangle, and gong intermixed, and the word "Telola."

No. 188,258.—CHEMICAL SUBSTANCES used for agricultural, horticultural, veterinary, and sanitary purposes.—The Petroleum Products Syndicate, Limited, 1, Whittington House, Leadenhall Street, London. June 19, 1895. Device of a square, triangle, and gong intermixed, and the word "Telola."

NEWCASTLE CHEMICAL REPORT.

[*From our own Correspondent.*]

OCTOBER 30, 1895.

Despite the fact that Baltic shipments of chemicals from this market may now be said to have ceased, home and inland orders are such as will continue to keep matters going pretty briskly. Bleaching powder and crystals, soda, although in bigger supply, stocks are not on the large side. Saltcake continues to be called for, the article being scarce. Much the same may be said of sulphur and hyposulphate. The demand for sulphate of ammonia, pitch, and other tar bi-products continues good. Prices are:—Bleaching powder, according to markets, £6 7s. 6d. to £7; Caustic Soda, 70 per cent., £7 5s. to £7 15s.; Soda Crystals, 37s. 6d. to 42s. 6d.; Alkali, 52 per cent., £4 15s.; Soda Ash, 52 per cent., £3 15s.; Sulphur, £3 17s. 6d.; Saltcake, 35s. in casks, 30s. in bags; hyposulphite, £6 in casks, 15s. extra in 1 cwt. kegs; Recovered Sulphur, £3 17s. 6d.; Alum, £4 10s., Tyne or Hull; Sulphate of Ammonia, £9, Tyne or Hull; Pitch, 35s.; Green Copperas, 35s.; South Durham Salt, 9s. 6d. in bulk, 15s. 6d. per ton in blocks.

LIVERPOOL MARKET REPORT.

[*From our own Correspondent.*]

OCTOBER 30, 1895.

LINSEED: Very firm with little offering. 1570 bags Turkish sold at 35s. 6d. to 36s. per 464 lbs., and 200 bags at 34s. 6d., *ex* store. CANARY SEED: About 34s. per 464 lbs. GUINEA GRAINS: 17s. BEESWAX: Gambia, £6 15s. CARNAUBA WAX: 132s. 6d.; poor quality, 120s. to 125s. KOLA NUTS: 7½d. per lb. TURMERIC: Madras finger, 45 bags, 9s. 6d. per cwt. QUILLAYA BARK: 50 bales at £13 per ton. CHILLIES: *Sierra Leone*, 25s. to 32s. 6d. GUM ARABIC: In steady demand at full prices. OLIVE OIL is quiet. CASTOR OIL: 1st pressure, *French*, 2⅞d. to 2 5/32d.; *Madras*, 2 3/32d. to 2⅛d.; and *Calcutta* good seconds, 2⅛d. LINSEED OIL: *Liverpool* makes in export casks, 21s. 6d. to 22s. COTTONSEED OIL: *Liverpool refined*, 17s. 9d. to 18s. 3d.; *American*, 17s. 6d. SPIRIT OF TURPENTINE: Quiet at 20s. 9d; *Petroleum, American:* 6d. to 7½d. per gallon; *Russian*, 5¾d. to 6d. per gallon; *Deodorised spirit*, 6¾d. AMMONIUM SALTS: *Carbonate*, 3½d. to 3⅝d.; *Sal ammoniac* "firsts," 39s.; "seconds," 37s. SODIUM SALTS: *Bicarbonate*, £6 15s.; *Soda crystals*, £2 10s.; *Caustic soda*, 70 per cent., £7 10s.; 60 per cent., £6 10s.; *Borax*, lump, 20s.; powder, 21s.; *Hyposulphite*, £7 5s. to £7 10s.; *Nitrate of soda*, 7s. 7½d. to 8s. POTASH SALTS: *Chlorate*, 4½d. per lb.; *Nitre*, 23s. 6d. for kegs; 23s. for barrels; *Potashes*, 21s. 9d. per cwt.; *Pearlashes*, 37s. 6d. per cwt.; *Prussiate*, 8d. to 8¼d. per lb.; *Cream of Tartar*, 98s. 6d. to 99s. for finest white. BLEACHING POWDER: £7 *f.o.b.* COPPERAS: *Lancashire*, 37s. 6d. SULPHATE OF COPPER: £17. PHOSPHORUS: Wedges, 2s.; sticks, 2s. 1d.; amorphous, 2s. 8½d. SULPHUR: *Recovered*, £3 17s. 6d. in bags; *roll*, £5 5s.; *flour*, £7 10s. per ton.

Exchange.

[*Notices are inserted free in this column, if they do not partake of the nature of ordinary advertisements. They should be addressed "Editorial Department, 17, Bloomsbury Square, W.C," and arrive not later than Wednesday.*]

OFFERED.

Bentley's 'Manual of Botany,' last edition; Prantl and Vines' 'Text-Book of Botany,' 1893; Roscoe's 'Elementary Chemistry,' 1892; Bentley's shilling 'Text-Book of Botany,' 1893; Gill's 'Chemistry,' 1890 (2s. 6d.), cost 4s. 6d.; Books 1, 2, and 3 of Virgil's 'Æneid,' 6d. each, cost 1s. each. All above in perfect condition. 150 sheets (double) paper for mounting botanical specimens; cost 24s.; what offers?—J. R. Walker, 4, Market Place, Cockermouth, Cumberland.

All post free:—'Orchids,' a handsome folio volume, with 24 splendidly coloured plates (pub. £4 4s.), 17s. 6d. only; Piesse's 'Art of Perfumery,' latest (pub. 21s.), 10s. 6d.; Helbing's 'Modern Materia Medica for Pharmacists,' enlarged edition (pub. 4s.), 2s.—Davis, "The Chestnuts," Gordon Hill, Enfield.

High-Class Magic Lantern (limelight), mahogany body, brass front, tripod stand, gas bag, etc., very cheap; no reasonable offer refused.—Maitland, 31, Chapel Street, Stonehouse, Plymouth.

For Sale: Four Wenham's Patent Gas Lamps, with enamelled granite casing and brass fittings; two large, two small. All in good condition.—Austen Marshall, Waltham Abbey.

Morley's Stereoscopic Camera, leather bellows, flap shutter, two spare fronts adaptable for single lens up to half plate, three double dark slides, leather case and well-made tripod, pair Grubb's B stereo lenses and a 5 by 4 doublet by Lawley, Waterhouse stops, nearly as new, five printing frames. Price, for cash, £6, or exchange for microscope equal value.—Cocks, Pharmacist, Torquay.

Dodd's 'Algebraic Factors and Answers'; Simson's 'Euclid,' Book 1.; Layng's 'Euclid,' Book I.; Dodd's 'Algebra and Answers'; Hamblin Smith's 'Elementary Algebra'; Ball's 'Mechanics'; Marion's 'Practical Guide to Photography'; 'Theoretical Mechanics, Answers and Questions'; Blaikie's 'Mechanics'; Magnus 'Mechanics'; Hamblin Smith's 'Hydrostatics'; Squire's 'Companion,' 13th edition; Luff's 'Introduction to Chemistry'; Beasley's 'Receipt Book'; 'Art of Dispensing'; 'Veterinary Counter Practice'; Bentley's 'Manual Botany,' third edition; Pereira's 'Materia Medica and Therapeutics'; 'The Dispensatory,' in seven 5s. parts, by Wood, Remington and Sadtler. To be sold cheap. In perfect condition. Price, or offers.—Snowdon, Chemist, Darlington.

Southall's 'Materia Medica,' with Notes and Cabinet and sundry Minor books, cheap.—Spinks, 97, Westminster Road, Liverpool.

WANTED.

Muter's 'Analytical Chemistry,' 'Art of Dispensing'; Newth's 'Inorganic Chemistry'; Ince's 'Latin Grammar of Pharmacy.' Lowest terms, carriage paid.—Henry Fraser, 82, Bonaccord Street, Aberdeen.

Maisch's 'Materia Medica Pharmacographia,' Strasburger's 'Botany,' or Professor Green's recent 'Botany'; must be latest editions. Will exchange Taylor on 'Poisons'; Brown's 'Manual of Assaying' (12s 6d.), or Wanklyn's 'Water Analysis,' all perfectly new, or state lowest price.—Chemicus, 49, Harcourt Road, Sheffield.

'Pharmaceutical Journal' for July 13, and September 14, 1895. Full price will be sent if sender indicates name and address.—Secretary, 17, Bloomsbury Square, London.

Volumetric and chemical apparatus for analytical work.—Broom, Houghton-le-Spring.

Skeleton, student's ½ set; would accept loan, or state price, to—Macdonald, 124, Crown Street, Aberdeen.

'Art of Dispensing'; Whitla's 'Elements of Pharmacy, Materia Medica, etc.'; latest editions. Lowest price to—A. H. Price, 32, Shaftesbury Rd., Brighton.

Microscope wanted on approval, must be good and in perfect order. State particulars and lowest price to John Hutton, 111, Dalkeith Road, Edinburgh.

Perkin and Kipping's 'Organic Chemistry,' must be in good condition and cheap for cash.—Spinks, 97, Westminster Road, Liverpool.

Diary of the Week.

Secretaries of Societies are requested to send notices of forthcoming meetings not latter than Wednesday in the previous week.

SATURDAY, NOVEMBER 2.

Pharmaceutical Football Club v. Oboron at Neasden.

SUNDAY, NOVEMBER 3.

Liverpool Sunday Society, at 3 p.m.
"Curiosities of Brain-action" (illustrated), by Dr. Andrew Wilson.

MONDAY, NOVEMBER 4.

Royal Institution of Great Britain, at 5 p.m.
General Monthly Meeting.

Imperial Institute at 8.30 p.m.
"Chitral" (illustrated), by Capt. F. E. Younghusband.

Society of Chemical Industry (London Section), at 8 p.m.
"Filtration of Sewage Effluent," by W. J. Dibden.

Chemists' Ball Committee, at 2 p.m.
Preliminary meeting at 17, Bloomsbury Square.

TUESDAY, NOVEMBER 5.

Pharmaceutical Society of Great Britain.
Benevolent Fund Committee.
Finance Committee.
General Purposes Committee.

WEDNESDAY, NOVEMBER 6.

Pharmaceutical Society of Great Britain.
Council Meeting.

THURSDAY, NOVEMBER 7.

Imperial Institute, at 4.30 p.m.
"Assisted Colonisation," by Harold E. Moore.

Chemists' Assistants' Association, at 8.30 p.m.
"Pharmaceutical Politics," by J. Harrison.

Linnean Society (of London), at 8 p.m.
"On Mimicry in Butterflies of the genus *Hypolimnas*, Hübn.," by Col. Swinhoe.
"A Revision of the genus *Pentas*, Benth." by G. F. Scott Elliot.
"An Account of the Butterflies of the genus *Charaxes*, Och.," by Dr. A. G. Butler.

Chemical Society, at 8 p.m.
"The Temperatures of Flames and the Acetylene Theory of Luminosity," by Professor Smithells.
"The Action of Acidic Oxides on Salts of Hydroxy-Acids," by Professor G. G. Henderson and D. Prentice.
"Sodium Nitrososulphate and the Constitution of Nitrososulphates," by Professors Divers and Haga.

Liverpool Chemists' Association at 7 p.m.
"A Botanist's Ramble in Spain" (illustrated). By T. H. Wardleworth.

FRIDAY, NOVEMBER 8.

Royal Astronomical Society, at 8 p.m.
Ordinary Meeting.

Brighton Junior Association of Pharmacy,
Annual Dinner at the Café Royal, East Street.

Advertisements in the Pharmaceutical Journal.

ALL ADVERTISEMENTS must be sent to the Office, 5, Serle Street, Lincoln's Inn, W.C., where replies to prepaid advertisements may be addressed, and will be redirected free of charge. Postal Orders should be made payable at Lincoln's Inn, W.C., to STREET BROS. Cheques should be crossed "London Joint Stock Bank."

PREPAID ADVERTISEMENTS.—Advertisements of Assistants Wanted, Apprenticeships, For Sale, Partnerships, Businesses for Disposal, Businesses Wanted, and Premises to Let are charged as follows:—Fifty words or less, 3*s.* 6*d.* Each additional ten words or less, 6*d.*

ADVERTISEMENTS of a general character are inserted at 4*s.* 6*d.* each for seven lines (50 words) or less, and each additional line of seven words, 6*d.*

Late Advertisement.

ENERGETIC Man with from £200 capital wanted to join advertiser in novel Patent Medicine enterprise. Rapid fortune assured. THOZ, 5, Serle St., W.C.

SUPPLEMENT

TO THE

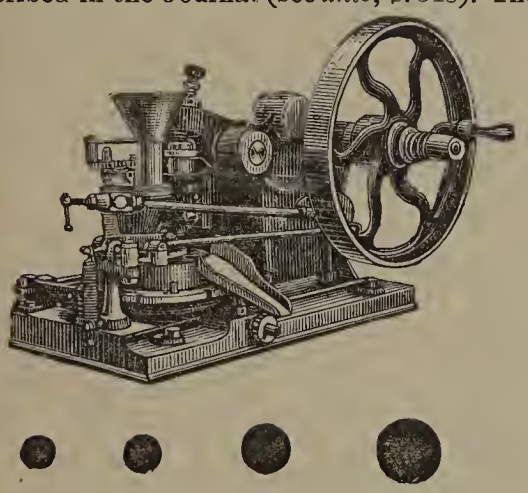
PHARMACEUTICAL JOURNAL.

TRADE NOTES AND NEWS.

MESSRS. KENNEDY AND CO., 159, Kingsland Road, London, N.E., send a sanitary improved perforated shield for feeding bottles or soothers. The shield is made of kaolin porcelain, and is said to be much better for use than the still prevalent bone shield. It is always clean and healthy, and is totally impervious to sputum and exhalation of every kind.

MESSRS. CASSELL AND COMPANY announce a re-issue of one of the most popular of the works edited for them by the late Dr. Robert Brown—'Science for All,' a cyclopædia of popular science, written by eminent men in simple language, and profusely illustrated. This work has hitherto been issued in five volumes at 9*s.* each, but, in order to bring it within universal reach, Messrs. Cassell and Company have arranged to publish it in twenty monthly parts at 6*d.* The first part will be published on November 26.

MESSRS. JOHN HOLROYD AND CO., LTD., Manchester, makers of McFerran's Patent Compressed Tablet machines, make them in a variety of sizes convenient to chemists. The No. 5 machine is specially designed for retail druggists, and has already been described in the Journal (see *ante*, p. 348). The



No. 3 machine, here illustrated, is made specially for the manufacture of "hypodermic tablets." It may be worked by hand or power, weighs about ½ cwt., and occupies a space of 9 in. by 18 in. The machine will make tablets from 1/16 in. to 1/4 in. diameter at the rate of about 40 per minute, one tablet at each impression of the top punch.

THE LIQUOR CARNIS COMPANY point out that they still continue to get orders sent to their old warehouse in Farringdon Street instead of Messrs. Lynch and Co., Limited, 192, Aldersgate Street, E.C., who now act as their distributing agents. Correspondence can only be dealt with at Aston Clinton, Bucks, and applications for samples for medical men, literature, and show cards must also be addressed to Aston Clinton, but all orders for goods should be sent to 192, Aldersgate Street, London, E.C.

MESSRS. POWELL AND BARSTOW, of 58, Blackfriars Road, S.E., have the details of their business described in a recently published illustrated work on South London. Messrs. Powell and Barstow are manufacturers of elastic gum surgical instruments, surgical and medical instruments and appliances, etc. They were the first to introduce the manufacture of elastic stockngs into London, and are also makers of kneecaps, anklets, thigh-stockings, ladies' and gentlemen's supporting belts, and other similar articles. Their stock includes a remarkable selection of artificial limbs, such as Anglesey tendon legs, and improved tendon legs for above or below the knee, kneeling legs, etc. A notable specialty of Messrs. Powell and Barstow's is Ferris's Persian food for infants, invalids, and athletes. They supply a variety of accessories for the trade, such as chemists' balances, plaster legs, statuettes for window display, and ingenious and remarkably accurate personal weighing machines for use in hospitals, etc. In surgical instruments, there are improved seamless enema apparatus and other syringes made in one continuous piece, syringes, and specula in all the leading modern varieties, besides veterinary appliances, catheters, probangs, seton tapes, etc. The business of Messrs. Powell and Barstow was originally established in 1830 by Messrs. W. Hurlstone and Company, and was for many years carried on at premises close to Blackfriars Bridge.

MESSRS. FLETCHER, FLETCHER AND CO. have been awarded a bronze medal at the Annual Exhibition of the Royal Cornwall Polytechnic Society, for Fletcher's Patent Autometric Stopper.

MARKET REPORT.

[*Specially compiled for the Pharmaceutical Journal.*]

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

LONDON, NOVEMBER 7, 1895.

The quietness which characterised last week's produce markets has again held good during the current week, and there are no very startling changes to report in any article. In the chemical market carbolic acid is in rather better demand for crystals, and, generally speaking, coal-distillation products are firmer. Both citric and tartaric acids are dull of sale at unchanged rates, whilst cream of tartar offers at a considerable decline. In pure chemicals the only changes to note are a drop in quinine, in which a fair business has been done at a decline in value, whilst sugar of milk is considerably dearer. Camphor offers at much lower rates, without any inquiries. In heavy chemicals and drysalteries the market generally is firm. Shellac is fairly steady, but somewhat dull of sale. Of the spices Jamaica ginger remains very scarce, whilst Cochin is rather slow of sale. Cloves and other spices are generally unaltered. Heavy oils are unchanged, with the exception of rape oil, which is much dearer.

In the drug market the principal advance during the week has been in balsam of tolu, which is now scarce, and firmly held for genuine qualities. Peruvian balsam is also tending higher. In gums, mastic, although practically unchanged in price, has a firmer tendenoy, whilst a fair business has been done in tragacanth at full rates. Orris root has sold at an advance for Florentine, whilst Veronese is scarce on the spot and firmly held. In the essential oil market star anise oil is dearer, whilst cassia is firmly held, but the feature has been the brisk business done in all brands of eucalyptus oil at a marked advance in price. Of other articles spermaceti, cochineal, and glycerin, and Persian opium are dearer, whilst the new crop of Russian oantharides is offering at high rates. Full details will be found below of the various articles :—

ACETANILIDE.—This article does not attract much attention at the present time. Makers' prices are 1s. 1½d. to 1s. 2d. per lb., according to quantity.

ACID, CARBOLIC.—A better inquiry is shown for *crystals*, and the following are the current quotations :—*Crystals*, 34° to 35° C., 5¼d.; 39° to 40° C., 5¾d.; 39° to 40° C. (*detached crystals*), 6¾d. per lb. *Crude* 60 per cent. quotes at 1s. 6d. per gallon, whilst 75 per cent. is worth 1s. 9d. per gallon. *Liquefied* and *cresylic* are unchanged at 1s. and 11d. per gallon respectively.

ACID, CITRIC.—There is no change to be noted in the quotations of this article, but it is decidedly easy. The *makers'* price still remains 1s. 3d. per lb. on the spot, whilst in second-hand, 1s. 2¾d. would buy. For delivery in first-hand, 1s. 3½d. is still the quotation.

ACID TARTARIC.—Barely steady and very little enquiry. *English* brands of acid still quote at 1s. 2d. per lb. on the spot, and 1s. 2½d. for forward delivery. For *foreign* acid the quotation for delivery is 1s. 2d. to 1s. 2¼d., whilst on the spot 1s. 1¾d. would buy.

AMMONIA SULPHATE.—Prices have further declined during the week, but the closing quotations, though showing a drop of 2s. 6d., indicate a firmer market. Grey-24 per cent. is now returned at £8 17s. 6d. on the spot, with *Hull* at £8 15s., and *Beckton* at £9.

ARSENIC—Very firm. Best white powder is not procurable under £15 10s. per ton landed terms, and there is a likelihood of an advance. *Lump* quotes at £29 per ton.

CASSIA LIGNEA.—A good demand prevails at advanced prices. At the sales on Wednesday about 700 bales sold, 22s. 6d. to 24s. being paid for fair to good, and 18s. 6d. for inferior. 500 boxes of fine quality were bought in at 33s. 6d. to 34s.

CAFFEINE.—The position is unohanged. The price for 100 lb. quantities, prompt delivery, remain 19s. to 20s. per lb., whilst for December delivery 18s. to 19s, per lb. is quoted, according to brand.

CAMPHOR (CRUDE).—The market is decidedly easier, and both *Japan* and *Formosan* camphor now offer at 182s. 6d. per cwt.,

c.i.f., for November to December shipment, but there are no buyers.

CAMPHOR (REFINED).—The market remains very quiet. *English* refiners still quote *bells* and *flowers* in 10-cwt. lots at 2s. 3½d. per lb., and *squares* at 2s. 4½d. and proportionate rates, whilst *German* camphor quotes at 2s. 1d. to 2s. 2d. per lb. for *bells*.

CANTHARIDES.—The new crop of *Russian* flies offers at 3s. 4d. per lb.

CHAMOMILES.—This season's crop of *Belgian* flowers offers at prices ranging from 40s. per cwt. for best quality, down to 36s. 6d. for seconds.

CINCHONA.—During the week there have been sales of flat cultivated *Bolivian* Calisaya bark at prices ranging from 10d. per lb. for sound downwards.

COCA LEAVES.—*Truxillo* leaves are decidedly dearer. Since our last report 1s. 2d. per lb. has been paid for good quality broken leaves of fair greenish colour. For fair quality *Bolivian* leaves, 1s. 6d. per lb. is asked.

COCHINEAL.—There is only a small supply offering at present, and quotations for *Teneriffe* have advanced, 1s. 4d. to 1s. 6d. per lb. being now asked for silver, and 1s. 2d. to 1s. 4d. for black.

COCO BUTTER—Much dearer. At the sales on Tuesday 350 cases (representing 35 tons) of *Cadbury's* make sold at rates extending from 14⅜d. up to 17⅛d., the average price realised being 16⅛d. against 13⅞d. in October.

COLOCYNTH.—The supplies of *Turkey* colocynth in first hand have been reinforced by eight cases, which arrived last week. They are held for 2s. 6d. per lb. for fair quality apple. It is said that the supply of Turkey colocynth available this season will not amount to more than about sixty cases, and there seems a probability of advanced values.

CREAM OF TARTAR.—This article has declined considerably since our last report, and market is very quiet. For best white *French* crystals 92s. per cwt., *c.i.f.* Bordeaux, is asked, but buyers show no disposition to deal at the price. On the spot 98s. to 99s. is the price. For *German* brands of *powder* 100s. to 102s. per cwt. is the spot, tht quotation according to brand.

GALLS (PERSIAN).—A limited amount of business has been done in *blue* galls up to 52s. 6d. per cwt., and in *green* at 47s. 6d. for fine quality, and *white* at 40s.

GALLS (CHINESE).—The market is very firm, and advanced prices have been paid, including sales of fair quality at 61s. per cwt. on the spot. For arrival 61s. *c.i.f.* is now asked. In auction good *Canton* galls sold at 61s. per cwt.

GLYCERIN.—The market is very strong, and prices have been considerably advanced. *Schering's* brand now quotes at 67s. 6d. for 126° water-saponified glycerin, and the same applies to *B. & S.*, whilst for the *G.B.R.* make, 65s. is the makers' price. Second-hand holders quote at 60s. to 63s. per cwt.

GINGER.—Good quality *Jamaica* continues scarce. In auction only sixteen barrels dark *Rhatoon* sold at 70s. to 71s. 6d. The remainder was bought in, washed at 95s. to 110s., and bold at 120s. *Cochin* is still dull of sale, but fairly steady, 33s. being paid in auction for ordinary medium and small washed, and 35s. for good small to bold.

KOLA.—There is a good demand privately, with fair sales of undried kolas at 1s. 2d. per lb. Medium *West Indian* sold in auction on Wednesday at 7½d. per lb.

LIME JUICE.—In auction on Wednesday, 6 puns. *Jamaica* sold at 11d., and *St. Kitts'* at 9½d. per gallon.

LIQUORICE ROOT.—The current quotation for *Russian* decorticated root is 28s. per cwt., *c.i.f.* terms.

MASTIC.—In rather better demand. Privately there have been sales of fine bright drop at 1s. 10d.. and 1s. 10d. to 1s. 11d. per lb. is now asked on the spot.

MENTHOL.—The position is unchanged. Holders ask 14s. 6d. per lb. on the spot for good dry *crystals*, whilst for delivery 14s. 6d. per lb., *c.i.f.* terms, is the current quotation.

OIL (COD-LIVER).—Very firm. During the week there have been sales of fine non-congealing *Lofoten* oil at 170s. per barrel, whilst *Newfoundland* oil is rather better, and for good quality 5s. 3d. per gallon is now asked.

OILS ESSENTIAL.—The market in *China* oils remains very firm. *Star Anise* oil is dearer, 9s. 3d. having been paid on the spot, and it is said 9s. 6d. also, but we are unable to confirm the latter price. The latter quotation is the price now generally asked. *Cassia* oil is firm at unchanged rates, 70 to 75 per cent. oil quoting at 8s., 75 to 80 at 8s. 6d.. and 80 to 85 at 9s. 3d. per lb. *Russian* aniseed oil is steady with sales at 8s. 9d. per lb., whilst the *Réunion* brand of *Geranium* oil quotes at 20s. per lb. American *peppermint* oil is in improved demand for *H. G. Hotchkiss'* brand, with a fair business done at 10s. per lb. and 10s. 3d. is now asked, whilst 8s. is the price for *McK. & R.* oil on the spot. *Japan* oil testing 40 per cent. of menthol is dearer, 8s. 9d. per lb. having been paid—an advance of 6d. per lb.—and 9s. is now asked. The shipment price is unchanged at 9s. per lb. *c.i.f. Dementholised* oil is steady, 6s. 9d. having been paid, and 7s. is now asked, whilst for shipment, 7s. per lb. *c.i.f.* is the price. *Cocking's* brand of *peppermint* oil quotes at 7s. per lb. on the spot. *Eucalyptus* oil has received a good deal of attention since the sales, and prices are considerably higher all round. The following are the current quotations for the various brands: *Wheeler's*, 1s. 3d.; *Platypus*, 2s. 3d., with other varieties of *Globulus* oil at 1s. 10d.; *Eagle*, 1s. 9d.; and *Native bear*, 1s. 6d. per lb.

OILS (FIXED) AND SPIRITS.—*Castor:* Reports from *Calcutta* state the market there is hardening, owing to small supply of seed and continued good demand. *Italian* oil has been advanced 6d. per cwt., and fine tasteless is now quoted at 30s. to 31s. per cwt., according to quantity. *Cotton*: The market is steady. *Refined* oil quotes at £17 to £17 10s., according to brand and package. *Coco-nut*: Unchanged for *Ceylon*, which still quotes at £22 15s., whist *Cochin* is rather easier at £24 15s. to £25. *Linseed*: The market is decidedly easier. At the close, oil in barrels can be bought for £20 17s. 6d. on the spot. *Olive*: *Syrian*, £33; *Spanish*, £37. *Rape*: Again a very strong market, and prices have further advanced by 10s. since our last report. The spot price for *refined* oil is now £24 to £24 10s. *Turpentine*: Easier. *American spirit* can now be bought for 20s. 1½d. on the spot. *Petroleum*: Steady. *American* oil still quotes at 5⅞d., with *water white* at 6½d. to 6¾d., and *Russian* at 5⅞d. to 5⅜d. per gallon.

OPIUM.—The London market has been quiet during the week, and the bulk of the inquiries are for *soft shipping* and *Persian* opium. Of the latter variety, however, the market is almost bare, and what little there is is held for advanced prices. Fine *bricks* are now very firm at 13s. per lb., 12s. 9d. having been refused, whilst *ball* quotes at 12s. 6d. to 12s. 9d. nominally. *Turkey* opium quotes as follows:—*Soft shipping*, good to fine, 10s. 6d. to 11s. 6d.; *Smyrna*, good to fine, 7s. 6d. to 8s. 6d.; *Constantinople*, good to fine, 8s. to 9s.; *druggists' seconds*, 7s. 6d. to 8s. 3d. per lb.

ORRIS ROOT.—The market remains very firm. *Florentine* root has been in good inquiry, and 78s. per cwt. is now asked on the spot for fine picked root. *Veronese* is scarce and firmly held, 70s. per cwt. being asked for good quality root.

PERU BALSAM.—Tending higher. For genuine balsam of direct import, 8s. 6d. per lb. is now asked on the spot, although 8s. 3d. might be accepted.

QUININE SULPHATE.—The market for the best German makes it decidedly easier. There has been a moderate amount of business done in *B. S.* and *Brunswick*, including 20,000 ozs. of these brands at 1s. 1⅛d. to 1s. 1¼d., whilst sales have also been made in second-hand at 1s. 1¾d. per oz. for March delivery. The landings during October were 17,000 ozs., and the deliveries 40,072 ozs., making the stock on October 31, 2,069,904 ozs. against 2,896,368 ozs. in 1894.

QUICKSILVER.—Rather quiet at £7 7s. 6d. in *importers'* hands, whilst second-hand holders offer at £7 6s. 6d.

SAFFRON.—The *super A* and *Bajo* varieties of the new crop of *Valencia* saffron are now being offered, but the *super extra* quality being later than usual, the price has not yet been fixed. The current quotations for *Bajo* is 19s. and for *Super A* 21s. per lb.

SANTONIN.—The makers' price is still 7s. 3d. per lb. In second hand it can, however, be bought for 7s. per lb.

SEEDS (VARIOUS.)—*Star anise*: Very firm, and 95s. per cwt. has been paid on the spot during the week, 98s. being now asked. *Caraway*: Rather better. Good quality *Dutch* seed is now quoted at 25s. 9d. per cwt. *f.o.b.* *Anise*, good quality *Spanish* seed quotes at 31s. per cwt. *Cumin*: For new *Maltese* seed 39s. to 40s. per cwt is asked.

SHELLAC.—At the sales on Tuesday, a moderate supply only was offered, and less than a quarter found buyers, holders being very firm. *Second Orange* sold at steady rates for free varieties, but block showed a further decline of 1s. Prices:—Good to bright cakey, 117s. to 120s.; fair bright blocky, 111s. to 112s.; *Garnet*, all bought in; *Button*, fair *BL2* sold at 107s. to 111s.; and ordinary *BL3* at 97s. Privately, steady prices have been paid, *TN Orange* selling at 118s. 6d. cash, and good *Second Orange BO* at 125s., whilst *TN* quotes for arrival at 112s., *c i f.*

SPERMACETI—Dearer. *American refined* must be reported 1d. to 2d. per lb. advanced, 1s. 7d. to 1s. 8d. per lb. being now asked on the spot.

SPICES (VARIOUS).—*Cloves*: In small demand, but the market is steady. In auction fair quality *Zanzibar* sold at 2⅛d., whilst fine picked *Penang* offered without

reserve, realised 7¼d. per lb. *Cinnamon chips*: On Wednesday 11 bags of ordinary *Ceylon* sold at 3¼d., whilst chippings were bought in at 8½d. to 10d. per lb. *Capsicums*: Ordinary to medium *East Indian* were bought in at 16s. to 20s. per cwt. *Pimento*: Still dull of sale. Ordinary to medium quality were bought in at 2½d. to 2⅝d. per lb. *Chillies*, In auction, damaged *Zanzibar* sold at 30s., whilst good *Sierra Leone* were bought in at 42s. per cwt. *Arrowroot* remains dull of sale. On Wednesday *Bermuda* sold at 10½d. to 11d., and *St. Vincent* at 1¾d. per lb. for good fair, and 1¼d. for ordinary quality. *Pepper*: Good *Singapore* sold at 2½d., and *Ceylon*, at 2⅜d., whilst *Tellicherry* was bought in at 2¾d. *White pepper*: *Penang* realised 2⅛d. and good *Singapore*, 4⅜d. without reserve.

STICKLAC.—*Siam* is very steady and scarce, with 75s. to 80s. per cwt. the nearest spot value. In auction fair quality was bought in at 65s.

SUGAR OF MILK.—Much dearer. In first hand 77s. 6d. per cwt. is now asked for good *crystals*, and 75s. for *powder*.

TAR DISTILLATION PRODUCTS.—*Benzole*: Dearer. For 50 per cent. 1s. 3d. per gallon is now asked, 1s. 2½d. having been refused, whilst 90 per cent. has also advanced to 1s. 4½d. *Toluol*: Steady; 1s. 6d. per gallon is quoted for *pure*. *Creosote*: 1⅛d. per gallon. *Crude Naphtha*: 30 per cent. at 120° C. still quotes at 6d. per gallon. *Solvent Naphtha*: 95 per cent. at 160° C. quotes at 1s. 3d.; 90 per cent. at 160° C., 1s. 2d.; and 90 per cent. at 190° C., 1s. 1½d. per gallon. *Pitch*: 38s. per ton *f.o.b.* *Tar*: *Refined* quotes at 13s., and *crude* at 12s.

TOLU BALSAM—Much dearer. Since our last report there have been sales privately at prices ranging up to 2s. 7d. per lb. for good genuine "old-fashioned" balsam, and the bottom price now seems to be 2s. 8d. This variety seems to be getting rather scarce, although there is a considerable amount of dark "glassy" balsam offering.

TRAGACANTH.—The market is firm, and there has been a good demand at the following quotations:—Fine white firsts, £14 10s. seconds, £12 to £13 10s.; thirds, £10 to £11 10s.; fourths, £7 10s. to £10; and other grades, 40s. to £6. There has been better inquiry for *hog*, with sale of seconds at 55s. per cwt.

TURMERIC.—Steady. In auction 245 bags of *Bengal* sold without reserve at 7s. 3d. per cwt., whilst *Madras* finger was bought in at 8s. 3d. to 9s. 6d.

WAX.—*Japan*. Remains somewhat slow of sale at 26s. to 26s. 6d. per cwt. for pale *squares*. *Carnauba*: There have been sales privately of medium grey at 120s. to 125s. per cwt.

COMPANY BUSINESS.

M. BARDELL, LIMITED.—Registered, October 23, by J. Shaw and Sons, Fetter Lane, E.C., with a capital of £500 in £1 shares. Objects: To carry on the business of chemists, druggists, drysalters, patent medicine vendors, manufacturers of and dealers in compounds, ointments, oils, etc., in all its branches. Registered without articles of association. Registered office: 14, Market Place, Derby.

LIST OF LOCAL SECRETARIES OF THE PHARMACEUTICAL SOCIETY.*

District.	Local Secretary.
Aberdeen	Strachan, Alexander.
Aberystwith	Wynne, Edward P.
Abingdon	Smith, William F.
Airdrie	Harvie, John.
Altrincham	Foden, Joel.
Andover	Bienvenu, John.
Arbroath	Robertson, John.
Ashbourne	Bradley, Edwin S.
Ashford	Ingall, Joseph.
Ashton-under-Lyne	Bostock, John W.
Aylesbury	Palmer, Edwin T.
Ayr	McGregor, Adam.
Banbury	Bartlett, Hubert.
Banff	Alexander, William.
Bangor	Jones, Owen.
Barking	Ridley, Charles H.
Barnet	Young, R. Fisher.
Barnsley	Eastwood, Lewis.
Barnstaple	Goss, Samuel.
Barrow-in-Furness	Chapman, Leonard P.
Bath	Appleby, Edward J.
Bedford	Taylor, James B.
Belper	Calvert, James.
Berwick	Lyle, William.
Beverly	Hobson, Charles.
Birmingham	Thompson, Charles.
Bishop Auckland	Dobinson, Thomas.
Blackburn	Critchley, Thomas.
Blackpool	Laurie, John.
Blandford	Groves, Richard H.
Bodmin	Cardell, Richard T.
Bolton	Blain, William R.
Bootle	Wyatt, Harold, junr.
Boston	Grimble, Albert.
Bournemouth	Bilson, Frederic E.
Bradford (Yorkshire)	Rimmington, George.
Brecon	Meredith, John.
Brentford	Wood, Alexander.
Bridgnorth	Deighton, Thomas M.
Bridgwater	Basker, John Anthony.
Bridlington	Purvis, John B.
Brighton	Gwatkin, James Ross.
Bristol	Stroud, John.
Burnley	Cowgill, Bryan H.
Burslem	Hewitt, John F.
Burton-on-Trent	Wright, George.
Bury St. Edmunds	Clark, Owen A.
Buxton	Wright, Robert.
Camborne	Tonking, Charles H.
Cambridge	Deck, Arthur.
Canterbury	Bing, Edwin.
Cardiff	Munday, John.
Carlisle	Hallaway, John.
Carmarthen	Lloyd, Walter.
Carnarvon	Jones, John.
Carshalton	Carter, Francis.
Castle Douglas	Veitch, Andrew.
Chatham	Morgan, Alfred Wm.
Chelmsford	Metcalfe, Wilson.
Cheltenham	Barron, William.
Chertsey	Gerrard, Alfred Wm.
Chester	Shephcard, Wm. F. J.
Chesterfield	Barfoot, John R. D.
Chichester	Long, William Elliott.
Chippenham	Coles, John Coles.
Chorley	Hill, William.
Cockermouth	Scott, Walter S.
Colchester	Weddell, Arthur.
Coldstream	Elliot, William M.
Coventry	Hinds, James.
Crewe	Booth, Edwin.
Cromer	Hoare, Wm. Parker.
Croydon	Clarke, Josiah.
Dalkeith	Storie, Robert.
Darlington	Robinson, James.
Dartford	Goff, Walter E.
Darwen	Shorrock, Ralph.
Deal	Green, John.
Derby	Cope, John A.
Devizes	Edwards, T. Roberts.
Devonport	Rendle, Richard H.
Dolgelly	Williams, Richard W.
Doncaster	Howorth, James.
Dorking	Coldwell, David B.
Douglas (Isle of Man)	Radcliffe, John C.
Dover	Bottle, Alexander.
Droitwich	Harris, Stephen.
Dudley	Gare, Charles Hazard.
Dumfries	Allan, William.
Dundee	Hardie, James.
Dunfermline	Tocher, John.
Durham	Sarsfield, William.
Ealing	Curtis, Frederic G.
Eastbourne	Crook, Herbert.
Eccles	Howie, Wm. Lamond.
Elgin	Robertson, William.
Enfield	Gange, George.
Epping	Rowland, Thomas W.
Evesham	Balkwill, Fredk. P.
Exeter	Lake, John Hinton.
Falkirk	Murdoch, David.
Falmouth	Newman, Walter F.
Faversham	Laxon, Matthew.
Finchley	Freeman, Fredk. Wm.
Flint	Jones, Owen Williams.
Folkestone	Lea, Frederick James.
Forfar	Fowler, George R.
Frome	Green, Edmund C. F.
Galashiels	Ross, William.
Gateshead	Maillard, Ralph W.
Glasgow	Currie, William L.
Gloucester	Slinn, Harry E.
Goole	Timm, Edmund.
Grantham	Whysall, William.
Gravesend	Clarke, R. Feaver.
Great Grimsby	Cook, Robert.
Great Yarmouth	Poll, Wm, Sheppard.
Greenock	McNaught, Archibald.
Guernsey	Nickolls, John B.
Guildford	Long, Alexander J. T.
Haddington	Watt, James.
Halifax	Seely, Herbert W.
Hanley	Cornwell, Thomas C.
Harrogate	Davis, R. Hayton.
Harrow	Gunn, Samuel John.
Hartlepool	Horsley, John.
Harwich	Bevan, William.
Hastings and St. Leonards	Tharle, Charles A.
Hawick	Maben, Thomas.
Helensburgh	Harvie, George.
Hendon	Goldfinch, George.
Henley-on-Thames	Batchelor, C. J. H.
Hereford	Williams, Walter.
Hertford	Lines, George.
Hexham	Gibson, John Pattison.
Heywood	Hazlitt, Frank.
Hitchin	Ransom, William.
Honiton	Dyer, Edward H.
Horncastle	Kemp, Herbert W.
Hornsea	Morrow, Charles.
Houghton-le-Spring	Rowell, Robert H.
Huddersfield	King, William.
Hull	Bell, Charles Bains.
Huntingdon	Baxter, Robert.
Huntly	Chalmers, George.

* Local Secretaries are appointed in all towns in Great Britain (except London and Edinburgh) which return a Member or Members to Parliament, and in such other towns as contain not less than three Members of the Society or Associates in Business.

District.	Local Secretary.
Hyde	Wild, Joseph.
Hythe	Lemmon, Robert Alce.
Ilfracombe	Crang, Walter.
Ilkley	Worfolk, George W.
Inverness	McRitchie, David.
Ipswich	Anness, Samuel Richd.
Jersey	Cole, George.
Keighley	Kershaw, Arthur N.
Keith	Pirie, James.
Kendal	Severs, Joseph.
Kilmarnock	Borland, John.
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MODERN PHARMACEUTICAL INDUSTRIES.

MINERAL WATERS.

C.A.M.W.A.L.

There have been several instances in which attempts have been made to carry out the co-operative principle in the manufacture of products directly or indirectly connected with pharmacy, but in no case have the same happy results attended the efforts of the promoters as in the case of the Chemists' Aerated and Mineral Waters Association, which now occupies an absolutely unique position, the outcome of successful co-operation. It is certainly interesting to note the gradual and steady development of this Association, which, commencing in 1878 with a few London pharmacists as a nucleus, can now boast of the support of a goodly proportion of the trade. The record is one of which the promoters and shareholders may well be proud, for the obstacles met and overcome in building up the Association have been many and peculiar, since chemists were at the outset apt to look with something akin to suspicion upon its formation, and had it not been for the energy and tact which throughout its career have characterised the work of the directorate, the verdict would not be that which to-day is the only possible one—conspicuous success.

It is hardly necessary to say that the space now covered by the factories is vastly different from the time when the Association was but in its infancy, in fact, some inconvenience has at times been caused by trade having increased so rapidly that some difficulty was experienced in coping with orders satisfactorily. This, however, has been merely temporary, and having been accompanied by larger dividends, shareholders have not had much cause to grumble. The directors have now under consideration the expediency of forming additional branches in various parts of the country, but nothing definite has yet been decided upon. At the present time the factories are situated in London, Bristol, Harrogate, and Mitcham, the last-named—which was established some two years ago—having been expressly built to fulfil the requirements of mineral water manufacture on a modern scale. A representative of the *Pharmaceutical Journal* recently paid a visit to the London factory of the Association, and as the processes there employed may be regarded as typical of those of the other centres, it will suffice if a brief description be given of the way in which the products are turned out at headquarters.

On turning down Gifford Street we were promptly reminded that our destination was reached, for in every direction the word "Camwal," in huge letters, caught the eye, and we afterwards learnt that many of the employés live either in Gifford or Pembroke Streets. At the time of our visit the busy season was nearly over, and this from our point of view was an advantage, for it not only enabled us to see the various details carried out more exactly, but to have the undivided attention of Mr. Butler, the Association's courteous secretary, as guide.

The Pembroke Street Entrance.

The first illustration will convey a good idea of the entrance to the works as seen from Pembroke Street. This is used exclusively for the receipt of empties, and there is ample space for unloading several carts at the same time.

On the right hand side of the entrance are the general offices and those of the manager (Mr. Pirie) and secretary (Mr. Butler). We do not spend much time here, but follow our guide into a room on the other side of the passage, where in the season several hands are continually employed in executing every description of repairs to the syphons, and it may here be noted that the empties are all examined after

being checked off by the empties clerk, those which are in any way faulty being sent down to the repairing room, whilst the remainder are passed on to be washed and refilled. The fine collection of show syphons attracts our notice in passing through the yard, the majority of them being stored in a loft shown to the left hand side in the block, and we are informed that they represent an outlay of about £400, each syphon costing £2 and holding about two gallons. "They have only been shown on one or two occasions as yet," says Mr. Butler, "and any of our customers can have the use of one for advertising purposes."

Solution Room.

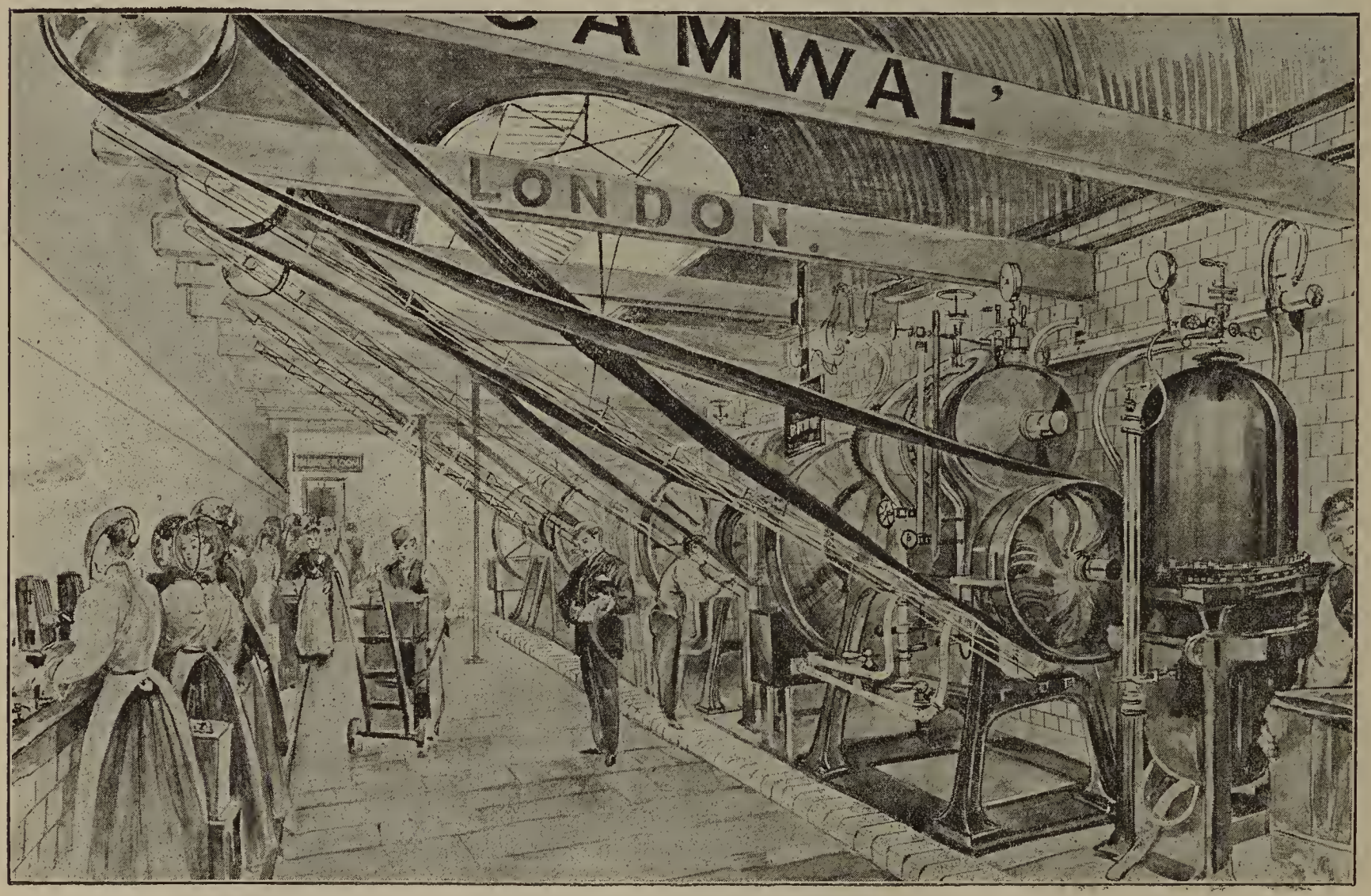
The room devoted to the preparation of the alkaline solutions next claims attention, and we have here abundant evidence of the care which is taken to ensure the purity of all the products of the Association. The natural purity of the New River water is well known, but not satisfied with this the supply from the main is passed through a system of Berkefeld filters into four small tanks fixed near the ceiling, in which the strong solutions of the salts are made. Thence the required amount is drawn off into four corresponding slate tanks which stand on the floor. These are each of a capacity of 200 gallons, and in them the solutions are adjusted until they represent B.P. potash, soda, and lithia water, and ordinary soda water respectively. We note the great care which is taken to ensure the absolute accuracy of this important part of the process, as not only is the concentrated solution carefully titrated before mixing in the larger tank, but the diluted solutions are again standardised after any deposition of salt has ceased, before being drawn off to the system of aerators.

Gas Generation and Purifaction.

After a glance at a batch of fruit syrups which were being filtered through flannel bags in another part of the room, we descend to the ground floor to see the system adopted for the preparation of the carbon dioxide gas, which has one or two points of interest. Generated from sulphuric acid and carbonate of lime, the latter of which has been previously made into a paste with water, the gas is passed into an elaborate system of washers, where it is first broken up into small bubbles by passing through a perforated tin diaphragm, and is thus more easily purified by passing through a solution of potassium permanganate. The gas then passes into an enormous floating reservoir, similar to a gas tank, thence into a kind of gasometer, and finally, by means of block tin pipes, to the large gun-metal cylinders in which the system of aeration is conducted.

Aerating and Filling Room.

We now passed through a door on the extreme left into the factory proper, which is a well-lighted and ventilated building almost 50 yards in length, and although our visit took place in the slack season, we saw some fifty girls hard at work in their various departments. The next illustration shows the aerating and filling machines. Each of the latter is fitted with an extra saturator constructed according to a process specially devised by the Association, which ensures additional aeration in such a way that the water is delivered steadily from the syphon, and has no tendency to spurt out. If in addition it be noticed that the machines are fitted with electric bells which give warning when the supply of water in the tanks has run low, it will be seen that every means is adopted which can conduce to carrying on the work expeditiously.



The Aerating and Filling Room.

Engine Room.

At the far end of the building we are shown the engines required for driving the machinery. The principal motive power is obtained from one of Crossley's gas engines, which cost £300 twelve years ago, and has been in constant

use ever since: in addition, for use in an emergency, there is an ordinary engine and boiler worked by coal.

Cleaning and Labelling Room.

Retracing our steps, we come to the cleaning and labelling department, shown in our third illustration, and we stay a few minutes to watch the work carried out. The syphons are passed on from the filling department, and are then cleaned and labelled. Several girls known as "sighters" do nothing else but examine the contents of each syphon and bottle, and the presence of even the smallest impurity is sufficient to condemn the contents, the bottle being stored under the bench until emptied and re-washed. After being passed, the syphon is polished and, if silver-plated, capped with paper to protect the cap. It is then packed into one of the numerous cases and passed into the despatch department ready for sending out.

Bottle Room.

We next come to the bottle section. This branch of the "Camwal" business is not as extensive as the syphon trade, but yet it forms no inconsiderable portion of the output. Here we see the filling and labelling of the ordinary and Codd's patent bottles. Our attention is here drawn to the stock of empty syphon and bottle cases, tier upon tier of which are packed away ready for emergencies, and as can readily be imagined during such a summer as we have just had, the reserve forces of the Association are somewhat severely taxed.

Despatch Department.

Our last visit was to the despatch department, the entrance to which is in Gifford Street. Here some inconvenience is caused from want of room, but this will shortly be remedied by pulling down the wall which divides the long factory from the bottle room. By roofing over the walls left standing, a considerable addition to the ground area will be effected, and will allow of the carts passing in and out in the same way as shown at the Pembroke Street entrance. This will put an end to the extra trouble caused by the carts having to stand in the street whilst being filled, and will in every way facilitate the despatch of orders.

Conclusion.

We have now come to an end of our tour of inspection, but we cannot conclude the account of the Camwal products without reference to the scrupulous care which is used in every department, so that the finished product may be unimpeachable in its purity, and, in fact, typical of what a water sold by a pharmacist should be. The public will not now be content with a product in which the purity of the chemicals is doubtful and the source of the water open to question, and the manufactures of the Association under notice may be regarded as representative of those firms which turn out an absolutely satisfactory article. Some of the means employed to this end have already been indicated, but it should be also mentioned that the conduct pipes throughout the factory consist of pure block tin, and that the same metal is used for a quarter-inch casing in the aerating cylinders. The syphons, bottles, and fittings are all of English manufacture, the tops being of pure block tin, whilst as additional precautions they are lined with vulcanite for some special waters. The chemicals used are of the finest make exclusively, and the interests of customers are protected in every possible way. As an instance of this we learnt from Mr. Butler that sample cases of waters have recently been sent to over 700 medical men, accompanied by a circular drawing attention to the fact that they can only be obtained from chemists, and that the strength of the waters is in all cases guaranteed on the label.

The Cleaning and Labelling Room.

NEWCASTLE CHEMICAL REPORT.

[*From our own Correspondent.*]

NOVEMBER 6, 1895.

This market, for the time of year, is found to be fairly brisk, more with home and inland than shipping orders. The call on soda crystals, bleaching powder, and even soda ash and alkalies is so pressing that prices, if anything, are more stiffly quoted. In fact, for soda ash the Association has advanced the price 5s. per ton, and the "Jarrow" brand of alkali has risen 2s. 6d. per ton. Saltcake and sulphur are extremely scarce. So far, however, no movement is being made to change values, although figures are very firm, as stocks are extremely low, and in some cases, exhausted. The new electrolytic patents for the manufacture of alkali, etc., are meeting with much attention in this district, as produce can be manufactured at so much less cost and greater purity. Sulphate of ammonia is somewhat easier, otherwise the produce stands to firmness. The drug class of goods keeps on the steady side. Certain and special articles are more eagerly sought after; boracic acid, for instance, is slightly firmer. Cyanide of potassium steady. Permanganate of potash scarce. Hyposulphite of soda in good demand. Prices are:—BLEACHING POWDER in softwood casks, £7 5s.; hardwood, £7 10s. SODA CRYSTALS: 37s. 6d. to 43s. 6d. CAUSTIC SODA: 70 per cent., £7 5s. to £7 15s. SODA ASH: 52 per cent., £4. ALKALI: 52 per cent., £4 15s. JARROW BRAND: £4 17s. 6d. RECOVERED SULPHUR: £3 17s. 6d. SALTCAKE: 22s. 6d. BORACIC ACID: *Crystals*, 30s.; *powder*, 32s. CYANIDE: 100 per cent., white, 1s. 7d. per lb. PERMANGANATE, large crystals, 67s. 6d. HYPOSULPHITE: 7s. 9d. per cwt.

LIVERPOOL MARKET REPORT.

[*From our own Correspondent.*]

NOVEMBER 6, 1895.

LINSEED: Very firm. Turkish, 36s. 3d. to 36s. 6d. per 416 lbs. CANARY SEED: Quiet at 34s. per 464 lbs. for Turkish, with a downward tendency. KOLA NUTS: Price reported better than of late. CARNAUBA WAX: 10 bags at 120s. per cwt. BEESWAX: 16 packages of Chilian at £7 5s. CASTOR OIL: "good seconds" Calcutta, 2⅞d.; French 1st pressure, 2⅛d. to 2 5/32d.; Madras, 2 3/32d. OLIVE OIL: Steady. *Candia*, £31 10s. LINSEED OIL: Quiet at 21s. 6d. to 22s. COTTONSEED OIL: 17s. 9d. to 18s. 3d. for Liverpool pressed, 17s. 6d. for American. SPIRIT OF TURPENTINE: 20s. 9d. per cwt. PETROLEUM: Russian, 5¾d. to 6d.; American, 6d. to 7½d. per gallon. PETROLEUM SPIRIT: 6¾d. per gallon. SAL AMMONIAC: 1st quality, 39s.; 2nd, 37s. per cwt. BLEACHING POWDER: *Liverpool, f.o.b.*, £7 per ton. COPPERAS: *Lancashire*, 37s. POTASSIUM SALTS: *Potashes*, 21s. 9d. *Pearlashes*, 37s. 6d.; *Cream of Tartar*, 98s. 6d. to 99s. for finest white; *Prussiate*, yellow, 8d. to 8¼d.; *Chlorate*, 4½d. SODIUM SALTS: *Soda crystals*, £2 10s.; *Bicarbonate*, £7; *Borax*, lump, 20s.; powder, 21s.; *Caustic soda*, 70 per cent., £7 15s. to £8; 60 per cent., £6 15s. to £7; *Nitrate*, 7s. 7½d. to 8s.; SULPHATE OF COPPER, £16 10s. to £17 per ton.

EXCHANGE.

[*Notices are inserted free in this column, if they do not partake of the nature of ordinary advertisements. They should be addressed "Editorial Department, 17, Bloomsbury Square, W.C," and arrive not later than Wednesday.*]

OFFERED.

Post Free: Beale's 'How to Work with the Microscope,' 5s. only; Liebig's 'Animal and Organic Chemistry,' by Dr. Lyon Playfair, 2 vols., pub. 19s., 5s.; Newman's 'British Ferns,' pub. 10s., 4s.; Watts' 'Scientific Industries Explained,' new, cost 2s. 6d., 1s. 3d.; Markham's 'Cinchona in India,' new, pub. 14s., 2s. 6d.; Brown's (T., M.P.S.) 'Modern Veterinary Science,' coloured plates, new, pub. 14s., 6s. 6d.—Davis, "Chestnuts," Gordon Hill, Enfield.

A 5 by 4 Clifford Hand Camera, fitted with Zeiss Lens, No. 3, Series III., and all latest improvements, cost £15; will take £11 11s.—J. Cammack, 153, Dawes Road, Fulham.

Maw's Pill Machine, 24-5 gr. mortar, scales, French, 2 lbs., and dispensing; number of B.P. and other preparations.—Nicholas, 8, Bush Lane, London.

Wills' 'Elements of Pharmacy,' 7th ed., 3s. 6d.; Wills' 'Handbook of Analysis,' 9th ed., 1s. 3d.; Pereira's 'Selecta e Prescriptis,' 18th ed., 3s.; Carpenter's 'Physiology,' 2nd ed., 3s. 6d.; Pereira's 'Materia Medica,' 3 vols., 10s.; Barton's 'Practice of Medicine,' 2s. 6d.; Druitt's 'Vade Mecum,' 8th ed., 2s. 6d.; Chelius's 'System of Surgery,' 2 vols., 5s.; Parkes' 'Practical Hygiene,' 4th ed., 3s. 6d.; Tanner's 'Practice of Medicine,' 5th ed., 5s.; or offers All in good condition, and carriage paid from—A. P. S., 549, Green Lanes, N.

High-Class Magic Lantern (limelight), mahogany body, brass front, tripod stand, gas bag, etc., very cheap; no reasonable offer refused.—Maitland, 31, Chapel Street, Stonehouse, Plymouth.

Complete Minor Lectures, cost 30s., 15s. 6d.; Stirling's 'Materia Medica,' 9d.; Doses, 3d.; B.P. Strengths, 6d.; Volumetric Analysis, 1s.; Analytical Tables, 9d.; Tinctures B.P., 6d.; B.P. Equations, 6d.; Thorpe's 'Metals,' 2s.; Frankland's 'Organic Chemistry,' 2s. 6d.; Bentley, 5th, 7s. 6d.; also B.P., 1885, with additions and copious minor notes interleaved, 8s. 6d., post free.—F. H. Slynn, 20, Tettenhall Road, Wolverhampton.

WANTED.

A 2-inch Thornton-Pickard time and instantaneous shutter. Please state lowest price to—H., 117, Warwick Street, Leamington.

Churchill's 'Spirone.' Price to Moon, 8, Strand, Torquay.

Maisch's 'Materia Medica'; Newth's 'Inorganic Chemistry'; Porkins' and Kipping's 'Organic Chemistry'; Vines' 'Botany'; Deschanel's 'Physics'; Strasburger's 'Botany'; must be latest editions. Will exchange 'Taylor on Poisons'; Brown's 'Manual of Assaying' (12s. 6d.); Wanklyn's 'Water Analysis'; Thome's 'Botany'; Edmunds' 'Botany'; or state lowest price.—Chemicus, 49, Harcourt Road, Sheffield.

Attfield's 'Chemistry.' Would pay good price.—Ralph Wright, Prudhoe Station, Newcastle-on-Tyne.

*** *In consequence of the increasing demands upon our space, we are compelled to revert to the original arrangement and limit the free notices in this column to thirty (30) words. Special arrangements are under consideration with regard to longer notices.*

LATE NEWS.

PRESENTATION AT SHEFFIELD.—Mr. Geo. Squire, Honorary Secretary of the Sheffield Pharmaceutical and Chemical Society, was, on Wednesday evening, November 6, the recipient of a handsome salad-bowl and servers from the members of the Council of the Society, on the occasion of his recent marriage, as a token of esteem and recognition of his services.

DIARY OF THE WEEK.

Secretaries of Societies are requested to send notices of forthcoming meetings not later than Wednesday in the previous week.

SATURDAY, NOVEMBER 9.

Pharmaceutical Football Club v. Cowley Athletic at New Barnet.

SUNDAY, NOVEMBER 10.

Liverpool Sunday Society, at 3 p.m.
"Music, Song, and Story," by G. H. Snazelle.

MONDAY, NOVEMBER 11.

Imperial Institute, at 8.30 p.m.
"The Niger River and Territories" (Illustrated), by J. Hampden Jackson.

Royal Geographical Society, at 8.30 p.m.
"Presidential Address," by Clements R. Markham.
"The Progress of the Jackson-Harmsworth Arctic Expedition," by Arthur Montefiore.

TUESDAY, NOVEMBER 12.

Royal Photographic Society.
"Colour Correct Photography and a New Plate," by James Cadett.
"Note on the Sensitiveness of Picrated Gelatin to Light," by W. K. Burton.

Royal Colonial Institute, at 8 p.m.
Ordinary Meeting.

WEDNESDAY, NOVEMBER 13.

Pharmaceutical Society of Great Britain.
Library, Museum, School and House Committee.
Evening Meeting in London, at 8 p.m.

Manchester Pharmaceutical Association, at 7.30 p.m.
Discussion on "Pharmaceutical Education," introduced by William Kirkby.
A Smoking Concert will follow the discussion.

THURSDAY, NOVEMBER 14.

Chemists' Assistants' Association, at 8 p.m.
Annual Conversazione at the Portman Rooms, Baker Street, W.

Liverpool Pharmaceutical Students' Society, at 8.30 p.m.
"Fermentation" (Illustrated), by John Welsb.

Glasgow and West of Scotland Pharmaceutical Association, at 8.30 p.m.
"At Home" at the Cockburn Hotel, Glasgow.

FRIDAY, NOVEMBER 15.

Cambridge Pharmaceutical Association, at 9 p.m.
"Qualitative Chemical Analysis Viewed in the Light of Recent Research," by M. M. Pattison Muir.

Aberdeen Junior Chemists' Association, at 9.30 p.m.
"The Balance," by R. Glegg.

Edinburgh Chemists', Assistants', and Apprentices' Association, at 9 15 p.m.
"Inaugural Address," by J. Mackintosh Cameron.
Presentation of Prizes.

SATURDAY, NOVEMBER 16.

Metropolitan College of Pharmacy, at 6.30 p.m.
Annual Dinner at the Holborn Restaurant.

NEW BOOKS AND NEW EDITIONS.

QUAIN'S ELEMENTS OF ANATOMY. Edited by E. A. SCHÄFER and G. D. THANE. In 3 vols. Vol. 3, Part 2: The Nerves. By Professor THANE. Illustrated by 102 engravings. 10th edit., roy. 8vo, pp. 180. Price 9*s.* (Longmans, Green and Co., London.)

INTRODUCTION TO THE STUDY OF CHEMICAL PHILOSOPHY: The Principles of Theoretical and Systematic Chemistry. By W. A. TILDEN. New edit., 12mo, pp. 368. Price 4*s.* 6*d.* (Longmans, Green and Co., London.)

MEDICAL ELECTRICITY: A Practical Handbook for Students and Practitioners. By H. L. JONES. Being the 2nd edit. of 'Medical Electricity,' by W. F. STEAVENSON and H. L. JONES. With illustrations. Cr. 8vo, pp. 488. Price 10*s.* 6*d.* (H. K. Lewis, London.)

SOLUTION AND ELECTROLYSIS. By W. C. D. WHETHAM. Cr. 8vo, pp. 304. Price 7*s.* 6*d.* (Cambridge Natural Science Manuals, Physical Series.) (Cambridge Univ. Press, Cambridge.)

SUPPLEMENT
TO THE
PHARMACEUTICAL JOURNAL.

LATE NEWS.

CORPORATION BACTERIOLOGICAL DEPARTMENT FOR GLASGOW.—At a meeting held on Wednesday, the Health Committee of the Glasgow Town Council decided to establish in the city a Bacteriological Department in connection with the grand new sanitary buildings being erected in the town. It is understood that a bacteriologist is to be engaged, and the department fitted up with all the most modern improvements. Glasgow claims to be the most advanced municipality in Great Britain, andthis is certainly a very forward step on the part of the civic authorities.

DR. JOSEPH TILLIE, lecturer on experimental pharmacology in the University of Edinburgh, is about to leave for South Africa, where his residence may be temporary or permanent according to the state of his health, on account of which he is going out. He has been a frequent attender at the Society's evening meetings in Edinburgh, and local pharmacists will regret to hear that he is invalided.

ROYAL INSTITUTION.—The Christmas course of lectures, adapted to a juvenile auditory, at the Royal Institution, will be delivered this year by Professor John Gray McKendrick, M.D., LL.D., F.R.S., Professor of Physiology in the University of Glasgow, and formerly Fullerian Professor of Physiology in the Royal Institution. The subject will be "Sound, Hearing, and Speech," and the lectures will be experimentally illustrated. The first lecture will be delivered on Saturday, December 28, at three o'clock, and the remaining lectures on December 31, 1895, and on January 2, 4, 7, and 9, 1896.

MR. H. BARTLETT, Local Secretary for Banbury, was on November 9 elected an alderman of that ancient borough.

NORTH-EAST LANCASHIRE CHEMISTS' ASSOCIATION.—A dinner and concert in connection with the above Asscciation was held at the White Bull Hotel, Blackburn, on Thursday evening the 7th inst. There was a good muster of members, who thoroughly enjoyed themselves. Various toasts were given, and a capital musical programme gone through. Mr. T. Critchley, the President of the Association, presided.

CHEMISTS' ASSISTANTS' ASSOCIATION.—The Committee of this Association has decided to hold a series of three Cinderella dances at the Dorset Hall of the Portman Rooms, Baker Street, W., at 8 p.m., on Thursday, December 19, 1895, Tuesday, January 28, 1896, and Thursday, April 23, 1896. Early application for tickets is very necessary, as many are already applied for, and the number will be strictly limited. Mr. H. H. Robins, 59, Capel Road, Forest Gate, E., is acting as Honorary Secretary.

A TRADE MARK CASE.—On Thursday the 14th inst. Mr. Vernon Smith, Q.C., moved, before Mr. Justice Chitty, in the Chancery Division, in the action of Rowland *v.* Michell, for an injunction till judgment, or further order, restraining the defendant from colourably imitating the plaintiff's registered trade mark, and also for passing off his goods as, and for, the goods of the plaintiff. The plaintiff's goods were called Rowland's Army and Navy paregoric tablets, and they were done up in pink packets, on the labels of which were the words: "J. Rowland, New Conqueror, Registered Trade Mark, Army and Navy Paregoric Tablets," and a likeness of Mr. Rowland, which latter had been registered as a trade mark by the plaintiff in April, 1891. The defendant's packets, besides having the words "Army and Navy Paregoric Tablets," had on them the likeness of a Mr. Hoskins, who at one time manufactured for Mr. Rowland.—The plaintiff complained that Mr. Hoskins' likeness closely resembled his own. There was evidence that retail dealers who dealt largely in these tablets had bought the defendant's under the idea that they were buying the plaintiff's article. The letterpress on both packets was identical, besides which on the defendant's packets the words "J. Rowland" appeared in a prominent position.

Mr. Swinfen Eady, Q C., said he had been instructed to appear for the defendant, but he had not had an opportunity of considering the evidence filed by the plaintiff in reply. Under these circumstances he asked that the motion might stand over. Mr. Vernon Smith said before he could consent to that the defendant must give an undertaking not to continue doing what was complained of. Mr. Swinfen Eady offered to keep an account. After some discussion it was ultimately arranged that—the defendant undertaking to keep an account and supply copies of his further affidavits, if any, by the following Monday—the motion should stand over till Thursday, the 21st inst.

TRADE NOTES AND NEWS.

F. SARTORIUS, GÖTTINGEN, sends particulars of the Formaldehyde Lamp manufactured by him in accordance with the design of Professor Tollens, Director of the agricultural chemistry laboratories at Göttingen. The formaldehyde results from the imperfect combustion of methyl alcohol, a platinum cone over the wick being heated to redness, and maintained in that condition as long as the supply of inflammable liquid continues. The price of the lamp, complete, is six marks (6*s*.).

MESSRS. BURROUGHS WELLCOME AND CO. forward a specimen of the new size and style in which they are issuing menthol snuff. This preparation is composed of menthol, cocaine (½th per cent.), ammonium chloride, camphor, lycopodium, etc., and is generally ordered in prescriptions as "Insufflatio Mentholatis Comp. (B. W. and Co.)."

THE CHEMISTS' AERATED AND MINERAL WATERS ASSOCIATION, LIMITED.—A general meeting of the shareholders of this Association will be held at Anderton's Hotel, 162, Fleet Street, London, E.C., on Thursday next, November 21st, at three o'clock precisely, for the purpose of passing the balance sheet and other business 313. Members have joined during the past year, making the total number 3279, showing thereby that chemists still continue to appreciate the great advantages derived by belonging to Camwal. Of the new capital offered to shareholders at par, 14,485 shares were applied for and allotted. A certain number will, at the direction of the directors, be allotted to Camwal employés at par, and some will be reserved for possible future allotment, as it is deemed advisable to allow the employés a chance of participation in the profits. The Directors are prepared to allot a single share to any chemist not yet a member at the price of 25*s*. Should any shareholders who support Camwal by dealing in their goods wish to purchase some shares at 30*s*. each, the directors are prepared to consider their applications. Considering the satisfactory business done at "Raven Spring," Mitcham, and the excellence of the spring water, it has been thought advisable to purchase the spring, factory, and houses attached thereto. In case, owing to increased business, further premises should be required at the factory in London, No. 155, Bemerton Street, with yard backing on to Gifford Street has also been purchased. It is proposed to pay the dividend on December 2, and to give the employés a liberal bonus. The directors recommend the payment of a dividend of 10 per cent., and a bonus of 7½ per cent., free of income tax. This absorbs £3462, and the balance carried forward amounts to £792 7*s*. 1*d*., making in all a total of £4254 7*s*. 1*d*.

A NEW BRAND OF QUININE.—Considerable interest has been caused in Mincing Lane circles during the week by the appearance of a new brand of English quinine on the market, under the name of the "Imperial" brand. It is manufactured by the Imperial Quinine Company, at the Crown Factory, Stamford Hill, where the works are new, and all the machinery is of the latest improved type; the City offices of the company being at 70, Finsbury Pavement. It is said that it has no connection whatever with any previous English quinine factory. The first consignment of the quinine, consisting of 6000 ozs., was offered at the drug sales on Thursday, and reference to it will be found in the Market Report. Dr. Paul's analysis, which was appended, certified that it answers the tests of the British Pharmacopœia, and is of good commercial quality.

"FIAT MISTURA."—Under this title, Mr. A. J. Freeland, chemist and druggist, of Kibworth, Leicestershire, has published an amusing comic ditty which may prove an attraction at social meetings of pharmacists. The chorus runs:—

> Fiat mistura, mane et nocte,
> Succus et linimentum,
> Aqua Sambuci, partes equales,
> Pilula hydrargyrum.

Copies of the song may be obtained direct from the author, at a nett price of 2s., post free.

MARKET REPORT.

[*Specially compiled for the Pharmaceutical Journal.*]

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

*** **In consequence of the late hour at which the drug sales closed on Thursday, and the comparatively early time that our pages have to be closed for press, we are unavoidably prevented giving as full particulars of the business done as is desirable.**

LONDON, NOVEMBER 14, 1895.

There is little of interest to report in the chemical market this week, and changes have been all on the down line, citric and tartaric acids and cream of tartar being easier. In the drug market, the following articles must be quoted dearer:—Saffron, croton seed Peruvian balsam cardamom seeds and tolu balsam. At the drug sales to-day Cape aloes sold at steady rates, whilst a fair inquiry was shown for some varieties of acacia. Buchu leaves are tending lower, whilst a good demand was shown for the large catalogue of gamboge offered. Ipecacuanha sold at rather easier rates for Rio root, but full prices were paid for Carthagena. Copaiba balsam is again dearer for Maranham. In the essential oil market there is little of interest to note, except that good grades of cassia oil are getting exceedingly scarce. Full details will be found below:—

ACACIA.—In to-day's auctions an average supply of 155 cases was offered. Of *Trieste* gum a case of good medium pale gum sold at £7, whilst for pale picked grain £6 is now asked. A parcel of 25 bales of medium yellow sorts from *Suez* part sold at 65s. per cwt., whilst for 4 barrels of bold mixed sorts from Aden 45s. per cwt. was accepted.

ACID, CITRIC.—Tending lower. Although the manufacturers' price remains unchanged, second-hand holders' prices are considerably easier, and 1s. 2¼d. to 1s. 2⅜d. would probably buy on the spot. *Lawes'* spot price remains 1s. 3d. per lb. *Concentrated juice*: £13 5s. to £13 10s. per pipe, *f.o.b.*

ACID, TARTARIC.—The market is flat, and prices are tending lower, although *English* manufacturers' prices still remain 1s. 2d. per lb. on the spot. For *foreign* brands of acid, both in *powder* and *crystals*, 1s. 1½d. per lb. would buy on the spot.

ALOES.—An average supply of 334 packages was offered in auction. Of *Cape* aloes 49 cases were shown and sold at steady rates, 23s. being paid for good bright hard, 21s. to 21s. 6d. for medium part drossy, 19s. to 20s. for rather soft and drossy, down to 15s. 6d. for very ordinary drossy mixed. *East Indian* aloes was represented by 26 packages, of which 8 kegs of good bright hard *Socotrine* in kegs realised 90s., and ordinary drossy, 23s. to 25s., whilst 50s. to 52s. was paid for medium, and 30s. for ordinary grades in skins. *Curacoa* aloes in gourds was all bought in, with the exception of 10 gourds of low drossy, which sold at 5s. per cwt. *Curacoa* in boxes sold 45s. to 47s. for fair livery brown, 21s. for dark capey, and 14s. 6d. to 16s. 6d. for ordinary capey.

AMMONIACUM.—A total of 32 cases were offered in auction, but no sales were effected. Medium almondy block was bought in at 30s. to 40s., and nice pale clean loose almonds at 55s. per cwt.

AMMONIA SULPHATE.—Quotations are again lower by 2s. 6d., but the market is now rather firmer. Grey 24 per cent. quotes at £8 15s. on the spot, with *Hull* at £8 15s. and *Beckton* £9.

ANNATTO SEEDS.—Only 5 bags of ordinary small dull *Ceylon* seed were shown. They realised 1¼d. per lb.

ANTIMONY. In auction 10 cases of crude *Japan* antimony sold at £17 per ton.

BENZOIN.—Of *Sumatra* gum, £8 2s. 6d. to £8 5s. was paid for good bright almondy seconds; rather false packed medium seconds was bought in at £7 10s., and ordinary seconds false packed sides, at £6 10s. *Siam* gum met with a fair demand, £10 being paid for small to medium bright brown almonds in block, and 60s. to 63s. for ordinary dark siftings in block. *Palembang* gum was all bought in at 50s. for ordinary seconds, and 30s. for thirds. No *Penang* gum was shown.

BUCHU.—Lower. In auction the unusually good supply of 63 bales were offered, and of these 20 bales of fine bright *round* green leaves sold at 6d., showing a decline of fully ½d. per lb. in the prices paid privately, and medium round, rather yellow, at 4d. Other grades were bought in at 4½d. for greenish *round* and 6d. for rather dull *long*.

CALUMBA ROOT.—An unusually large amount was shown to-day, consisting of 385 bags. Of these 147 bags of fair medium mixed brownish root sold cheaply at 12s. 6d. to 14s. 6d., whilst 7 bags, not nearly so good, realised 11s. 6d. per cwt.

CANNABIS INDICA.—Quite unsaleable in auction. To-day dusty brown tops were bought in at 3d. per lb., the limit being 2¾d.

CARDAMOMS.—The very moderate supply of 52 cases was offered to-day, and did not include any very fine qualities. The prices paid were as follows:—Bold yellowish plump, 2s. 4d.; medium yellowish, 2s. 2d.; medium pale, 2s.; small yellowish, 1s. 6d. *Seed* sold at an advance of 1d. per lb., 2s. 1d. to 2s. 2d. being paid.

CASCARA SAGRADA.—A parcel of 128 bags of fair sound mixed quill from San Francisco was catalogued. Part of this had been disposed of previously. The remainder was bought in at 18s. per cwt.

CASCARILLA.—None was sold in auction, although a supply of 60 packages was offered. Small to medium mixed bark part silvery was bought in at 35s. to 42s. 6d. per cwt. and siftings at 30s.

CINCHONA.—At the monthly sales held on Tuesday 1499 packages were offered against 1034 at the previous sale. A good demand was shown, and two-thirds of the catalogue were disposed of at fully last London rates but at 5 per cent. above the prices paid at another sale last week; the average unit remains unaltered at a full ⅛d per lb. The following were the prices paid:—*Ceylon*, Natural Ledger fair stem chips, 2¾d., fair to good. Officinalis stem chips and shavings 1½d. to 1⅞d.; and renewed do. 1¾d. to 2¼d. per lb. *Indian.* Red renewed chips and shavings 1½d. to 1⅝d., broken quill 1⅝d.; Officinalis chips 1⅜d. to 2⅛d.; do. renewed 3⅛d. to 4d.; good quill 2d. to 4¼d. Ledger stem chips 2d. per lb. *Java.* Ledger chips 3d. to 3¼d., brand 2½d., and root 3½d. to 3¾d. *African.* Good quill 2¼d. to 2⅜d., broken do. 1½d. to 1⅞d. per lb. At to day's drug sales 62 bales of bold flat *Calisaya* bark sold at prices ranging from 1s. 6d. to 2s. per lb., whilst 11 cases of *Succirubra* bark in broken quill realised 1s. 7½d. to 1s. 10½d. per lb.

CLOVES.—Fairly steady. In auction medium *Zanzibar* sold at 2d., good bright 2¼d. to 2⅜d., and fine palish 3d. per lb. Fair picked *Penang* sold without reserve at 7d. per lb.

COLOCYNTH.—A total of 35 cases was shown to-day, when good *Turkey* apple realised 2s. 3d. per lb., a steady rate. A parcel of 10 packages of very seedy *Almerian* colocynth was held for 1s. 2d. per lb.

COPAIBA.—*Maranham* was represented by 2 casks of good bright balsam, which are held for 1s. 10d. per lb., whilst 7 cases of rather thin light *Para* balsam were bought in at 1s. 6d.

CREAM OF TARTAR.—This article has again declined considerably since our last report, and the market is very flat. The spot price for best white *French* crystals is now 96s. to 97s. per cwt., whilst for shipment from Bordeaux the quotation is nominally 90s., *f.o.b.* *German* brands of powder quote at 99s. to 100s. per cwt. These prices show a decline of about 3s. per cwt.

CROTON SEED.—Dearer. A parcel of 15 bags of fine quality seed from Colombo sold to-day at 50s. per cwt., showing an advance of 2s. on the last sale rate.

ERGOT.—In auction 18 bags of wormy *Russian* ergot sold at 6d. per lb, whilst 9d. was the limit for 10 bags of medium *Spanish*.

GALANGAL.—In auction 30 bales good bold root from Hong Kong were bought in at 35s. per cwt., whilst 2 bales, damaged by oil, sold without reserve at 5s. per cwt.

GAMBOGE.—In good demand and freely offered. A parcel of 17 cases good picked *Singapore* pipe, clean fracture, sold at £10 7s. 6d., whilst pickings realised £10. Another lot of 6 cases of mixed pipe and block, fair fracture, sold at £9 5s. to £9 10s. per cwt.

GINGER.—Good *Jamaica* meets with a good demand, but is very scarce. At the sales ordinary medium scraped sold at 84s. to 86s. per cwt. *Cochin* is still dull of sale and tending lower, fair medium and small washed rough fetching 34s. to 34s. 6d.; rough small and ends, 32s.; and ordinary cuttings, 28s. per cwt.

GUAIACUM.—A good supply was again offered to-day, when 2s. 3d. was paid for medium bright glassy block, 1s. 8d. for fair ditto, 1s. 5d. for rather woody mixed gum, 10d. to 11d. for ordinary dull, down to 3d. to 6d. for drossy pickings.

GUINEA GRAINS.—A parcel of 30 bags of good quality seed sold without reserve at 19s. per cwt.

IPECACUANHA.—77 packages were offered to-day. *Rio* (Brazilian) root sold at 5s. 9d. for fine picked; 5s. 2d., for medium round;

5s., for fair, part wiry, and 4s. 10d. for fair damaged. *Carthagena* (Columbian) root sold at the steady rate of 4s. 4d. per lb.

LEMONPEEL.—A single bag of fair quality peel sold in auction at 1s. 1d. per lb.

LIME JUICE—Steady. In auction a parcel of 50 puns of *West Indian* part sold at 11d. per gallon.

MASTIC.—Fairly plentiful in auction, and without inquiry. To-day 17 barrels of nice bright drop were bought in at 1s. 10d. per lb.

MENTHOL—Steady, without much inquiry. The spot price for good dry *crystals* is still 14s. 6d. per lb. In auction to-day 5 cases *Kobayashi* brand were bought in at 14s. 6d. to 14s. 9d. per lb. For shipment the quotation is 14s. per lb. *c.i.f.*

MYRRH.—In auction 4 cases of small native picked gum sold at 70s. per cwt.

OIL (COD LIVER)—Steady, with sales of fine non-congealing *Lofoten* oil at 170s. per barrel. In auction 10 barrels of *Norwegian* oil in tins sold at 140s. per barrel, and 4 casks of *Newfoundland* oil at 4s. per gallon

OILS (ESSENTIAL). — The market in *Chinese* oil is firm, but without much business at present. *Star Anise* oil is quiet but steady at 9s. to 9s. 3d. per lb., and the first figure would no doubt buy. For delivery, 8s. 5½d. per lb., *c.i.f*, was the last price we heard. At to day's drug sales, 6 cases were bought in at 9s. 3d. per lb. *Cassia* oil is very scarce on the spot and firmly held, there being little 70 to 75 or 75 to 80 per cent. oil offering, whilst all the 80 to 85 per cent. oil seems to be in the hands of one holder, who asks 10s. per lb. The prospects from China are bad, as no oil of good quality is offering. For delivery 7s. 6d. per lb. *c.i.f.* is asked for oil testing 55 per cent. of cinnamic aldehyde. American *peppermint* oil remains steady for *H. G. Hotchkiss'* brand at 10s. to 10s. 3d. per lb. *Japan* oil testing 40 per cent. of menthol is easier, 8s. 6d. per lb. having been accepted during the week. The shipment price is unchanged at 9s. per lb., *c.i.f.* *Dementholised* oil is firm, 7s. being still asked on the spot, whilst the same figure is quoted for delivery. The *Italian* oil market is firmer. Fine new *Bergamot* oil quotes at 10s. 10d. to 12s., *Sweet Orange* 5s. 8d. to 6s. 8d., and *Lemon* 5s. to 5s. 3d., all *f.o.b.*, Messina.

OILS (FIXED) AND SPIRITS.—*Castor*: The *Italian* oil market is very firm, owing to the increased cost of the raw material, but quotations are unchanged at 30s. to 31s. per cwt., according to quality. *Marseilles* oil is also inclined to higher prices. At to-day's drug sales about 100 cases of *Calcutta* oil were bought in, the limit being 2½d. per lb. *Cotton*: Unchanged. *Refined* oil still quotes at £17 to £17 10s., according to make and package. *Coco-nut: Ceylon* is very firm at the unchanged rate of £22 15s., whilst *Cochin* is 5s. dearer at £22 to £25 5s. *Linseed*: The market is very dull and weak, and this week's price shows a decline of 10s. to 12s. 6d., oil in barrels being now procurable at £20 5s. to £20 7s. 6d. *Olive*: *Syrian* £33; *Spanish* £37. *Rape*: Rather quiet but the market is firm. *Refined* oil quotes at £24 to £24 5s. *Turpentine*: Barely steady. *American* spirit quotes at 20s. to 20s 1½d. *Petroleum* dearer. *American* oil quotes at 6d. to 6¾d., with *water white* at 7d. to 7¼d., and *Russian* at 5¾d. to 5⅞d. per gallon.

ORRIS ROOT.—*East Indian* orris is held for 35s. per cwt. A single bale of fine *Florentine* root sold at 79s., and 2 bags (in small pieces) at 61s. per cwt.

PERU (BALSAM)—Dearer, and firmly held. There is little to he had under 10s. per lb. now at present.

QUINCE SEED.—Firmly held. To-day 2 bags of good *Cape* seed were held for 1s. 3d. per lb.

QUININE SULPHATE.—The market is quiet but firm, and the best German makes quote at 1s. 1⅛d, to 1s. 1¼d. nominally. At to-days drug sales, 6000 ounces of the new English make the "Imperial" brand were offered and 2000 ounces sold in auction at 1s. 0¾d. and 1s. 1d., whilst afterwards an additional 1000 ounces also sold at 1s. 0¾d. per ounce.

RHUBARB.—A moderate supply only was offered to-day, and out of 131 packages, about 45 changed hands. The following prices were paid. *Shensi*: Medium to bold good pinky fracture 1s. 4½d., medium, part wormy, 8½d. to 9½d., medium to bold pait wormy, part fair fracture 11d. per lb. *Canton*: Bold flat 9d., rough wormy mixed 5d. to 5¼d. per lb. *High dried*: Dull flat part pinky, part wormy, 6¼d. to 6½d., very wormy 5d., small to medium slightly wormy 8¼d. to 9d. per lb.

SAFFRON.—Dearer. The quotations for the new crop of *Valencia* saffron have been advanced 1s. per lb., and fine quality now quotes at 22s. and ordinary at 20s. per lb.

SARSAPARILLA. — In auction damaged *Jamaica* sold at 1s. 2d. to 1s. 4d. per lb., and *Lima* at 11½d. to 1s.

SHELLAC.—Steady. At Tuesday's sales a moderate supply met with a fair demand at full rates for *TN Orange*, but *Garnet* and *Button* were neglected. Prices:—Fine *Second Orange*, Circle AA, without reserve, 120s.; *TN Orange*, fair cakey and blocky, 115s.; *Garnet*, AC cakey curly, 106s.; *Button*, blocky A1, 110s.; ordinary thirds, 98s. per cwt. Privately, *TN Orange* has sold at 118s. on the spot. The arrival market is rather easier.

SILVER NITRATE.—The makers have lowered their quotations ¼d. per ounce and now quote at 1s. 8½d. per oz.

TOLU (BALSAM)—Dearer. Genuine "old-fashioned" balsam has sold during the week at 2s. 8d. per lb., and 2s. 9d. is now asked. There have also been sales of 'glassy' tolu at prices ranging up to 2s. 2d. per lb. To-day 2 cases were bought in at 3s. From New York it quotes at 2s. 2d. to 2s. 4d. *c.i.f.*

TURMERIC.—Tending lower. At the spice sales on Tuesday, 500 bags of *Bengal* sold without reserve at 7s. to 7s. 3d. for fair quality. The *Madras* was bought in, 8s. 6d. for rough finger, 8s. for wormy ditto., and 6s. rough bulbs. Fair bright *Cochin* was bought in at 7s. per cwt.

WAX (BEES').—At the drug sales *Jamaica* sold at £7 15s., *Australian* at £7, *Madagascar* at £6 15s., *South African* at £7, and *Madras* at £6 5.

WAX (JAPAN.)—Firmer. To-day 60 cases of pale *Japan* squares were bought in, the limit being 28s. per cwt. For shipment the quotation is now 29s. 6d. per cwt. *c.i.f.* terms.

PATENT SPECIFICATIONS PUBLISHED.

Clinical thermometer (Lake, H. H., communicated from Pinchetti, E.).—The thermometer proper is not graduated, but is placed after use within a graduated tube, by which the temperature is indicated. An outer metal case having slits for reading the temperature is provided, and a similarly slit tube around the same is capable of being turned to entirely cover the glass parts when not in use. No. 16,270 of 1894.

Preparation of infusions (Eisenmenger, W.)—Comprises an apparatus consisting of a tall cylindrical vessel having a conical base, terminating in a tap. Coffee, tea, or other material to be treated is placed upon a removable conical strainer lying in the base of the apparatus a little above a cone of filter cloth. Hot water having been placed in the vessel, the tap is opened after infusion is complete, so that the pressure of the water forces the infusion through the strainer and filter, the issuing liquid being at first strong and then gradually weaker. No. 18,142 of 1894.

Wool-Fat, etc. (Maertens, E.).—In a lengthy specification, the inventor describes the properties and method of separation of five constituents of wool-fat. The treatment consists either of digestion with acetone followed by alcohol, or with alcohol followed by acetone, the treatment with each solvent being in all cases repeated until all soluble constituents have been removed before the next solvent is applied. The solvents are employed both hot and cold, as the different solubilities of the five constituents may thus be taken advantage of for their separation. No. 9503 of 1895.

Funnels (Ebert, J. J., and Loewenstein, M.)—Relates to funnels which stop the supply so soon as the receiving vessel is sufficiently full. The funnel is fitted air-tight in the bottle or other vessel, and the vent opening is provided by a tube passing axially through the funnel, or fitted to the side of the same. When the liquid rises sufficiently to close the lower opening of this vent tube its passage is stopped. On then raising the funnel to remove it, the upper part of the same slides upward upon the stem and closes a valve at the stop of the stem, so that the liquid remaining in the funnel is retained there until the funnel is inserted in another vessel and the valve is thereby re-opened. No. 12,327 of 1895.

Medicine for nervous disorders (Bishop, W. B. and A.).—For neuralgia, neurasthenia, muscular rheumatism, headache, etc., the inventor employs a preparation composed of stated proportions mixed under stated conditions, of bicarbonate of soda, citric acid, tartaric acid, sugar, caffeine and phenocoll hydrochloride. No. 12,085 of 1895.

Stopping teeth (Trey, E. de).—Relates to the ramming instruments employed in stopping teeth with gold, and comprises improvements in the handles and the parts which bear upon the stopping, whereby the pressure is more equally and readily applied. No. 12,308 of 1895.

NEWCASTLE CHEMICAL REPORT.

[*From our own Correspondent.*]

NOVEMBER 12, 1895.

Over-sea business continues to slow down now that the principal orders for bleaching powder and soda crystals for the Baltic and Sound ports by steamers become fewer. Home requirements are less pressing; still a fair amount of trade is passing to cause late quotations for all makes of chemicals to be fully maintained. Soda ash and alkalies continue to be pressed for, for the Midland counties. Saltcake and sulphur still scarce. Sulphate of ammonia easy but unchanged in value. Tar products steady and drugs likewise. Shipments of chemicals from the Tyne for October last and compared with the same month of last year runs thus:—

	1894. Oct. Tons.	1895. Oct. Tons.	June Tons.	Dec. Tons.
Alkali and soda ash	994	1410	416	—
Bleaching powder	2302	2113	—	189
Caustic soda.....	1802	1443	—	359
Manure	305	408	103	—
Soda crystals	812	1110	298	—
Sulphate of soda	1229	1116	—	113
Sulphur.....	814	780	—	34
Other chemicals.....	798	1047	249	—
Total chemicals, tons	9056	9427		

Current quotations are:—BLEACHING POWDER in softwood casks, £7 5s.; hardwood, £7 10s. to £7 15s. SODA CRYSTALS: 37s. 6d. in casks; 45s. in 2 cwt. bags. CAUSTIC SODA: 70 per cent., £7 5s. to £7 15s. SODA ASH: 52 per cent., £4. ALKALI: 52 per cent., £4 15s. "JARROW" BRAND: £4 17s. 6d. RECOVERED SULPHUR: £4. SALTCAKE: 22s. 6d. BORACIC ACID: *Crystals*, 30s.; *powder*, 32s. CYANIDE: 100 per cent., white, 1s. 7d. per lb. PERMANGANATE, large crystals, 67s. 6d. HYPOSULPHITE OF SODA: 7s. 9d. SULPHATE OF AMMONIA: £8 15s. NAPHTHA: 8½d. to 9d. per gallon. SOUTH DURHAM SALT: Still at 9s. 6d. per ton in bulk, 15s. to 15s. 6d. per ton in blocks, *f.o.b.*, Tees.

LIVERPOOL MARKET REPORT.

[*From our own Correspondent.*]

NOVEMBER 13, 1895.

LINSEED: Steady. *Turkish*, 35s. 6d. to 36s. the 416 lbs., and *Cyprus*, 46s. BEESWAX: *Sierra Leone*, £6 11s. 3d. per cwt. *Gambia*, £6 17s. 6d.; *Chilian*, £7 10. KOLA NUTS: Good dried, 9d.; 17 bags at auction, 7½d. HONEY: *Peruvian*, 21s. per cwt. CALABAR BEANS: 1¼d. per lb. CASTOR OIL: *Calcutta*, good seconds, 2⅞d.; *French* 1st pressure, and *Madras*, 2⅛d. to 2 5/32d., and 2 3/32d. to 2⅞d. respectively. OLIVE OIL: *Candia*, £31 10s.; *Levant*, £30 10s. to £31. LINSEED OIL: 21s. 6d. to 22s. COTTON-SEED OIL: *Liverpool refined*, 17s. 9d. to 18s. 3d.; *American*, 17s. 9d. SPIRIT OF TURPENTINE: 20s. 6d. per cwt. PETROLEUM: *American*, 6¼d. to 7½d.; *Russian*, 6d. DEODORISED SPIRIT: 6¾d. SAL AMMONIAC: firsts, 39s.; seconds, 37s. CARBONATE OF AMMONIA: 3½d. to 3⅝d. SULPHATE OF AMMONIA: £9 2s. 6d. to £9 3d. for good grey. BLEACHING POWDER: Soft, £7; hard, £7 10s. POTASSIUM SALTS: *Saltpetre*, 23s. 6d., kegs; 23s., barrels. *Chlorate*, 4½d. *Prussiate*, 8d. to 8¼d. *Cream of Tartar*, is steady at 98s. *Bichromate*, 4¾d. SODIUM SALTS: *Nitrate*, 7s. 7½d. to 8s.; *Caustic soda*, 70 per cent., £7 10s., 60 per cent., £6 10s.; *Bicarbonate*, £6 15s.; *Carbonate*, £2 10s.; *Hyposulphite*, £7 5s. to £7 10s.; *Borax*, 20s. crystals, 21s. powder. COPPERAS: *Lancashire*, 37s. 6d. SULPHATE OF COPPER, £16 10s. to £17.

EXCHANGE.

[*Notices are inserted free in this column, if they do not exceed thirty words in length, nor partake of the nature of ordinary advertisements. They should be addressed "Editorial Department, 17, Bloomsbury Square, W.C.," and arrive not later than Wednesday.*]

OFFERED.

300 Duplicate Silver English Coins for disposal (singly or otherwise), from William the Conqueror upwards.—Arthur Graeme, Blenheim House, Cotham Brow, Bristol.

Two pear-shaped window carboys, 6 galls. each, handsome stoppers; also mahogany nest of drawers, cut in two with glass knobs.—Offers invited by J. Hill, Norton Villa, Britonferry, S. Wales.

Jago's 'Inorganic Chemistry,' and Roscoe's 'Lessons in Elementary Chemistry,' offered in exchange for Bloxam's 'Laboratory Teaching'; also Balfour Stewart's 'Physics,' for Everett's.—A. G. Watkins, 10, Ship Street, Brecon.

Fine set Weights in Mahogany box, 200 grammes to 1 milligramme with riders. Perfect condition, price 30s.—Hatfield, Chemist, Limehouse, E.

'Pharmacographia'; Sutton's 'Volumetric Analysis'; Prantl and Vines' 'Botany'; Strasburger's 'Botany,' all recent editions, splendid condition, guaranteed. Offers to D. M. Macdonald, 124, Crown Street, Aberdeen.

Whole-plate camera, fitted with 10 × 8 lens, nearly new; two slides; stand. Perfect condition.—Woodward, pharmacist, Reigate.

WANTED.

Microscope wanted on approval, must be good and in perfect order. State particulars and lowest price to—Pryce Davies, 2, Maglona Villas, Machynlleth.

Keating's 'Pocket Medical Lexicon.' Lowest price to—O'Connor, Medical Hall, Cavan.

A few dozen mounted Microscopic Objects; also a good dissecting microscope.—H. Ebbage, Park Street, Southend-on-Sea.

Eight or nine oval Perfume Bottles with Vitrified Labels, 16 or 20 oz. State lowest cash price and particulars to Daniels, 91, Whidbourne Buildings, Cromer Street, London, W.C.

Redwood's 'Supplement,' Christy's 'Materia Medica,' Schimmel's 'Reports.' Please state prices. "Chemist," 17, King Street, Coventry.

A 2½-inch Thornton-Pickard time and instantaneous shutter. Please state lowest price to—H., 117, Warwick Street, Leamington.

THE PRODUCTION OF LIQUID AIR.—A simple and ingenious method of producing liquid air has been invented by a German named Linde. It is based on the discovery of Joule and Thomson, that when compressed air is escaping through an orifice, it undergoes a slight cooling. Linde drives a current of compressed air along a tube to a throttle valve, where it is expanded and returns outside the tube, cooling the latter in the process. The air inside is cooled at the same time, and this in turn passes through the valve and reduces the temperature still further. This operation is continued until the air becomes too cold to exist in a gaseous form, passes into a liquid and is gathered in a receiver. The method is a vast improvement on existing processes. Arrangements are already being made to supply liquid air so produced in large quantities, and the market will shortly be stocked with an article of commerce that was previously only obtainable with difficulty.

DIARY OF THE WEEK.

Secretaries of Societies are requested to send notices of forthcoming meetings not later than Wednesday in the previous week.

SATURDAY, NOVEMBER 16.

Pharmaceutical Football Club v. St. Michael's at Wormwood Scrubbs.

SUNDAY, NOVEMBER 17.

Liverpool Sunday Society, at 3 p.m.
"Music, Song, and Story," by G. H. Snazelle.

MONDAY, NOVEMBER 18.

Imperial Institute, at 8.30 p.m.
"Incidents in the Chino-Japanese War" (Illustrated), by D. S. Brearley.
Midland Pharmaceutical Association.
"Undue Cutting in the Retail Trade," by E. J. Smith.

WEDNESDAY, NOVEMBER 20.

British Pharmaceutical Conference, at 4.30 p.m.
Meeting of the Executive Committee.
Royal Microscopical Society, at 8 p.m.
"Numerical Aperture Reconsidered," by Mr. J. Michael. "Foraminifera of the Gault of Folkestone," by F. Chapman.
Western Chemists' Association (of London), at 7 p.m.
Annual Dinner at the Café Royal, Regent Street, W.
Society of Arts.
Opening Address by Major-General Sir John Donnelly.

THURSDAY, NOVEMBER 21.

Linnean Society of London, at 8 p.m.
"Development of a Single Seed in the Fruit of the Coco-nut Palm (*Cocos nucifera*)," by D. Morris.
"Assimilation in Plants under Abnormal Conditions," by A. J. Ewart.
"On a New Species of *Pinites* from Wealden (England)," by A. C. Seward.
Chemical Society, at 8 p.m.
"The Evolution of Carbon Monoxide by Alkaline Pyrogallol Solution during Absorption of Oxygen," by Professor Clowes.
"The Composition of the Limiting Explosive Mixtures of various Combustible Gases with Air," by Professor Clowes.
"Barium Butyrate and the Estimation of Butyric Acid," by W. H. Willcox.
Imperial Institute, at 4.30 p.m.
"Sugar Beet: Its Cultivation and Manufacture in the United Kingdom," by J. Kersley Fowler.
Chemists' Assistants' Association, at 8.30 p.m.
Discussion: "Work and Policy of the Federation of Local Associations." Introduced by a paper from Dr. Symes, of Liverpool.
Ulster Pharmaceutical Association.
Ordinary Meeting.

NEW BOOKS AND NEW EDITIONS.

PHOTOGRAPHIC ANNUAL FOR 1895. 8vo Price, 3*s.* 6*d.*, sewed, 2*s.* 6*d.* (Iliffe and Son, London.)

THE HOME DOCTOR. A Household Guide for Use in Illness. By FLORENCE STACPOOLE. 8vo, pp 110, sewed. Price 3*d.* (A. Gardner.)

FUNCTIONAL AND ORGANIC DISEASES OF THE STOMACH. By S. MARTIN. 57 illustrations, roy. 8vo, pp. 524. Price 16*s.* (Young J. Pentland, London.)

Late Advertisement.

Assistant Wanted.

A QUALIFIED ASSISTANT, in-door, about 24 to 26 years of age, accustomed to good-class Dispensing and Retail, to work with the Principal. One who wants a permanency preferred. Apply by letter to GAMBLE & Co., 4, Edwardes Ter., Kensington Rd., London, W.

SUPPLEMENT

TO THE

PHARMACEUTICAL JOURNAL.

SPECIAL ISSUE OF THE JOURNAL.

THE PHARMACEUTICAL JOURNAL of Saturday next, the 30th inst., will have a large extra circulation, and copies will be distributed to chemists and druggists and wholesale houses throughout Great Britain, Australia, Tasmania, Japan, Ceylon, West Indies, New Zealand, China, India, South Africa, etc., etc. The names and addresses have been carefully selected from lists specially compiled for the Publishers from the most recent and authentic sources, and no endeavour will be spared in order to make the distribution as comprehensive as possible. The tot al guaranteed circulation at home and abroad will exceed 11,000 copies.

LATE NEWS.

THE METRIC SYSTEM OF WEIGHTS AND MEASURES.—A large and influential deputation of the Associated Chambers of Commerce of the United Kingdom, waited upon the Rt. Hon. A. J. Balfour, M.P., First Lord of the Treasury, on Wednesday the 20th inst., by appointment, to urge upon the Government the desirability of early legislation on the above subject, and to inform Mr. Balfour of the almost unanimous support that the Chambers of Commerce are prepared to give to the recommendations of the Select Committee of the House of Commons, which are as follows:—

(*a*) That the Metric System of Weights and Measures be at once legalised for all purposes.

(*b*) That after a lapse of two years the Metrical System be rendered compulsory by Act of Parliament.

(*c*) That the Metric System of Weights and Measures be taught in all public elementary schools as a necessary and integral part of arithmetic, and that decimals be introduced at an earlier period of the school curriculum than is the case at present.

It was strongly urged by the Select Committee that a Bill should be brought into Parliament with the above objects.

The deputation was introduced by Sir A. Rollit, M.P., who stated that sixty-seven Chambers of Commerce were in favour generally of the above recommendations, and that only one was against them. He also laid before Mr. Balfour in a very forcible speech the great inconvenience and loss that is occasioned by our present system, and gave instances where orders from abroad had been lost to this country simply and solely owing to our weights and measures not being in accordance with the metric system. Sir Henry Roscoe also laid great stress upon the benefit to all classes of the community by the adoption of the metric system, and insisted that not merely was it most convenient to the scientific man but also to every class of trade. Sir S. Montague followed on the same lines, and, in fact, all the members of the deputation who spoke were most earnest as to the importance of the matter from every point of view.

In his reply, Mr. A. J. Balfour, with whom was the Right Hon. C. T. Ritchie, M.P., stated that he was fully in accord with the opinions and wishes of the gentlemen present, and he thought that clauses (*a*) and (*c*) ought certainly to become law; but he was not sure the time suggested in clause (*b*), viz., two years, was long enough to make this great change: he, therefore, reserved his final opinion upon that. On the whole the deputation were assured of his personal conviction of the utility of the change; but he could not promise more than that careful attention should be given to the various points which had been so powerfully brought before him by the deputation.

A vote of thanks was cordially given to the Rt. Hon. gentleman for his courtesy and attention.

It will be remembered that Mr. Carteighe, President of the Pharmaceutical Society, gave evidence before the Select Committee on this subject, and pointed out how important it is that pharmacists should be able legally to use the metric system in their profession, and Sir Henry Roscoe (who was Chairman of the Select Committee), in his remarks to Mr. Balfour, stated he was glad to see it was intended in the new British Pharmacopœia to insert the Metrical System of Weights and Measures.

With respect to Mr. Balfour's objections to the term of two years not being long enough to make the system compulsory, no doubt if Parliament thinks so, the time must be extended; but many members of the deputation seemed to think it was desirable to make the transition period as short as possible, consistently with reasonable allowance of time being given, and it is to be hoped the great importance of the subject will entitle it to the early consideration of Parliament.

MR. JOHN GILLING, pharmaceutical chemist, Saffron Walden, local secretary of the Pharmaceutical Society, was on Saturday last unanimously elected mayor of that borough.

TRADE MARK CASE.—In the action of Rowland *v.* Michell, Mr. Justice Chitty was asked on Thursday last to grant an injunction restraining the defendant from infringing the plaintiff's registered trade mark for paregoric tablets. Both parties sold Army and Navy paregoric tablets, and each used a label on which was the representation of the manufacturer. Since the case was launched the defendant had taken the usual course in these cases, namely, given notice of motion to remove the plaintiff's trade mark from the Register. Under these circumstances the plaintiff merely asked for an injunction on the ground of deceit, and Mr. Vernon Smith, Q.C. (who appeared for Mr. Rowland) having handed the two packets to his Lordship for comparison, said he thought it was impossible for anyone to distinguish between the two.—Mr. Eady, Q.C., said the defendant had purchased the business from Mr. C. Hoskins, and since September, 1891, packets to the number of some hundreds of thousands had been sold. In 1892 the plaintiff's solicitor complained of what was being done, but on the defendant asserting his right, no further action was taken. The defendant maintained that he had a perfect right to use the label in question.

His Lordship said he did not see his way to grant an injunction, an interlocutory motion, having regard to the delay and the assertion of right by the defendant, and suggested that the motion should stand till the trial.

Mr. Smith thought the defendant should give an undertaking to discontinue the use of the label until the trial, but this the defendant declined to do, and his Lordship said he could not compel him to do so. After some discussion, it was arranged that the motion should stand till the trial of the action, the motion to rectify the register of trade marks to come on at the same time.

DEATH OF ALDERMAN TAYLOR.—We regret to learn that Alderman Edward Taylor, pharmaceutical chemist, Willow Bank, Rochdale, died on Monday last, the 18th inst., in his eighty-third year. The deceased, who had been a member of the Pharmaceutical Society since 1842, was one of the best known and most deservedly respected men in Rochdale. For many years he carried on business in Yorkshire Street and afterwards in Lord Street until 1893, when he disposed of the business to Messrs. J. J. Thomas and Son. Mr. Taylor occupied a prominent position in municipal affairs, and was on one occasion Mayor of Rochdale, but resigned office after a few days. He also received the freedom of the borough in 1893, an honour which had never been conferred on anyone previously. In addition to his business as a chemist, he was also part proprietor of Dearnley Colliery. The deceased was a prominent member of the Wesleyan body and a Liberal in politics.

CHEMISTS' AERATED MINERAL WATERS ASSOCIATION, LIMITED.—A general meeting of the shareholders and directors of the Association, was held at Anderton's Hotel, Fleet Street, London, E.C., on November 21.

The Chairman, Mr. Horace Davenport, in proposing that the balance-sheet, details of which were given in last week's Supplement, should be received and adopted, referred to the death of Mr. Fitch, who had been a good friend to the Association, and also to chemists. CAMWAL is still progressing, and the rainy day so long spoken of is still as far away as ever. Factories are going to be started in different parts of the country. The Chairman referred in terms of approval to the way in which the *Pharmaceutical Journal* had published notices of the Association, particularly that given in the Supplement of November 9 last. Notice had been given of the change of the £10 shares into £1 shares. The factory at Mitcham was a great success and a help to the chemists south of London. The Chairman also made reference to the proposition that chemists should buy their own syphons, and have them filled at a lower rate. He said it would be a very unworkable system. The show at the

Agricultural Hall had been very successful, 100 fresh members joining during that week.

Messrs. A. Gould and G. Goldfinch were re-elected as directors. Votes of thanks to the directors were then proposed and seconded, also to the officers of the town and country branches. A discussion arose as to the best means of benefiting the Benevolent Fund of the Pharmaceutical Society, and it was unanimously resolved that £50 be given to the directors to deal with as they think fit. This concluded the business of the meeting, but an informal discussion subsequently took place with regard to the desirability of securing premises in London for a Chemists' Club, that might serve as a convenient meeting-place for chemists and druggists.

MR. W. GRIFFITH, chemist and druggist, Dalton-in-Furness, has disposed of his business to Mr. Senior, of Doncaster.

MR. FRANK NEWBERY, chemist and druggist, maker of the "A 1 Shaving Cream" and "A 1 Marking Ink," has removed from Exeter to 85, London Road, Reading.

MARKET REPORT.

[*Specially compiled for the Pharmaceutical Journal.*]

LONDON, NOVEMBER 21, 1895.

There are not many changes in the chemical market to report, and a quiet tone characterises this branch. Citric and tartaric acids remain slow of sale at unchanged rates, whilst cream of tartar has again declined in value. Carbolic acid continues to show the improvement which has been noticeable during the last fortnight, and this extends also to several of the coal distillation products. Of fine chemicals, glycerine has again advanced considerably in price, whilst santonine and sugar of milk are very firm at full rates. Quinine is rather firmer but the other alkaloids do not attract any attention. Menthol is still on the rise whilst on the other hand refined camphor is weak, and German refiners have lowered their quotations during the week without leading to any corresponding change in English camphor. In the drug market the principal changes are a marked advance in saffron, which is several shillings dearer, and promises to go higher, whilst copaiba balsam has also sold at an advance for Maranham. In other crude drugs we have to note a firm market for tolu and Peruvian balsam and advanced prices have been paid for Turkey colocynth, Jamaica ginger, and cod liver oil. Orris root on the other hand is tending lower. Of the essential oils a sharp advanc is to be noted in star anise oil, whilst good grades of cassia oil have sold at full rates. A fair business has been done in good brands of eucalyptus oil. Full details will be found below:—

ACID, CARBOLIC.—The market is very firm and an all round advance in price has occurred. The current quotations are as follows:—*Crystals*, 34° to 35° C., 5½d.; 39° to 40° C., 6d.; and 39° to 40° C. (*detached crystals*), 7d. per lb. *Crude*, 60 per cent. now quotes at 1s. 7½d., and 75 per cent. at 2s. 1d. per gallon. *Liquefied* and *cresylic* are unchanged at 1s. and 11d. per gallon respectively.

ACID CHRYSOPHANIC.—Very firmly held at advanced prices. During the week various prices have been quoted from 18s. up to 24s. per lb. It would hardly be possible to buy under 20s. per lb., and this about represents its present value. Small sales have been made by one of the makers at 24s. per lb. This is of course due to the absence of good *Goa* powder of which there is none to be had at present.

ACID, CITRIC.—The position of this article is unchanged, and the market remains inactive. The manufacturers' spot price is still 1s. 3d. per lb., whilst second-hand holders quote at 1s. 2¼d. to 1s. 2¾d.

ACID, OXALIC.—The long-established Convention rate of 3⅝d. per lb. net, delivered free in London remains unchanged.

ACID, TARTARIC.—The market is dull without any alteration in the quotations. *Kemball's* and *Lawes'* makes are still quoted at 1s. 2d. per lb. on the spot, whilst for *foreign* brands of acid, both in *crystal* and *powder*, 1s. 1½d. is the price.

AMMONIA SALTS.—*Sulphate* is steady at unchanged rates, grey 24 per cent., quoting on the spot at £8 15s., with *Hull* at the same figure, and *Beckton* at £9. *Carbonate*: 3½d. to 3¾d. per lb. *Liquor*: 3¼d. to 3½d., less 5 per cent. *Sal ammoniac*: Firsts, 39s.; seconds, 37s.

ARSENIC—Remains very firm at £15 10s. to £16 per ton, landed terms for best white *powder*.

BORAX.—Quotations remain unchanged, the Convention price being 21s. for *powder*, and 20s. for *crystal*. Second-hand holders offer at 20s. 6d., and 19s. 6d. per cwt. respectively.

CAFFEINE.—The position is unaltered. Manufacturers' prices for quantities of 100 lbs., prompt delivery, remain 19s. to 20s. per lb.; whilst for December delivery, 18s. to 19s. per lb. is quoted according to maker.

CAMPHOR (CRUDE).—During the last week a fair business has been done for arrival. This has been chiefly confined to *Formosan* camphor, for which 175s. was paid at the end of last week for November to January steamer, followed by 177s. 6d. this week, and 180s. is now asked. *Japan* sold a few days ago at 180s. for delivery, November to January shipment, but 185s. is now asked. On the spot *Japan* is quoted at 200s. per cwt.

CAMPHOR (REFINED).—The market is in an uncertain state at present. The agent of one of the principal *German* refiners has reduced his quotations and now offers in three distinct positions, instead of two as before, at the following rates: Quantities of not less than one ton, 2s. 0½d.; ditto, ½ ton, 2s. 1d.; less than ½ ton, 2s. 1½d. per lb. Second-hand holders of *German* camphor quote at 2s. 0½d. per lb. for ½ ton lots. These prices are for *bells* and *flowers*. *English* refiners still quote at 2s. 3½d. for ½-ton lots of *bells* and *flowers*.

COAL DISTILLATION PRODUCTS.—*Benzole*: A very strong market, and prices have advanced considerably. 50 per cent. is now quoted at 1s. 8d. and 90 per cent. at 1s. 9d. per gallon. *Toluol*: Quoted at 1s. 9d. per gallon for *pure*. *Creosote*: The price is 1¼d. per gallon. *Crude Naphtha*: 30 per cent. at 120° C. quotes at 9d. per gallon. *Solvent Naphtha*: 95 per cent. at 160° C., 1s. 6d.; 90 per cent. at 160° C., 1s. 3d.; 90 per cent. at 190° C., 1s. 1½d. per gallon. *Anthracene*: 13A, 11d. per unit, and B. 9½d. per unit. *Pitch*: 37s. 6d. per ton, *f.o.b.* *Tar*: *Refined* quotes at 12s. 6d. per barrel.

CHAMOMILES.—Good *Belgian* flowers offer at 36s. per cwt. There is not much business doing at present in this article.

COCA LEAVES.—*Truxillo* leaves sell privately at 1s. per lb. for medium broken yellowish leaves. For fair quality *Bolivian* leaves 1s. 6d. per lb. is asked, but the price cannot be got.

COLOCYNTH.—*Turkey* colocynth has sold during the week at an advance of 3d. per lb., 2s. 6d. having been paid privately for good apple. This value seems likely to be maintained owing to the reported paucity of supplies to come forward.

COPAIBA—Dearer. A fair business has been done in good *Maranham* balsam during the week at 1s. 10d. per lb., showing an advance of 2d. per lb., whilst for good bright *Para* balsam of direct import, 1s. 6d. to 1s. 7d. per lb. is asked.

CREAM OF TARTAR.—Still on the down line, and apparently neglected. The nominal quotations for best white *French* crystals is still 90s. per cwt. *f.o.b.* Bordeaux, whilst on the spot *crystals* quote at 96s., and *German* brands of *powder* at 97s. to 100s. per cwt.

ERGOT.—Remains slow of sale. New *Spanish* ergot is generally quoted at 11d. per lb. *c.i.f.* terms, but there is no new *Russian* offering yet.

EUONYMIN.—The current quotation for *green* or *brown* euonymin is 25s. per lb.

GERMAN DRUGS.—The current quotations for some of the more generally used drugs are as follows: Aconite *root*, 32s. 6d.; *leaves*, 35s. Arnica *flowers*, 33s.; *root*, 50s.; *leaves* 21s.. Alkanet *root*, 31s. 6d. Angelica *root*, common to fine, 30s. to 40s. Belladonna *leaves*, 32s. 6d. to 48s.; *root*, 27s. 6d. Colchicum *seed*, 35s.; *root*, 38s. Elder flowers, ordinary to good 37s. 6d. to 45s. Henbane *leaves*, 55s.; Hellebore *root*, 23s.; Male Fern *root*, 12s. to 20s.; Stramonium *seed*. 25s.; Stavesacre *sceds*, 80s.; Taraxacum *root*, 25s. These prices are for large quantities per cwt. (*c.i.f.* London or Liverpool).

GINGER.—Good *Jamaica* ginger remains very scarce and for ordinary grades advanced prices are readily paid. In auction 30 bags of common lean *Rhatoon* sold at 74s. 6d. to 85s., whilst ordinary medium scraped realised 86s. 6d. to 87s. 6d. per cwt. *Cochin* is still dull of sale, and at the auctions all was bought in, cuttings at 28s. to 29s., fine rough at 40s., and small to bold native cut at 58s. per cwt.

GOLDEN SEAL ROOT—Is still tending higher, and 1s. 1d. to 1s. 2d. per lb. is now the current quotation on the spot. From New York it quotes at 1s. per lb., *c.i.f.*

GLYCERIN.—The market is still very strong, and prices have again advanced. On the spot there is little to be had, and quotations are mostly for January delivery. The *G.B.R.* brand now quotes at 67s. 6d. per cwt. and the general quotation is 67s. 6d. to 70s. per cwt. according to brand, but in second-hand it can be bought as low as 62s. 6d.

JALAP.—There is no great demand for this article, but it moves off privately at steady rates, 11d. being paid for sound and 9d. for damaged *Vera Cruz*.

LIQUORICE ROOT.—During the week there have been sales of ordinary rough root at 7s. to 7s. 6d. per cwt. The stocks are now very low.

MENTHOL.—Quotations are steadily advancing. During the week 14s. 10½d. has been paid on the spot for good dry *crystals*, and 15s. per lb. is now generally asked. The last shipment quotation we heard was 14s. 6d. per lb. *c.i.f.* terms.

OIL (COD LIVER).—Much firmer. During the week 170s. has been paid for fine non-freezing *Lofoten* oil, and the agent for the *Jervell* brand has now advanced the price to 200s., *f.o.b.* Bergen. *Newfoundland* oil is also closing up, and 5s. 6d. per gallon is now the general asking price, 5s. 1½d. and 5s. 3d. having been paid during the week.

OILS (ESSENTIAL).—*Star Anise* oil has been neglected throughout the week, 9s. per lb. being the general quotation, but to-day a sharp advance has taken place, and 9s. 6d. followed by 9s. 9d. has been paid on the spot, and holders now ask 10s. per lb. For delivery the price asked during the week has been 9s. 3½d. per lb., but this quotation has been affected by to-day's advance. *Cassia* oil remains scarce and firmly held on the spot. For oil testing 70 to 75 per cent. of aldehyde 9s. 3d. is reported paid during the week, showing an advance of 3d. to 6d. per lb., whilst 10s. has been paid for 85 to 86 per cent. oil. There are no quotations for arrival for good quality oil. Nominally, 7s. to 7s. 6d. per lb., *c.i.f.*, is asked for oil of 55 per cent. aldehyde strength. American *peppermint* oil is steady at 10s. to 10s. 3d. for *H. G. Hotchkiss'* brand. *Japan* oil, testing 40 per cent. of menthol, is steady, 8s. 6d. having been generally paid, and 8s. 9d. is now asked. For delivery it is considerably lower, and now quotes at 8s. 3d. per lb. *c.i.f.* *Dementholised* oil is steady, 7s. being the asking price, whilst 6s. 9d. has been paid. It is still quoted at 7s. per lb. *c.i.f.* for delivery. *Eucalyptus* oil is in steady demand at prices ranging up to 2s. 4d. per lb. for good *Globulus* oil. The *Italian* oil market is steady, new *Bergamot* oil being quoted at 11s. to 12s. 4d. per lb.; *Sweet Orange* at 5s. 6d. to 6s. 6d.; and *Lemon* at 4s. to 5s. 3d., the latter price being for an oil of guaranteed citral strength. Fisher's *Patchouli* oil quotes at 1s. 3d. per oz. on the spot. English *Clove* oil is worth 2s. 3d. per lb. for best quality, whilst *Pimento* is quoted at 6s. 6d., and *Caraway* at 6s. per lb.

OILS (FIXED) AND SPIRITS.—*Castor: Italian* oil is steady at the unchanged rate of 30s. to 31s. per cwt., for fine tasteless oil according to quantity. *Chaulmoogra.*—Quoted at 3s. per lb. on the spot. *Cotton:* Dull of sale and tending lower. Refined oil quotes at £17 to £17 10s., according to brand and package. *Coco-nut: Ceylon* is very firm at the unchanged rate of £22 15s., with *Cochin* steady at £25 to £25 5s. *Linseed:* Again a very flat market with a further decline of 2s. 6d. to 5s., oil in barrels being now quoted at £20 2s. 6d. *Olive: Syrian*, £33; *Spanish*, £37. *Rape:* Steady, still quoted at £24 to £24 5s. *Turpentine:* Quiet but steady. *American* spirit being still quoted at 20s. 1½d. *Petroleum:* Again dearer. *American* oil quotes at 6¾d. to 6⅞d; *water white* at 7⅞d. to 8⅛d.; and *Russian* at 6½d. to 6⅝d. on the spot.

OPIUM ALKALOIDS—Quiet. *Morphine* is unchanged at 4s. per oz. for 1000-oz. lots of *powder*, with *crystals*, 2d. per oz. more. *Codeine*: A moderate inquiry only; quoted at 10s. per oz. in first-hand for 100-oz. lots.

OPIUM.—There is no alteration to note in the London quotations, the market for *Turkey* opium having been quiet during the week. With regard to *Persian* opium there have been some sales of fine *bricks* at the full rate of 13s. per lb., and the stocks remain very small. The market is practically cleared of *ball* opium. *Turkey* opium quotes as follows: *Soft shipping*, good to fine, 10s. 6d. to 11s. 6d.; *Smyrna*, good to fine, 7s. 6d. to 8s. 6d.; *Constantinople*, good to fine, 8s. to 9s.; *druggists' seconds*, 7s. to 8s. per lb.

ORRIS ROOT.—The market value has declined considerably since our last report and fine picked *Florentine* root can now be bought at 69s. per cwt. on the spot.

PERU BALSAM.—Very scarce on the spot and firmly held. Nothing can be had under 10s. per lb. on the spot, and the same price is quoted for delivery *c.i.f.* terms.

POTASH SALTS. — *Chlorate*: Remains quiet at 4⅝d. on the spot, and 4½d. *f.o.b.*, Liverpool. *Bichromate*: Unchanged at 4⅝d. to 4¾d. per lb. on the spot. *Yellow prussiate*: Very firm at 8d. per lb. *Cyanide.—English* makers quote at 1s. 4d. per lb. for 98 per cent. *Permanganate*: Very firm at 65s. to 67s. 6d. for small, and 70s. to 72s. 6d. for large *crystals*, according to quantity.

PODOPHYLLIN.—The current quotation is 7s. to 7s. 6d. per lb.

QUICKSILVER.—The *importer's* price is still £7 7s. 6d. per bottle, but in second hand it is offering at 1s. easier rates, the quotation being £7 5s. 6d.

RESORCIN.—The current quotation is 5s. 6d. to 5s. 9d. per lb.

SAFFRON.—The position of this article is very uncertain at present. It is reported that speculators are trying to run up the prices of the new crop of *Valencia* saffron, consequently considerably advanced prices are being paid. On the other hand it is said that the advance is due to a genuine demand caused by the scarcity of supplies. The new crop is said to be very good in quality, but only about one-third in quantity of last year's, and we may consequently expect to see greatly advanced prices. After being quoted at the beginning of the week at 26s. per lb. for super extra quality, intermediate prices have since been paid up to 32s. 6d., which was the last price we heard.

SANTONINE.—Tending rather easier. The makers' quotation is still 7s. 6d. per lb., but it can be bought at 6s. 9d. to 7s. in second hand.

SARSAPARILLA. — Steady. During the week there have been sales of genuine *Jamaica* sarsaparilla at 1s. 5d. per lb. for sound quality.

SEEDS (VARIOUS).—*Star Anise*: Remains very firm, 95s. to 97s. 6d. being the current spot quotation for genuine *Chinese* seed. *Coriander Seed*: At the spice sales 100 bags of ordinary coarse *Bombay* seed were bought in at 7s. 6d. per cwt. *Canary Seed*: In auction 194 bags of new *Turkish* seed were bought in at 41s. per quarter. *Caraway*: Rather easier. Good quality *Dutch* seed quotes at 25s. 6d. to 26s. per cwt., London terms.

SHELLAC.—The market generally is flat. Privately, a small business has been done on the spot in *TN Orange* at 114s., but since the sales, prices have declined for arrival from 104s. 6d., *c.i.f.*, December to February steamer, to 104s., but buyers are not disposed to exceed 100s., *c.i.f.* At the close the market is rather firmer, but with no appreciable change in price. At the sales the large supplies met with a slow demand, principally for the lots offered without reserve. *TN Orange* sold at a decline of 4s. to 6s. for free, and 8s. to 10s. for blocky. *Garnet* was mostly bought in for *A.C.*, but a few cases of *G.* sold at a decline. *Button* also sold at a decline of about 10s. for blocky.

SERPENTARY.—Slow of sale at 1s. 1d. to 1s. 2d. per lb. on the spot.

SPICES (VARIOUS).—*Cloves*: Steady. In auction about half the *Zanzibar* found buyers at about steady rates, 1⅞d. to 2d. being paid for ordinary dark to fair. *Amboyna* sold at 4d. for ordinary quality, and good picked *Penang*, at 7½d. *Cassia lignea*: Nearly all the supplies were bought in at the sales at 33s. for sound, and 18s. 6d. to 23s. for broken, but 20 bales of good broken quality sold at 22s. per cwt. *Cassia vera*: Coarse *Penang* quill was bought in at 26s. per cwt. *Pimento*: Still dull of sale, and the majority offered was bought in at 2½d. to 2⅝d., but about 100 bags of ordinary grey sold at 2⅝d. per lb. *Pepper*: Nearly all offered in auction was bought in; *Singapore* at 2⅜d., to 2½d., and *Penang* at 2⅛d. to 2¼d., but 20 bags of *Penang* sold at 2d. *White Pepper*: Fairly steady, but slow of sale. *Penang*, old import, sold at 2⅞d., *Singapore* at 2¼d., whilst good to fine *Singapore* realised 4¾d. to 5½d. for fine to extra fine bold.

SPERMACETI—Very firm. For *American* refined 1s. 7½d. to 1s. 8d. is the price asked on the spot.

SUGAR OF MILK—Steady. In first hand, holders still ask 77s. 6d. for *crystals*, and 75s. for *powder*, but it can be bought in second hand at fully 2s. 6d. per cwt. less.

SOY.—Fair *China* offers at 1s. 2d. per gallon but is slow of sale.

TOLU.—Genuine "old-fashioned" balsam is getting very scarce on the spot, and 3s. is said to have been paid, but 2s. 9d. would probably buy. There have also been good sales of dark "glassy" balsam at 1s. 11d. per lb.

TRAGACANTH.—The market is steady, but with only a small amount of business doing. The current quotations are as follows:—Fine white firsts, £14 10s.; seconds, £12 10s. to £13 10s.; thirds, £10 10s. to £12; fourths, £7 10s. to £10, and other grades, £7 down to 40s. per cwt. *Hog* is still neglected, with but small sales at prices ranging from 37s. 6d. to 75s. per cwt.

TURMERIC.—At the sales on Tuesday 128 bags of *Madras* good bright finger, part slightly wormy, realised 8s. to 8s. 3d., whilst 143 bags of *China* turmeric sold without reserve at 6s. 9d. per cwt. for lean bright finger.

WAX.—*Japan* is very firm, with sales of good pale *squares*, at 27s. 6d., and 28s. is now asked. For delivery, 29s. 6d. per cwt. *c.i.f.* is still asked. *Carnauba*: There have been sales privately of medium grey, at 120s. to 125s. per cwt.

NEWCASTLE CHEMICAL REPORT.

[*From our own Correspondent.*]

NOVEMBER 19, 1895.

Although briskness in the trade is not the rule for the moment, it is still felt that coasting, shipping, and inland orders are keeping the market fairly alive. The advanced prices of caustic soda and alkali are well maintained, and as sulphur and saltcake are fully absorbed for home use, sales prices are a shade higher. Bleaching powder is likewise firmly held, soda crystals steady in tone with a fair demand in bags from the Channel ports. Sulphate of ammonia, although not firm, sellers are not pushing the market. Acids are well sought after and firmly quoted. Drugs unchanged. Chemical shipments over sea for the week have been very extensive. Prices :—BLEACHING POWDER in softwood casks, £7 5s.; hardwood, £7 10s. to £7 15s. SODA CRYSTALS: 37s. 6d., casks; 45s. in 2 cwt. bags. CAUSTIC SODA, 70 per cent. £7 5s., to £7 15s. SODA ASH: 52 per cent., £4. ALKALI: 52 per cent., £4 15s. "JARROW" BRAND: £4 17s. 6d. RECOVERED SULPHUR: £4 SALTCAKE: 25s. loose, 35s. in casks. HYPOSULPHITE OF SODA: in 5-7 cwt. casks, 6s. 9d. per cwt. SILICATE OF SODA: 75 per cent., £2 12s. 6d.; 100 per cent., £3; 140 per cent. £3 7s. 6d. BORACIC ACID: *Crystals*, 30s.; *powder*, 32s. BORAX: 20s. ALUM in lump, 5s. 6d. SULPHATE OF AMMONIA: 8s. 6d. to 8s. 9d. SOUTH DURHAM SALT: 9s. to 9s. 6d. in bulk, 15s. to 15s. 6d. per ton in blocks.

LIVERPOOL MARKET REPORT.

[*From our own Correspondent.*]

NOVEMBER 20, 1895.

LINSEED: *Turkish*, 36s. 6d. per 416 lbs. *ex.* store, 35s. 6d. to arrive. CANARY SEED: 32s. 6d. per 464 lbs., *ex* quay. KOLA NUTS: 7½d. to 8d. BEESWAX: *Peruvian*, £7 15s. to £7 17s. 6d.; *Gambia*, £7 to £7 2s. 6d. GUM ARABIC: In good demand at steady prices for the higher qualities. CASTOR OIL: *Calcutta*, 2⅞d.; *French* 1st pressure, 2½d. to 2 5/32d.; *Madras*, at 2 3/32d. LINSEED OIL, 21s. 3d. to 22s. in export casks. COTTON-SEED OIL: *Liverpool*, 17s. 9d. to 18s. 3d.; *American*, 17s. 9d. SPIRIT OF TURPENTINE: 20s. 6d. per cwt. PETROLEUM: *American*, 7½d. to 8¼d.; *Russian*, *refined*, 6½d. SAL AMMONIAC: 39s. first quality; 37s., second. COPPERAS: *Lancashire*, 37s. 6d. SULPHATE OF COPPER: £16 10s. to £17. PRUSSIATE OF POTASH: 8d. to 8¼d. CREAM OF TARTAR: 98s. for finest white. CHLORATE OF POTASH: Steady at 4½d. BICARBONATE OF SODA: £7 per ton. CARBONATE OR SODA CRYSTALS: £2 10s. per ton, *f.o.b.* SALTCAKE: 25s. net cash. BORAX: *Lump*, 20s.; *powder*, 21s. NITRATE OF SODA: 7s. 7½d. to 8s. CAUSTIC SODA: 70 per cent., £7 15s. to £8; 60 per cent., £6 15s. to £7.

THE SEQUAH MEDICINE COMPANY, LIMITED, has been registered by H. A. Watts, 9, Bucklersbury, London, E.C., with a capital of £7000 in £1 shares. Object: To acquire the business hitherto carried on under the style of Sequah, Limited, and to carry on and extend the same. The directors are J. M. Richards, W. H. Fassett, and G. B. Cooper. Qualification, £250. Remuneration not specified.

EXCHANGE.

[*Notices are inserted free in this column, if they do not exceed thirty words in length, nor partake of the nature of ordinary advertisements. They should be addressed "Editorial Department, 17, Bloomsbury Square, W.C.," and arrive not later than Wednesday.*]

OFFERED.

B.P. and additions, equal to new, containing recent Minor notes, what offers? Wills' 'Pharmacy,' 3s. 6d.; Wills' 'Materia Medica,' 2s. 6d. Post free.—Dispenser, 28, Fulham Road, S.W.

Bentley's 'Botany,' 7s. 6d.; Frankland's 'Organic Chemistry,' 1s. 6d.: Thorpe's 'Metals,' 2s.; 'Roscoe's 'Chemistry,' 9d.; Hooker's 'Botany,' 9d.; Davis's 'Volumetric Analysis,' 1s.; B.P., interleaved, 7s. 6d.; —F. H. Slynn, Mount Street, Walsall.

Attfield's 'Chemistry'; Arnott's 'Physics'; Garrod's 'Materia Medica'; Bentley's 'Botany.'—Blackburn, 14, Gathorne Avenue, Leeds.

Lancaster's ¼-plate Camera, with Thornton Pickard's "Time," and Suter's Optime Rectilinear Lens, original cost, £5 5s. Offered for £3 3s.—Tudor, Post Office, Clynderwen R.S.O., S. Wales.

Twelve Incandescent Gas Lights, complete with mantles, etc.; quite new; 7s. each, or 72s. the lot, cost £6.—G. Abbott, 61, Rupert Lane, Everton, Liverpool.

300 Duplicate Silver English Coins for disposal (singly or otherwise), from William the Conqueror upwards.—Arthur Graeme, Blenheim House, Cotham Brow, Bristol.

Sixteen unbound vols. 'British Colonial Druggist,' from commencement, almost perfect; turntable, 5s.; copying press, fiscp. folio on stand, two drawers, one lock, £3. Exchange micro-photo outfit.—Baxter, chemist, Marlow.

Piesse's 'Art of Perfumery,' 1879, 10s. 6d.; Bentley's 'Botany,' 5s. 6d.; 'Pharm. Journals,' 1866–93, will supply odd parts; Barton and Castle's 'Medical Botany,' coloured plates, 16s.—Davis, "Chestnuts," Gordon Hill, Enfield.

Lancaster's ¼-plate Instantograph (special lens, iris diaphragm), reversible back, long extension bellows, swing back movement, instantaneous shutter; quite new, whole cost £4. What offers?—Pearce, 2, Queen Street, Exeter.

Remsen's 'Organic Chemistry,' latest edition; perfect, 4s. Wills' 'Preliminary Exes.,' 1s. 6d.; post free,—C. Stokes, 45, Stapleton Road, Bristol.

Unused Portable Assay Balance, with rider to carry 2 grammes each pan, and turn with 0·1 milligramme, fitted in mahogany case, Price £4 4s.—J. Allen, 1, George Street. Plymouth.

Two Pear-shaped Window Carboys, with very handsome glass stoppers; also mahogany nest of drawers, with glass knobs (cut in two). Offers invited by—J. Hill, Norton Villa, Britonferry, South Wales.

WANTED.

Newth's 'Chemistry.'—Blackburn, 14, Gathorne Avenue, Leeds.

Green's 'History of the English People.'—Davis, 7, Sydney Terrace, Weston-super-Mare.

Name and address of makers or dealers in foolscap in foreign note. Allen's 'Latin Grammar,' cheap, good condition, of a late edition.—G. R. Jenkins, 29, Hanover Street, Swansea.

'British and Colonial Druggists' Diary' for 1895. Price to—Neal, 14, Queen's Road, Watford.

'Year-Books of Pharmacy,' 1891 to 1895, inclusive. What offers?—T. F. Harvey, Sileby, Loughborough.

Drug Mill, B. and W.'s.—T. Scott, Chemist, New Herrington.

Lens, whole plate, wide angle, rapid rectilinear. Particulars and lowest price to—Pharmacist, 156, Green Lanes, London, N.

Late Advertisement.

MECHANICAL DENTISTRY

GOLD, VULCANITE, CELLULOID. TUBES, GUM SECTIONS AND FACINGS. CROWN BAR AND BRIDGE WORK TAUGHT AND EXECUTED. VULCANITE REPAIRS. PLATE REPAIRS RETURNED SAME DAY. BEST VULCANITE WORK (ASH'S PIN TEETH), 1s. PER TOOTH. BANDS, EXTRA D.A., 9d.; GOLD, 1s. 6d.

Messrs. JONES, 140, Mallinson Road, Clapham Junction.

DIARY OF THE WEEK.

Secretaries of Societies are requested to send notices of forthcoming meetings not later than Wednesday in the previous week.

SATURDAY, NOVEMBER 23.

Pharmaceutical Football Club v. Wandsworth Athletic, at Wormholt Farm, Shepherd's Bush.

SUNDAY, NOVEMBER 24.

Liverpool Sunday Society, at 3 p.m.
"Interviews and Interviewing," by Harry How.

MONDAY, NOVEMBER 25.

Imperial Institute, at 8.30 p.m.
"Amongst the Persian Kurds" (illustrated), by Walter B. Harris.

Royal Geographical Society, at 8.30 p.m.
"The Færoe Islands," by Dr. Karl Grossmann.

TUESDAY, NOVEMBER 26.

Royal Photographic Society, at 8 p.m.
"Photo-ceramics": A Demonstration will be given by W. Ethelbert Henry.
"A Method of Carbon Printing without Transfer," by Valentine Blanchard.

WEDNESDAY, NOVEMBER 27.

Society of Arts.
"Locomotive Carriages for Common Roads," by H. H. Cunynghame.

Glasgow and West of Scotland Pharmaceutical Association, at 9.15 p.m.
Vegetable Histology (illustrated), by Dr. D. Lees.

THURSDAY, NOVEMBER 28.

Westminster College of Chemistry and Pharmacy, at 6.30 p.m.
College Dinner in the Royal Venetian Chamber, Holborn Restaurant.

Chemists' Assistants' Association, at 8.30 p.m.
"Jaborandi Leaves of Commerce," by E. M. Holmes.

Liverpool Pharmaceutical Students' Society, at 8.30 p.m.
"Ointments," by R. H. Mitchell.

Edinburgh District Chemists' Trade Association, at 11 a.m.
Discussion on "Some Relations Between Prescriber and Dispenser, etc."

FRIDAY, NOVEMBER 29.

Cambridge Pharmaceutical Association.
Smoking Concert.

Aberdeen Junior Chemists' Association, at 9.30 p.m.
"Bees, Ants, and Their Ways," by J. Wishart.

SATURDAY, NOVEMBER 30.

Royal Society.
Anniversary Meeting.
Distribution of Medals.
Annual Dinner at the Whitehall Rooms.

TRADE MARKS APPLIED FOR.

No. 188,623.—A MEDICINE to be used as a specific for distemper in dogs and cats.—Edwin Toovey and Richard Toovey, Landscape Villa, Clarendon Street, Leamington Spa, Warwickshire. July 6, 1895. Device of an octagon, etc. The essential particular is the combination of devices.

No. 188,259.—CHEMICAL SUBSTANCES prepared for use in medicine and pharmacy.—The Petroleum Products Syndicate, Limited, 1, Whittington House, Leadenhall, Street, London, June 19, 1895. Device of a square, triangle and gong intermixed, and the word "Telola."

No. 187,141.—A COUGH MIXTURE for human use.—John Porter, Station Street, Coalville, Leicestershire; April 22, 1895. Device of steamship and the words "Kof-Clipper" in a circle. The essential particular is the device.

No. 187,586.—PATENT MEDICINES for human use.—Philippe Lauth, 8, Boulevard du Jardin des Plantes, Carcassonne, France; May 13, 1895. Device and motto "Primo non nocere" contained in an oval. The essential particular is the device.

No. 188,838.—A TOILET PREPARATION for chapped hands (not medicated).—Herbert Buckley, 15, Bridge Street, Lockwood, Huddersfield. July 20, 1895. Word: "Kermol."

SUPPLEMENT
TO THE
PHARMACEUTICAL JOURNAL.

LATE NEWS.

PROCEEDINGS UNDER THE PHARMACY ACTS AT GLASGOW.

At the Sheriff Court House, Glasgow, on Thursday, November 29, the cases of the Pharmaceutical Society (represented by the Registrar) against Alexander Cross and Sons, seed merchants and chemical manufacturers, 19, Hope Street, Glasgow, and T. Kerr, an assistant in the employment of the said Alexander Cross and Sons, came before Sheriff-Substitute Fyfe.

Alexander Cross and Sons were charged with two offences under Section 17 of the Pharmacy Act, 1868, in so far as at the above address on May 30, 1895, they sold to Alexander Spence a quantity of arsenic as an ingredient in a quantity of liquid called "The Ballikinrain Ant-Destroyer" contained in a bottle not distinctly labelled with the name and address of the seller, and to a person unknown and not introduced by some person to the seller, and also that they failed to make any entry of the sale in a book or take any signature of the purchaser in the manner provided for by the Act; and also with having in a precisely similar manner failed to comply with the requirements of the section in selling a quantity of arsenic as an ingredient in a quantity of "The Ballikinrain Ant-Destroyer," sold to Joseph Tait on Oct. 15, 1895, whereby they became liable to a penalty of £5 for the first offence and £10 for the second offence.

T. Kerr, assistant to Alexander Cross and Sons, 19, Hope Street, Glasgow, was charged with having sold a quantity of arsenic as an ingredient in a quantity of the "Ballikinrain Ant-Destroyer" to Joseph Tait on October 15, 1895, whereby he, not being a registered pharmaceutical chemist or chemist and druggist, became liable to a penalty of £5 under Section 15 of the Pharmacy Act, 1868.

Mr. T. B. Morison, advocate (instructed by Messrs. Martin and Barrie, solicitors) appeared for complainer, and Mr. William Borland (of Messrs. Borland, King, and Shaw, solicitors), appeared for respondents.

In the case against Cross and Sons it was held that the Registrar had no title to prosecute, and the complaint was dismissed with one guinea expenses. Notice of appeal was given.

In Kerr's case objections to relevancy were also raised, but repelled. The accused pleaded not guilty, and proof was fixed for December 16.

DEATH OF MR. HENRY SEEBOHM.—The death is announced of Mr. Henry Seebohm, of the firm of Seebohm and Dieckstahl, Sheffield, one of the Secretaries of the Royal Geographical Society. Deceased, who was a man of wide culture, and was regarded as the greatest living authority on ornithology, was sixty years of age, and died in London. He was the author of several books on ornithology and other subjects, and was also chairman and director of many important steel and engineering companies, including the firm of Joseph Rodgers and Sons (Limited), the noted cutlers.

EDINBURGH CHEMISTS' BALL.—At a meeting of the Edinburgh Chemists' Ball Committee, held in the Pharmaceutical Society's House, 36, York Place, it was decided, on the motion of the Chairman (Mr. D. McLaren) to place the funds (nearly £23) in the custody of the Edinburgh and District Chemists' Trade Association, which, with a committee outside, will shortly make arrangements for the next annual ball.

RESULTS OF LAST SATURDAY'S MATCHES (NOVEMBER 23).—P.F.C. *v.* Crownfield, F.C. Played at Shepherd's Bush, most exciting game, ended in a draw. One goal each.

P.F.C. Reserves *v.* Junior Polytechnic Old Boys' F.C. Played at Wembley. Victory for former by 2 goals to 1.

THE HUXLEY MEMORIAL.—A distinguished assembly of representative men in science, art, and literature constituted the first meeting of the Huxley Memorial Committee, held on Wednesday in the Museum of Geology, Jermyn Street, London.—The Duke of Devonshire acted as Chairman, and after reviewing Huxley's career, especially as a biologist, said the whole scientific world was indebted to the brilliant life and labours of the late professor.—Professor M. Foster, stated that the Prince of Wales had accepted the duty of honorary president. Regret for inability to attend was expressed by Lord Salisbury, Mr. J. Chamberlain, M.P., Sir F. Leighton, Dean Bradley, Professor Max Müller, and others.

Lord Kelvin moved: "That it is desirable to establish a memorial to the late Right Hon. Thomas Henry Huxley." As an original investigator in biology Huxley had, by his life-long perseverance in inquiries on natural knowledge, left to the world a monument more enduring than any which his survivors might raise as an expression of their gratitude.—Mr. Arthur Balfour, M.P., seconding, would not dwell on the services which Professor Huxley gave to the Government of the day, but he would say that as a man of letters and a man of science he surely deserved from his countrymen some personal memorial. As a man of clear and lucid exposition, he was not certainly to be matched in the whole gallery of literature.—Lord Playfair supported the resolution, which was carried unanimously.

Sir Joseph Hooker next moved that the memorial do take the form of a statue to be placed in the Natural History Museum; that a medallion be placed in the Royal College of Science, and that the surplus be devoted to biological science.—Mr. Leslie Stephen, seconding, said he felt that when the history of this time came to be written Huxley would find a place, not only among the leaders of the enlightened movement of the time, but also as one of the best writers of English.—The resolution was carried.

Mr. Alma Tadema then moved that the following be the Executive Committee: Sir J. Lister, Professor M. Foster, Lord Rayleigh, Professor E. Frankland, Sir J. Evans, Sir W. Besant, Sir J. Donnelly, Sir J. Fayrer, Sir A. Geikie, Sir J. Hooker, Professor E. Ray Lankester, Professor J. M. Lockyer, Mr. Briton Riviere, Dr. P. L. Sclater, Lord Shand, Sir H. Thompson, Mr. Spencer Walpole, Sir J. Lubbock, Professor G. B. Howes.—Sir Andrew Noble seconded the resolution, and it was adopted.

The treasurer's report showed a total of subscriptions up to date of £557, including £50 from the Marquis of Salisbury.—On the motion of Sir J. Evans, seconded by Sir Joseph Fayrer, a vote of thanks to the Duke of Devonshire for presiding concluded the proceedings.

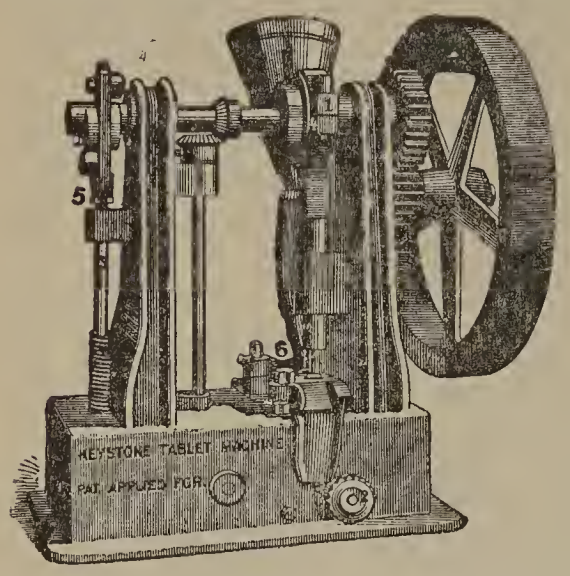
SERIOUS FIRE AT A GLOUCESTER CHEMIST'S.—Between four and five o'clock on Monday afternoon a fire broke out at the shop of Mr. G. W. Polden, chemist, Gloucester. Smoke was noticed in the shop, and a further investigation showed that a fire was raging in the cellars beneath. An alarm was at once raised, and in a commendably brief space of time both of the city brigades were on the scene, and the fire was confined to the premises at which the outbreak occurred. By twenty minutes past five the flames were extinguished, and the adjoining property placed out of danger. The amount of damage sustained is estimated at several hundreds of pounds. Nearly everything in the shop has suffered more or less from the effects of the fire and water combined, whilst the damage to the property is also considerable. It is understood that Mr. Polden's loss will be met by insurance.

DEATH OF ALEXANDRE DUMAS.—The great French dramatist, Alexandre Dumas *fils*, has just died. He was the son of the celebrated author of the 'Count of Monte Cristo,' 'The Three Musketeers,' and so many other thrilling works of romance, and was born in Paris on July 28, 1824. He was an author and journalist, and was elected to the French Academy in February, 1875. His death leaves a great gap in French literature.

TRADE NOTES AND NEWS.

THE "KEYSTONE" TABLET MACHINE is constructed on improved mechanical principles, and is very simple and easily managed. Its capacity is 75 to 100 per minute. The machine is both compact and powerful, every part being positive and interchangeable. The tablets are uniformly and accurately made, with polished edges, and it is stated that the dies can be changed quicker than in any other machine. The No. 1 machine, here illustrated, is adapted for hand or power, and is suitable for both prescription work and limited manufacturing. It occupies a counter space of 10 by 16 inches, stands 21 inches high over all, and weighs 150 lbs. The machine can be operated with very little instruction, and there is no loss of material, the "feed" being very accurate. It will make tablets from ⅛ to ⅝ inch diameter. The dies are made of the finest grade of steel, and highly tempered and finished. Every machine is tested

before leaving the factory, and guaranteed to be of first-class workmanship. Dies may be re-ground when necessary. The machine has strength, durability, compactness, and is easy of motion. Each adjustment is easy of access and simple. There is no unnecessary weight, the metal being distributed where it is most needed, to withstand any excessive strain. Each part is made to a



gauge, and is absolutely interchangeable. Instructions how to operate, and how to make tablets, along with simple formula, are furnished with each machine. The sole agent for Europe is F. Foster, 29E, St. Nicholas Street, Scarborough (England), and the price, with two sets of dies, is £15. Extra dies cost 12*s*. 6*d*. per set.

Messrs. Potter and Clarke, of Raven Row, Artillery Lane, London, E., draw attention to the fact that they are willing to send supplies of show cards, free samples, etc., of their Potter's "Datura Asthma Cure" to any chemist in the country, post free on application. The new show cards are handsomely finished and should prove very attractive. The asthma cure is retailed in 1*s*. tins, and Potter's "Stramonium Cigarettes" and the "Cubeb and Datura Tatula Cigarettes" are supplied in 1*s*. boxes.

The Iron and Steel Plant Company (Limited), 3, Crown Court, Old Broad Street, and Barrow-in-Furness, are the makers of Caird's patent steel barrels, designed for holding such fluids as petroleum, spirits, acids, dyes, lubricating-oils, chemicals, varnishes, syrups, and the like. They are stamped cold out of sheet steel of a gauge determined by the purpose to which the barrel is to be put, and the process of stamping is such that no longitudinal seams are necessary. The barrel is really made in two portions, the two parts being effectively joined by spinning the edges together in a manner that locks them so securely that disjointing is impossible as long as the barrel lasts. This method of joining possesses the further advantage of materially strengthening the construction at the point where in the ordinary course there is most strain or siability of shock. The small sizes have one joint only, but in the larger sizes three joints are made. Taking the ordinary wood barrels used for petroleum as a standard of test, it is stated that by the drop test a wood construction was completely smashed after a third drop, but the steel barrel was only damaged to an appreciable degree after the ninth drop. As to cost, this in itself is not high, but, having regard to the fact that the life of the steel barrels is lengthy and healthy, says the *Ironmonger*, consideration ought necessarily to be paid to the absence of the cost of repair and maintenance, which is always more or less present with wood barrels.

Dr. Mackenzie's Arsenical Toilet Soap, of which a sample has been submitted for notice, is reported on by Dr. A. B. Griffiths, F.R.S. (Edin.), who certifies that it is a superfatted dehydrated cold cream soap of the finest quality and made from the purest ingredients. It contains a small quantity of arsenic, but the quantity of arsenic is so small that the soap is absolutely harmless to the health of the most delicate person, yet it produces a most beneficial effect upon the skin. "This soap has the property of rendering the skin white and smooth; in fact, it is a perfect soap for softening and beautifying the skin, and it imparts to the complexion a natural hue. I have no hesitation in saying that Dr. Mackenzie's Arsenical Toilet Soap is second to none in the market."

The Doveton's Drug Stores, Limited, has been registered by E. J. Bellord, 7, King Street, Cheapside, E.C., with a capital of £1000 in £1 shares, to enter into an agreement with G. H. and E. H. Doveton (of Shoreham, Sussex), for the acquisition of the business of chemists and druggists, as now carried on at 818, Holloway Road, under the style of Christmas and Co., and to carry on and extend the same. Registered without articles of Association. Registered office: 818, Holloway Road, N.

Messrs. J. Raphael and Co., of 13, Oxford Street, W., have obtained an injunction against Messrs. Druiff (also trading as the Anglo-American Optical Co.), restraining them from infringing plaintiffs' Patent Movillette Pince Nez.

Messrs. Llewellins and James, of Bristol, makers of Morris and Wethered's Patent Stills, request that the gentleman who wrote a post-card to them, from Torquay, dated November 21, will please send his name and address, which he has omitted.

Mr. G. W. Harrison, of Ashwell, Herts, is appointing one sole agent in each town for the sale of his "Reliable" Rat Poison. He has stopped all supply to wholesale houses with the view to keep the trade in his agents' hands and to prevent the difficulty of "cutting" prices.

The Condal Water Co, Ltd, of 7, Lambeth Hill, London, E.C., is sending to the trade a circular upon the subject of "Anti-cutting," and asking that the replies to a series of questions contained therein may be filled in the voting paper which accompanies the circular and then returned to them.

The Moss Litter and Peat Industries, Limited, 32, Queen Victoria Street, E.C., manufacture surgical dressings, accouchement sheets, ladies, towelettes, and basinette blankets from Béraudine peat wool, the value of which is based on its peculiar properties as an absorbent deodoriser and natural antiseptic. The advantages claimed for this material are (1) Greater powers of absorption than any other material (being capable of absorbing nine or ten times its own weight of liquid): (2) Durability, owing to its great absorbing power and the fact that its operation is very gradual; (3) Power of resisting putrefaction; (4) Permeability, the discharges becoming uniformly diffused throughout the dressing; (5) Its remarkable deodorising power; (6) Its cheapness. The absorbent sheets for accouchements, etc., are more elastic than others now in use; and for sanitary towelettes, the absorbency and the freedom from odour of the peat, combined with its power of destroying all other odours, can scarcely be over-estimated. Peat powder, a bye-product obtained in preparing the wool, is largely used as a deodorant in dry systems of excreta removal.

Messrs. W. Butcher and Son, of Blackheath, London, S.E., draw attention to the fact that their "Primus" camera has been awarded the silver medal at the Stanley Photographic Exhibition, as the best camera for cyclists, and that their Gas Lantern was awarded a Special Bronze Medal for the best novelty in lantern or photographic apparatus.

Messrs. Kennedy and Co., of 159, Kingsland Road, London, ask to be permitted to explain to the trade their position with regard to Kennedy's sanitary perforated shields for feeding bottles, etc. A Mr. Spence, who is carrying on business as Stapel and Co., has been sending circulars to their customers warning them against buying their registered shields, stating that they are an infringement of an alleged patent of his own. Messrs. Kennedy and Co. state that Mr. Spence's alleged patent is an infringement of an earlier patent which expired years ago, and that the invention is, consequently, public property, which anyone can use. Messrs. Kennedy and Co. guarantee that no buyer of their perforated sanitary shields shall be at any expense in defending legal actions in the matter.

The Vaccination Virus Vanquisher Company, Limited, was registered on October 29, by G. E. Dixon, 8, Fairlawn Road, Acton, with a capital of £20,000 in £1 shares. Object: To enter into an agreement with G. E. Dixon, for the acquisition of the right, title, and interest of the said Dixon in a certain proprietary medicine known as the Vaccination Virus Vanquisher, or V.V.V.; to turn to account the same, and as chemists and druggists generally. The directors are G. R. Barclay, C. G. Clarke, G. E. Dixon, R. J. Jenkins, and T. F. Fisher. Qualification, 150 shares. Remuneration, £25 each per annum. Managing director, G. E. Dixon; remuneration, £300 per annum.

Martin and Co., Chemists, Limited.—This company has been registered by Sir J. Causton and Sons, 9, Eastcheap, E.C., with a capital of £300 in £1 shares, to establish and carry on the business of chemists and druggists, patent medicine vendors, drysalters, oil and colourmen, etc. Registered without articles of association. Registered office: 102, Normanton Road, Derby.

PATENT SPECIFICATIONS PUBLISHED.

Sterilising milk (Leslie, E.).—The milk passes through a tube surrounded by a hot-water jacket heated by the direct flame of a furnace. During its passage, it is agitated by a stirrer, and on passing out in a sterile condition, it traverses an inclined flat table, where it becomes sufficiently cool for bottling, etc., by the time it reaches the lower end. No. 19,064 of 1894.

Stoppering bottles (Melin, C.). — The stopper consists of a plug and washer fitted in a cap secured by a chain and spring wires, to the bottle neck. When closed, the spring wires press the stopper firmly in place. No. 1721 of 1895.

Dressing wounds (Thamm, A.).—A pad of carbolised or other wadding is placed over the wound and then saturated with collodion. This dressing dries rapidly and by its contraction tends to close the wound. No. 3242 of 1895.

Coating aluminium with other metals (Legate, W. H.).—Relates to various washes and dips, the description of which would be too lengthy for these columns, whereby aluminium or its alloys may be prepared for electroplating with other metals such as gold, silver, nickel, etc. No. 5789 of 1895.

Thermometer (Müller, R.).—Relates to a delicate thermometer for experimental use, consisting of a combination of two air thermometers by which duplicate observations are taken. The apparatus is too complicated for description without the aid of the drawing. No. 9049 of 1895.

Tooth-facings (Hollingsworth, J. G.).—Relates to porcelain or similar facings for teeth, and consists in forming them with a specially curved concave back, which is said to obviate any tendency to cracking from contraction of the solder. No. 12,530 of 1895.

Substitute for saccharin (Johnson, J. Y., communicated from von Heyden, F.).—Refers to amido-benzo-sulphonimide (see a paper by Noyes in the *American Chemical Journal*, v. 8, p. 172, 1886), and consists in employing it as an antiseptic sweetening agent for beverages, preserves, etc., in place of saccharin (ortho-benzo-sulphonimide). It is stated to possess 250 times the sweetening power of cane sugar. The sodium salt may be used, but has no antiseptic power. No. 12,743 of 1895.

Clinical thermometer (Lütje, J.).—Relates to thermometers for insertion in the anus for fever cases, and consists in the formation of the bulb in the shape of a heart upon the narrowed lower end of the thermometer stem. This construction permits of the ready insertion of the instrument, but prevents it from entering too far or from being ejected by contraction of the anus. No. 12,793 of 1895.

Labelling bottles, etc. (Fletcher, W.).—Relates to an apparatus for labelling bottles, etc., described in patent No. 10,846 of 1892, and consists in arrangements by which it may be adjusted to receive and affix labels of various sizes and shapes. An appliance for gumming the labels forms part of the apparatus. No. 18,074 of 1894.

Filters (Barr, W. H.).—The water is forced or allowed to flow through a perforated metal cylinder coated with a fabric or with porous paper, etc., which is itself coated with finely-powdered "agalite" or other filtering medium. Agalite is described as being a fibrous magnesium silicate. The filtering materials are readily renewable, and the cylinder is so arranged as to be easily cleaned. No. 18,329 of 1894.

Lactyl-p.-phenetidine (Johnson, J. Y., communicated from C. F. Boehringer and Sons). — This compound is obtained by heating benzylidene-para-phenetidine with lactic acid to about 170° C. in an open vessel or chamber. Benzaldehyde and water distil off, and after steaming the residual solution and boiling it with carbon to remove the remainder of the benzaldehyde, it is filtered, and the lactyl compound is obtained in colourless prisms. No. 19,188 of 1894.

Sodium chlorate (Best, T. T., and Brock, J.).—Chlorine diluted with some inert gas, is forced by means of a pump through a solution of normal or acid sodium carbonate of about 1·27 specific gravity, at the ordinary temperature. Carbonic acid, together with chlorine gas and some hypochlorous acid escape, and the two latter are recovered by suitable means. The solution of chlorate and chloride of sodium obtained is said to be much more concentrated than when prepared by the ordinary method. No. 19,189 of 1894.

Vinegar (Andreoli, E.).—Consists in employing ozone as the oxidising agent for the conversion of alcohol into vinegar. The inventor prefers to prepare the ozone as described in patents No. 17,426 of 1891, and 9631 and 21,794 of 1892. The present invention is No. 21,529 of 1894.

Disinfecting, etc. (Johnson, J. Y., communicated from von Heyden, F., late Radebeul). — The inventors employ sulphinic acids or sulphinates, such as those of benzol, ortho and para toluol, ortho, meta, and para xylol, alpha and beta naphthaline. Sulphinates of zinc alone or in admixture with chlorate of zinc, may also be used. These bodies are said to be harmless to human beings, but destructive to fungi, yeast cells, etc., and to be available for addition to food as preservatives as well as for ordinary disinfecting purposes. No. 13,106 of 1895.

Obtaining precious metals from solution (Sulman, H. L.).—Relates to two patents for reducing gold, silver, etc., from solution in "cyanide" as obtained by well-known processes, and consists in the use of the very finely divided powder of zinc or lead, or of alloys of lead with zinc, magnesium with zinc or other suitable metals or alloys. The bulk of the zinc is said to pass into solution when the proper amount is used, and it is stated that the precipitated gold, etc., is of sufficient purity to be at once cast into ingots. Nos. 18,003 and 18,146 of 1894.

Lactyl compounds (Johnson, G. W., communicated from The Chemische Fabrik, late Goldenberg, Geromont and Co.).—Relates to patent No. 12,166 of 1892, and consists in the use of an amide of lactic acid instead of lactic acid or anhydride, or "lactide," or lactic acid ether, in the preparation of lactyl compounds of methyl-aniline, ethyl-aniline, para-anisidine, and para-phenetidine. No. 19,712 of 1894.

THE INDO-EUROPEAN DRUG TRADE.

India obtains only a limited number of drugs from Europe and America. In the main only the following are found in the hands of the native dealers:—Valerian, camomile, peppermint, gentian, licorice, lavender, juniper, *Folia digitalis*, *Radix senegæ*, *R. sarsaparillæ*, *R. ipecacuanhæ*, *Lignum quassiæ*, *L. guaiaci*, *L. campechianum*, *and B. copaivæ*, in addition to one or two others, many of them in very moderate amount, and often seemingly drugs in more than one sense of the word.

Galenic pharmaceutical preparations are however, more frequently imported from Europe and especially from England. Such are: Vegetable extracts, pills, plaster, and patent medicines. The latter form an important item in the list entitled "Drugs, medicines and narcotics" in the Customs statistics, and are consumed with avidity by English and native residents at the commencement of illness, the injudicious use of such remedies frequently increasing the labours of the medical man who has to be summoned at a later stage.

The grand total of the imports of drugs and preparations amounted in 1892-1893 to 1,944,899 rupees, England heading the list with 1,644,504 rupees, Germany following with 98,863 rupees, and Spain third with 86,200 rupees. France, Belgium, and Austria supplied goods to the value of between 20,000 and 30,000 rupees apiece. The trade with Spain has notably increased (the 1891–1892 imports having been only 44,214 rupees) through the improved demand for radix pyrethri ("pellitory of Spain"), the root of *Anacyclus pyrethrum*, a plant indigenous to America, but cultivated largely in the Iberian Peninsula. This drug, on account of its stimulating properties, has in recent years been largely prescribed by native physicians, generally in conjunction with other aromatics (galanga, ginger), and has come into vogue as an aphrodisiac.

The quinine trade merits particular mention. The Indian Government has commenced to manufacture and supply (to officials only) a febrifuge prepared from the bark grown in the Sikkim plantations. The price is at the rate of 16 rupees per 1 lb. tin, and it is probable that as the production increases the article will be placed at the disposal of other sections of the community. At present England secures the lion's share (over 90 per cent.) of the trade, Howard's having almost the monopoly. In 1893–1894, 31,497 lbs. of quinine, valued at 343,775 rupees, were imported, the greater part being consigned to Calcutta. A small proportion is re-exported to Mauritius, Aden, Persia, and Asiatic Turkey.

In ethereal oils, 7079 galls. (=105,792 rupees) were imported in 1892–1893, of which 865 gallons were from England (the greater portion of this quantity is said to be of German origin, distilled at Leipzig). The oils chiefly met with in the native bazaars are caraway, anise, fennel, citron, dill, peppermint, cinnamon, mace, and clove. Bengal and Calcutta are the largest customers.

Of technical drugs the imports in 1892–1893 were as follows:—

Saffron, chiefly from France, 267 cwts.= 509,988 rupees.

Cochineal, from England 2096 cwts.= 231,021 rupees.

Resin, 31,533 = 133,271 rupees.

Cochineal was formerly an article of export from India, but the introduction of aniline dyes killed the industry. Resin will no doubt in time be largely produced in India, the pine forests in the Himalayas being extensive. Linseed (about 224,000 galls.), and olive (6000 galls.) oils are also imported.

The almond oil sold in the Indian bazaars is solely a mixture of sesame oil and essence of mirbane.

India produces and exports to Europe a quantity of dye and tanning stuffs, together with certain vegetable secretions of value in the arts. Of these substance indigo is the most important, 131,399 cwts. (to the value of 41,821,281 rupees), having been shipped in 1893 94, of which England took about 40 per cent., and Germany, America, France and Austria each about 10 per cent. The increased employment of alizarine dyes does not seem to have checked the indigo trade, which keeps on growing.

Curcuma, the rhizome of the Curcuma lily, although used in India for medicinal purposes, as well as for dyeing, is only exported to Europe for employment in the last-named capacity. In consequence, however, of its colour not being permanent, the trade has of late years fallen off to an enormous extent, though—probably in consequence of its employment as an adulterant in mustard and as an aromatic—there is now a slight revival. The figures for 1876–77 were 123,824 cwts., for 1890–91 only 28,250 cwts., and for 1893–94 68,559 cwt.

The safflower trade is another that has succumbed to the competition of the cheap aniline dyes. On the other hand, myrobolams are in constantly increasing demand, and 667,549 cwts., valued at 3,367,093 rupees, were shipped in the last financial year.

Pegu catechu, or cutch, is produced in large quantities, and a portion of the extract constitutes an important article of inland trade, being employed in the preparation of "pan supari." The exports amount to 187,115 cwts. The cultivation and export of caoutchouc is on the increase, as is also the lac industry, the exports of the latter industry having risen last year to the value of 7,272,138 rupees, of which over 50 per cent. came to England.

Indian gum arabic is a gum obtained from the thorny *Acacia arabica*, but is of very low quality and incompletely soluble in water, with which it forms a dark-coloured mucilage. For export it is mixed with better qualities of gum from Aden and Zanzibar—*Chemische Industrie.*

BOOK-KEEPING FOR DRUGGISTS.*

BY GEORGE BURWELL, BOSTON, MASS.

Just why so many druggists are so lax in the keeping of their accounts it is not easy to say. The fact, however, must be acknowledged. A simple system of book-keeping, therefore, that will take but little time, and yet be of such a character as to allow of determining the profit realised during the year, cannot fail to be appreciated by the many pharmacists throughout the country, who have in the past gauged their profits by the amount of cash they have on hand, plus the amount it has cost them for personal expenses during the year. This may be the

* The cash columns in the specimens are ruled for dollars and cents.

JANUARY 1, 1895.

86 John Drugman,	*Cr.*		
Merchandise, (*This bill may be itemised, though unnecessary.*)			*12 00*
2			
Wm. Glassware & Co.	*Cr.*		
Merchandise.			*12 60*
2			
74 John Peters,	*Dr.*		
2 Epsom Salts,	*25*		
R 12045,	*60*		
,, *6,*	*80*		
,, *7,*	*80*	*2 45*	
2			
Not Posted.			
Pillmann & Co.,	*Cr.*		
Merchandise, Cash,			*8 60*
		2 45	*33 20*

correct state of affairs in many cases, but how may the proprietor determine if that amount is all that should have been his from the receipts of his business.

The following suggestions (for they can be called little more than that) if carried out will show him whether things are about as they should be. Get four books, a blotter, cash book, journal, and ledger. For the first named, any convenient book may be utilised, although there is a special book under this title that has thin sheets of blotting-paper between to leaves the absorb the ink, allowing the book to be closed immediately after writing in it. In this book are entered any transactions of the day that require further consideration. Thus: Mr. Jones make a purchase and tells the clerk to charge it, which he does in this book. Mr. Peters pays his bill, which is also entered here. When any goods are received without an invoice, a memorandum is made in the blotter and the bill checked off when it arrives. In fact, any item that may be needed for future use may be jotted down here, and many things that would otherwise be overlooked will receive proper attention. These items will be considered by the proprietor or the person attending to the books, and placed in the books where they belong, marking each entry in the blotter to designate that it has received attendance.

Next the cash book, and I suppose every merchant has some sort of a book for this purpose, and perhaps this method will occupy a little more time, but will be appreciated at the end of the year. Get a cash book with two rulings as illustrated below. The first column to keep the expenses separate, and the second for other amounts expended and to balance the cash daily. At the end of the month it can be seen at a glance the amount it has cost him to run his business.

The figures at end of the page are carried to top of columns on the following page and continued to end of the month, showing amount of merchandise bought and merchandise sold on credit during the month.

Then the journal, a two-ruled one will answer, using the first column for debits and the second for credits. Any merchandise purchased for cash may be entered in the same way as the other invoices, but not posted in the ledger, and the amount paid entered in the cash book, and not posted, as per acct. of Pillmann and Co.—purchased for cash. The following will make the above understood:—

First, let me say, check all invoices immediately and notify parties at once if any discrepancies are found, and note on the blotter the items so as not to overlook them.

Page 4 is started with Cash Balance, $49.25, in the second column, and $100 at the top of the first column, while page 5 has

	Cash on hand,		220 00
	John Peters,		10 00
	Cash sales,	40 00	40 00
			270 00
			63 15
2	*Bal.,*	60 00	60 00
	Cash sales,		
			123 15
	Cash sales forward,	100 00	

	Wm. Johnson, rent,	125 25	125 25
	Henry Williams, clerk,	12 00	12 00
	John Drug & Co.,		50 00
	Wm. Glassware & Co.,		12 60
	Sugar 80, *Eggs* 20,	1 00	1 00
	Gas,	6 00	6 00
	Cash Bal,		63 15
			279 00
	Insurance,	8 00	8 00
2	*Coal,*	5 00	5 00
	—— (*Personal*),		12 00
	John Davis,		26 50
	Repairs,	1 80	1 80
	Express,	50	50
	J. Shaw, clerk,	8 00	8 00
	—— (*Personal*),		3 50
	Mess. Pullman & Co. cash purchase,		8 60
	Bal. forward		49 25
			123 15
	Expense forward,	167 55	

$67.55 heading the first column. This continued throughout the month and added up at the end will show the monthly expense. At the end of the year the separate monthly expenses are added for the yearly expense.

Now for the ledger; of course all are ruled alike, and, doubtless, the majority of readers are familiar with the correct way of entering accounts, but for the benefit of those who are not, will explain. In starting this book, enter each open account in the manner below, leaving as many pages as will be required for the year's transactions with the party, and enter the name on index in front of book. Then when all accounts are thus entered, post the items in the cash and journal in manner shown.

Now that all the books have been explained it is a simple matter to determine the annual profit, of course presuming the stock on hand is normally the same as it was at the beginning of the year. To make the result more accurate, stock may be taken at the commencement of the year and again at the close. The result showing the amount of increase or decrease in the stock during the year, which will be considered in the profits for this time, allowing the stock to be materially the same. The showing for year will be as shown below.

His personal account will show the amount drawn for his own use, say $4000, leaving a balance of $2500. Has he this amount on hand or placed to his credit in the bank, or is he not able to account for it. Perhaps he has not considered that a new fountain adorns his store, or other new improvements, which render the property more valuable. But failing to discover any such state of affairs it is then time to consider what has become of the amount missing. Perhaps in this way he will discover a leak that has been taking dollars from his pockets for years. At any rate, he is not getting all the benefit from his business that rightfully belongs to him, and I will leave him to answer the question, If not, why not?—*Spatula.*

JOHN DRUGMAN AND CO. 86

820, Main Street, Boston.

Jan. 1,	*C.* 3	50	00	*Jan.* 1, *Bal. owing*,		50	00
				Jan. 1,	*J.* 1	120	0

JOHN PETERS. 74

Jan. Bal. owing,		10	00	*Jan. 1, Cash*,	*C.*2	10	00
Jan. 2, *No.* 2, *Epsom Salts*,		25					
R 12045,		60					
12046,		80					
12947,		80					
(*These are itemised so as to render a monthly Bill.*)							

PERSONAL ACCOUNT.

Jan. 1.	*C.* 3	12	00
2.		3	50

NEWCASTLE CHEMICAL REPORT.

[*From our own Correspondent.*]

NOVEMBER 26, 1895.

A steady home business continues much on the same lines as have been previously reported. Bleaching powder, sulphur, and saltcake remain scarce, with a shade more doing in soda crystals, alkali and caustic unchanged, South Durham salt is a shade firmer, the demand being better for shipment. Prices are:—BLEACHING POWDER, according to markets, £6 7s. 6d. to £7 5s. CAUSTIC SODA, £7 5s., to £7 15s. SODA ASH: 52 per cent., £4. ALKALI: 52 per cent., £4 15s. SODA CRYSTALS: £1 17s. 6d. to £2 2s. 6d. SULPHUR: £3 17s. 6d. to £4. HYPOSULPHITE OF SODA: £6 10s. to £7 5s. CHLORATE OF POTASH: 5d. per lb. SULPHATE OF AMMONIA: £8 17s. 6d. to £9. CARBOLIC ACID, 60 per cent., 1s. 7½d.; 40 per cent., 1s. 3½d. PITCH: 38s. per ton.

LIVERPOOL MARKET REPORT.

[*From our own Correspondent.*]

NOVEMBER 27, 1895.

CANARY SEED: 33s. to 34s. per 464 lbs. for *Turkish*. LINSEED: *Turkish*, 33s. to 34s. 6d., and "feeding," 35s. 9d. per 416 lbs. KOLA NUTS: 5d. to 7d. per lb. GUINEA GRAINS: 15s. per cwt. CHILLI PODS: *Sierra Leone*, 25s. to 31s. 6d. CHILIAN HONEY: Pile 3, 20s., and Pile 2, 21s. per cwt. BEESWAX: *Sierra Leone*, £6 11s. 3d. CASTOR OIL: *Calcutta*, 2¼d.; *French* 1st pressure, 2⅛d., *Madras*, 2 3/32d. OLIVE OIL: £30 10s. to £38; Spanish from Seville, £31. LINSEED OIL: Liverpool makes, 20s. 9d. to 21s. 6d. in export barrels. COTTON-SEED OIL: *Liverpool* refined, 17s. 6d. to 18s.; *American*, 17s. 9d. SPIRITS OF TURPENTINE: 20s. 6d. per cwt. PETROLEUM: *American* refined, 7⅛d. to 8¼d.; *Russian* refined, 6¾d. AMMONIUM SALTS: *Sal Ammoniac*: 39s., firsts; 37s., seconds; *Carbonate*: 3½d. to 3⅝d.; *Sulphate*: £9. BLEACHING POWDER: £7 10s. COPPERAS: *Lancashire*, 37s. 6d. SULPHATE OF COPPER: £16 5s. SULPHUR: *Roll*, £5 5s.; *flour*, £7 10s.; *recovered*, £3 17s. 6d., bags, £4 5s., barrels. PHOSPHORUS: *Wedges*, 2s.; *sticks*, 2s. 1d.; *amorphous*, 2s. 8½d. POTASSIUM SALTS: *Prussiate*, 8¼d.; *Nitre*, 23s. 6d. for kegs, 23s. for barrels; *Chlorate*, 4½d.; *Cream of Tartar*, 98s. for finest white. SODIUM SALTS: *Bicarbonate*, £6 15s.; *Soda Crystals*, £2 10s.; *Hyposulphite*, £7 5s. to £7 10s.; *Sulphate*, refined, £2 10s.; *Borax*: 20s. for *crystals*, 21s. *powder*; *Caustic Soda*: 70 per cent., £7 10s.; 60 per cent., £6 10s. NITRATE OF SODA: 7s. 7½d. to 8s. per cwt.

THE PURE (HOMŒOPATHIC) DRUG ASSOCIATION, LIMITED, has been registered by J. Maynes, 14, Temple Chambers, E.C., with a capital of £5000 in £1 shares, to enter into two agreements with (1) H. Mills, and (2) N. Calvert, and to carry on business as chemists, druggists, chemical and surgical instrument manufacturers, opticians, etc. The regulations of Table A mainly apply. Registered office: 14, Arcade Chambers, St. Mary's Gate, Manchester.

MARKET REPORT.

[*Specially compiled for the Pharmaceutical Journal.*]

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

LONDON, NOVEMBER 28, 1895.

There are not many changes to report in the market for heavy chemicals, and quietness still prevails. Citric and tartaric acid are unchanged and slow of sale, but carbolic acid has again advanced in price all round, and this advance applies also to several of the coal distillation products. Cream of tartar is still apparently neglected, and sulphate of copper has declined in value. Of fine chemicals, chrysophanic acid is very firm. Glycerin is again dearer, and tannic acid and acetanilide have also been advanced in price. Menthol seems neglected for the moment, but crude camphor has been in improved demand during the week. In the drug market saffron is rather easier, whilst orris root has improved in price. At to-days drug sales ipecacuanha sold at a decline for Carthagena root, and this bpplies also to scammony root. Of other drugs, buchu, elemi, quince, seed, kamala, Cape aloes, and Samatra benzoin sold at steady rates. In the essential oil market, star anise oil has again advanced in price, and cassia oil is quoted at extreme rates for oil of low aldehyde strength :—

ACACIA.—At to-day's sales the small supply of 82 packages was offered. All the *Trieste* gum was bought in : medium pale picked at £6 15s., pale grain at £6 10s., and good picked palish at £7. *Soudan* sorts were in fair supply, but the only parcel sold consisted of 15 bales of mixed yellowish sorts from *Suez* which fetched 65s. per cwt. A case of *Turkey* gum in block, damaged by water, sold without reserve at 47s. per cwt. A steady demand continues privately for *Persian* gum, and there have been sales of so-called insoluble at 12s. to 14s. for fair sorts, and 22s. 6d. for pale picked.

ACETANILIDE.—The market is very firm, and several makers have advanced the price 1d. per lb., 1s. 3d. being now the general quotation. In some instances it could be bought at 1s. 2½d. and 1s. 2d. per lb. still, but the first quotation more nearly represents its value.

ACID, CARBOLIC.—The market continues very firm, and a general improvement in price is again noticeable. The current quotations are now as follows :—*Crystals*, 34° to 35° C., 5¾d. ; 39° to 40° C., 6½d. ; 39° to 40° C. (*detached crystals*), 7½d. per lb. *Crude* 60 per cent. now quotes at 1s. 8d., and 75 per cent. at 2s. 2d. per gallon. *Liquefied* is unchanged at 1s., whilst *cresylic* is ½d. dearer at 11½ d. per gallon.

ACID, CHRYSOPHANIC.—Remains very firm at fully steady rates. There has been some talk of advanced quotations up to 25s. per lb., but we cannot confirm this, and the present value may be fairly represented at 20s. per lb., although as much as 24s. would have to be paid for small wholesale quantities.

ACID, CITRIC.—English manufacturers' quotations remain 1s. 3d. per lb , but the market continues dull. Second-hand holders offer at 1s. 2¼d. to 1s. 2⅜d. per lb. *Concentrated juice* quotes at £13 to £13 5s. per pipe, *f.o.b.*

ACID, TANNIC.—The market remains very firm. During the week sales of B P. quality *leviss* have been made at 1s. 8d. per lb., and the current makers' price is 1s. 8d. to 1s. 8½d. per lb. For technical tannic acid 1s. to 1s. 3d. per lb. is asked. The position of this article has not affected *gallic acid*, which still quotes at 1s. 9d. to 1s. 10d. per lb.

ACID, TARTARIC.—There is no change in the position of this article, and the market is flat. *Kemball's* and *Lawes'* makes still quote at 1s. 2d. per lb. on the spot, but in second hand B.P. acid could be bought at 1s. 1¾d. Foreign brands of acid, both *crystal* and *powder* (not guaranteed B.P.), are quoted at 1s. 1½d. per lb.

ACONITE (JAPAN).—At to-day's sales a parcel of 22 bags of *Japan* root from Hiogo was bought in 24s. per cwt.

ALOES.—*Cape* aloes was represented by 40 packages at to day's sales and fully steady rates were paid, 22s. 6d. to 23s. being realised for good bright hard, 21s. 6d. to 22s. for medium hard, 21s. for ordinary hard, rather dull and slightly drossy, 19s. 6d. for mixed soft and drossy. Of *East Indian* aloes 35 packages were offered. A parcel of 9 kegs of *Socotrine* sold at 57s. 6d. to 62s. 6d. for medium hard mixed aloes, whilst 26s. was paid for ordinary grades in skins. Good bright *Socotine* of fine aroma is held for 90s. per cwt. *Curacoa* aloes, of which 135 boxes were shown, sold at prices ranging from 43s. to 50s. for fair to good brown livery, 34s. to 37s. for medium ditto., 16s. to 25s. for ordinary to fair capey, down to 9s. for drossy common kind.

ANTIMONY.—At the drug sales 50 cases of crude *Japan* antimony were brought in at £17 10s. per ton.

BENZOIN.—A total of 181 cases were offered to-day. *Siam* gum was in fair inquiry, £13 being paid for a case of good bold bright almonds in brown block, and £6 15s. to £7 for small mixed almondy gum in block. For good pale almonds in loose block, £20 is asked, and 65s. for dull siftings in block. *Sumatra* gum sold at steady rates, £8 2s. 6d. to £8 5s. being paid for 20 cases of good pale almondy centred seconds fairly packed, and £6 15s. for mixed fair almondy centred seconds, false packed sides, and £3 12s. 6d. for ordinary drossy thirds. No *Palembang* gum of good quality was sold, 45s. being asked for fair seconds in cases, whilst ordinary seconds in tins were bought in at 37s. 6d. Eighteen cases of *Palembang* drossy thirds sold without reserve at 17s. 6d. per cwt.

BUCHU.—A moderate supply of 37 bales was offered to-day, and no change occurred in the price. Of *round* leaves, fine bright green leaves were held for 6d., a bid of 5d. being refused ; the same quality sold last week at 6d. Two bales of medium *round* leaves, rather yellow, realised 4d., whilst 3½d. was paid for 7 bales of very yellow *long* leaves.

CAFFEINE—Steady. On the spot 19s. per lb. would readily buy, whilst for delivery, December to January, 18s. per lb. is quoted.

CALABAR BEANS.—This drug has not been offered in auction lately. To-day 6 bags of good sound quality sold at 1¾d. per lb., a low price.

CALUMBA.—None was sold to-day, although over 300 bales were offered. Ordinary mixed sorts, rather wormy, were bought in at 11s. to 12s. per cwt.

CAMPHOR (CRUDE).—The market is very firm, but there has not been a large amount of business done, owing to the firmness of holders. The nominal quotation for *Japan* camphor is now 192s. 6d. *c.i.f.* per cwt., November to January shipment, but buyers are not disposed to give more than 187s. 6d. *c.i.f.*, whilst there are offers of 182s. 6d. *c.i.f.* for *Formosan* camphor, same shipment. At to-day's drug sales five cases of *China* camphor sold at 190s. per cwt.

CAMPHOR (REFINED).—There is no change in the position of this article. *English* refiners still 2s. 3½d. per lb. for ½-ton lots of *bells* and *flowers*, whilst *German* refined camphor is quoted by the makers at 2s. 1d, for ½-ton lots, and in second hand at 2s. 0½d. per lb. At the drug sales to-day two casks of foreign *refined* camphor in bells were bought in at 2s. 6d. per lb. nominally.

CANNABIS INDICA.—This drug continues quite unsaleable in auction. To-day 40 robbins of dusty brown tops were held for 2¾d. per lb.

CANTHARIDES.—In auction, 17 cases of fair quality *Chinese* flies were bought in at 1s. per lb.

CARDAMOMS.—The total of 135 cases offered to-day did not include any very fine lots. The prices paid were as follows :—*Ceylon Mysore*, medium plump pale 2s. 2d. to 2s. 3d., medium palish 2s., small to medium yellowish 1s. 6d. to 1s. 8d., and medium brown 1s. 4d. to 1s. 5d. per lb. *Seed*, sold at full rates, 2s. to 2s. 2d. per lb. being paid.

CASCARA SAGRADA—Remains unchanged in price. To-day 58 bales of fair mixed quill from San Francisco were bought in at 18s. per cwt.

CINCHONA.—At to-day's sales a parcel of *Loxa* and *Huanoco* bark sold at prices ranging from 10½d. for sound, 6½d. to 7½d. for medium damaged, and 2½d. to 3½d. for badly damaged grades. *Maracaibo* bark sold at 7½d. to 9d., and bold mossy *Java* quill at 3d. Privately 8d. per lb. has been paid for bold flat *Carthagena* bark.

COAL DISTILLATION PRODUCTS.—*Benzole*: This remains a very strong market, and quotations are 4d. to 5d. per gallon higher. 50 per cent. now quotes at 2s., and 90 per cent. at 2s. 2d. per gallon. *Creosote* quotes in bulk at 1⅛d. per gallon. *Toluol* much dearer, and now quoted at 2s. 3d. per gallon for *pure*. *Crude Naphtha* : 30 per cent. at 120° C. quotes at 9d. per gallon.

COCA LEAVES.—*Truxillo* leaves were represented by 14 bales to-day, and sound greenish broken leaves were bought in at 1s. 2d. For 8 bales of damaged leaves, of fair colour, offered without reserve, 10d. to 11½d. was paid. *Bolivian* leaves were bought in at 1s. 6d. per lb.

COLOCYNTH.—Steady. Privately 2s. 6d. per lb. has been paid for good *Turkey* apple.

To-day 2s. 6d. was paid for two casks of medium to bold *Turkey* apple, and 2s. 2d. for broken pulp, very seedy; of nine cases of *Almerian* colocynth, one sold at 1s. per lb.

COPAIBA.—In auction four casks of thick cloudy *African* balsam were bought in at 1s. 6d., whilst 6 casks of *Maracaibo* sold at 1s. 6d. per lb.

CREAM OF TARTAR.—There is no change to note in the quotations, which are merely nominal. On the spot best *French crystals* still quote at 96s. to 97s. per cwt., whilst for *German* brands of powder, 97s. to 100s. is the price. From Bordeaux the quotation for best *French* crystals is 89s. per cwt. *f.o b.*

DRAGON'S BLOOD.—A better inquiry was shown to-day, when 48 packages were offered. Three cases of *Singapore* gum in reeds partly separated and broken, sold at £6 to £6 5s., whilst good fiery-lump realised £8 12s. 6d., ordinary ditto, £6, and dark saucers, £5 15s. For 5 cases of dull, drossy block, 57s. per cwt. was paid.

ELEMI.—Steady. Out of 49 cases offered in auction, 14 cases of good pale clean gum from *Manilla* sold at 23s. per cwt.

ERGOT.—The new crop of *Russian* ergot was represented by 14 packages, which were bought in at 8d. per lb. for fair sound quality. A parcel of 4 bags of mixed ergot of *Russian* character, from Las Palmas, sold at 5½d. to 6d. for medium clean, small quality.

GALANGAL.—For good bold root from Hong Kong 25s. per cwt. is asked.

GAMBOGE.—None was sold in auction. Fair pipe and block medium fracture was bought in at £10 10s. to £11 5s. per cwt.

GINGER.—At the sales on Wednesday no *Jamaica* was offered, whilst all the *Cochin* root was bought in, cuttings at 29s.; fair medium to small washed rough at 35s., and bright rough at 40s. A few cases of *B.* cut sold at 63s. A parcel of *Bengal* part sold at 17s. 6d. to 18s. per cwt. "without reserve."

GLYCERIN.—Since our last report a further advance of 2s. per cwt. has taken place for double distilled 1260 glycerin, and the *G.B.R.* brand now quotes at 70s. per cwt. Other brands vary considerably from 70s. to 77s. 6d., and *Schering* quotes 75s. for water-saponified 1260 glycerin. Second-hand holders ask 67s. 6d. to 70s. per cwt., and the first of these prices is almost the lowest at which it could be bought.

GUARANA.—There has been rather better inquiry for this drug lately. Privately 2s. 3d. per lb. has been paid for fair sausage, and 2s. 3d. to 2s. 6d. is now the current quotation.

HONEY.—In average supply to-day, but very dull of sale. A single case of *Jamaica* honey sold at 21s. per cwt., whilst 18s. was paid for 13 cases of dull *Queensland* honey.

IPECACUANHA.—Only 37 bales of *Brazilian* root were offered to-day, and steady prices were realised, 5s. 3d. being paid for good sound annulated root, 5s. for medium ditto.; 4s. 10d. to 4s. 11d. for damaged part wiry, down to 4s. 7s. for ordinary very wiry root. *Carthagena* (*Columbian*) root sold at a decline of 1d. to 2d. per lb. on last auction rates, 4s. 2d. to 4s. 3d. being paid for good stout and damaged root.

KAMALA.—Steady. In auction 2 cases from Bombay sold at 10d. per lb.

KOLA.—In better inquiry to-day. Out of 39 packages, 1s. to 1s. 1d. was paid for good sound *West Indian*, and 7d. for mouldy ditto.

LIME JUICE.—Steady. To-day fifteen barrels of *Antiguan* juice sold at 10d. to 11d. per gallon.

MENTHOL.—The market is steady, without much inquiry at present. During the week 14s. 9d. has been paid on the spot for good dry *Crystals*, and 15s. is now the general asking price. At to-day's drug sales three cases of *Cocking's* brand were held for 16s., whilst the *Kobayashi* brand was bought in at 14s. 6d. per lb.

MYRRH.—Very slow of sale. Out of 105 packages offered in auction, the only lot sold was six packages of ordinary dusty sorts which realised 52s. 6d. per cwt.

OIL (COD-LIVER).—Very firm. The current quotation is 180s. per barrel of 28 gallons for non-congealing *Lofoten* oil, but some holders ask up to 200s. At to-day's sales 5 barrels of *Norwegian* oil were held for 160s. per barrel.

OILS (ESSENTIAL).—Reports from *China* state that the supplies of *Star Anise* oil are still very moderate, only a few piculs arriving at irregular intervals, whilst with respect to *Cassia oil* it is said that oil of the same aldehyde strength as of the last few years cannot be procured for any money, and consequently very high prices are paid for inferior oil, the best of which hardly averages more than 50 per cent. of aldehyde. On the spot there is no good quality oil offering, and for common grades the following prices are quoted:—60 to 65 per cent., 9s. 3d.; 40 to 45, 8s. 6d.; 35 to 40, 7s. 6d. per lb. *Star Anise* oil continues a very strong market and during the week 9s. 9d. and 10s. have been paid. Holders now ask 10s. 3d. per lb. There have also been considerable sales in Hamburg at a parity of about 10s. per lb. American *peppermint* oil still quotes on the spot at 10s. to 10s. 3d. per lb. for *H. G. Hotchkiss'* brand, whilst *Japan* oil testing 40 per cent. of menthol is firm at 8s. 9d. to 9s., with *dementholised* at 6s. 9d. per lb. At the drug sales 3 cases of *Bay* oil sold at 8s. per lb. *Eucalyptus* was neglected, the only parcel sold being 6 cases of the *Native Bear* brand, which realised 1s. per lb. *H. G. H. Spearmint* oil was bought in at 10s. per lb. Fisher's *Citronella* at 2¾d. per oz., and Bombay *Rose* oil at 3½d. per oz.

ORRIS ROOT.—*Florentine* is rather better, and 70s. per cwt. *c.i.f.* is now asked for best selected root, and 65s. *c.i.f.* for good sorts. The prices of *Veronese* root have dropped to 59s. 6d. *c.i.f.* per cwt. for good bold root. To-day *East Indian* orris from Aden was held for 35s., and fine picked *Florentine* root was bought in at 85s. per cwt.

QUINCE SEED—Steady. Two bags of good quality seed from the Cape sold to-day at 1s. 3d. per lb.

RHUBARB.—At auction to-day, out of about 170 cases, some thirty changed hands. The prices paid were as follows:—*Shensi*: good bold flat rough pickings, 2s. 6d.: medium fine, good even pinky fracture, 1s. 9d.; bold flat, part, rough coat, good pinky fracture, 1s. 8d.; medium ditto, 1s. 5d. to 1s. 6d.: mixed rough pickings, 11d. *Canton*: Fine bold flat, one fourth spongy. 1s. 1d.; good medium flat 11d.; rough mixed pickings, 11d.; bold flat half pinky fracture, 9½d. No *High dried* was sold in auction.

SAFFRON.—The market has slackened off somewhat this week, and the current quotations are as follows:—Super extra, 29s. to 30s.; fine, 26s. 6d. to 28s., and ordinary, 24s. 6d. to 26s. 6d. per lb.

SARSAPARILLA—Steady. *Jamaica* was in good inquiry to-day, and sold at steady rates, 1s. 5d. being paid for sound, and 1s. 2d. to 1s. 3d. for damaged quality. *Honduras* was bought in at 1s. 3d, whilst mixed sarsaparilla, part *Lima* and part *Honduras*, fetched 9½d. to 10d., and 1s. 1d. was paid for *Lima-Jamaica*.

SCAMMONY ROOT.—Lower. In auction 11 bales sold at 40s. per cwt., showing a considerable decline.

SEEDS (VARIOUS).—*Dill*: *Bombay* seed sold in auction at 12s. per cwt. *Thyme*: 25 bags from *Bombay* realised 6s. per cwt. *Aniseed*: 37 bags from *Gibraltar* sold at 32s. per cwt. *Cumin*: For new *Mogador* seed 39s. per cwt. is asked. *Star Anise*: Good quality *China* seed was bought in at 100s. per cwt.

SENNA.—A moderate supply of *Alexandrian* leaves was shown but no inquiry was manifested. They were bought in at 8d. to 1s. per lb. Of *Tinnivelly* senna, 546 bales were offered and full prices were paid as follows:—Fair medium green, 3d. to 3¼d. per lb.; ordinary medium greenish, 2¼d. to 2¾d.; medium yellowish, 2d,; and ordinary small to medium, 1d. to 1¾d. per lb.

SQUILLS.—Privately, good pale squills sell at 3½d. per lb. In auction 6 bales of brownish quality sold at 1¼d. per lb.

STAVESACRE SEEDS—In better supply. To-day 6 bags of fair quality seed, but slightly damaged by fire and water, sold at 70s. per cwt.

TAMARINDS.—Good *Barbados* tamarinds sell privately at 17s. to 18s. per cwt. None were sold in auction.

TOLU BALSAM.—None was sold in auction to-day. Good old fashioned balsam was bought in at 3s., and glassy dark at 2s. 6d. The prices asked are 2s. 8d. and 2s. 2d. per lb. respectively.

TONQUIN.—Four packages of *Paira* beans sold in auction at 2s. 3d. per lb.

WAX (BEES)—Steady. *Jamaica* sold at £7 15s. *Mozambique*, at £7 2s. 6d. *Australian*, at £7, and *Zanzibar*, at £7.

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DEATH OF A WELL-KNOWN DRUG BROKER.

WE regret to announce the death of Mr. W. H. Peat, senior partner in the firm of Lewis and Peat, the well-known Mincing Lane brokers, which occurred on the 22nd inst. The deceased, who was 79 years of age, had retired from active connection with the firm for some years, and had been in failing health for a considerable time. The interment took place at Brighton on Tuesday last.

Previous to the drug sales on Thursday, Mr. Dalton, of the firm of Dalton and Young, made a graceful allusion to the sad event. In the course of his remarks he said that no one in the drug trade was better known or more widely respected. In his capacity as a business man his energy and tact brought the firm with which he was associated to such a position, that it was second to none in Mincing Lane, and his genial humour and sympathetic disposition caused him to be equally esteemed personally. Mr. Dalton said that he was sure all who were present would join him in the expression of sympathy with the family of the deceased and with the members of the firm, who had sustained a great loss by his death.

Mr. Richard Barron, speaking on behalf of the wholesale drug trade, wished to add to the tribute which Mr. Dalton had paid to the memory of the deceased. He said that during the period of about sixty years in which Mr. Peat was connected with the firm of Lewis and Peat, he had always set an example to brokers and buyers which was worthy of imitation.

Mr. Ziegle also spoke on behalf of the export drug trade. Mr. Devitt, on behalf of the firm, thanked the speakers for the kind manner in which they had referred to Mr. Peat. He could assure them that the sympathies of the deceased were always with the drug trade in every particular during the fifty years he was a partner in the firm.

NEW BOOKS AND NEW EDITIONS.

ELEMENTS OF HUMAN PHYSIOLOGY. By E. H. STARLING. 2nd edit. Cr. 8vo., pp. 454. Price 7*s.* 6*d.* (J. and A. Churchill, London.)

SERVICE CHEMISTRY: being a Short Manual of Chemistry and its applications in the Naval and Military Services. By V. B. LEWES. 2nd and revised edit. Illustrated. 8vo., pp. 574. Price 15*s.* (Whittingham, London.)

A POPULAR HANDBOOK TO THE MICROSCOPE. By L. WRIGHT. Illustrated. Cr. 8vo., pp. 256. Price 2*s.* 6*d.* (Rel. Tract Soc., London.)

OUTLINES OF PRACTICAL PHYSIOLOGY, being a Manual for the Physiological Laboratory, including Chemical and Experimental Physiology, with reference to Practical Medicine. By W. STIRLING. 3rd edit., revised and enlarged, with 289 illustrations. Crown 8vo., pp. 418. Price 12*s.* 6*d.* (Chas. Griffin and Co., London.)

MENTAL PHYSIOLOGY, especially in its relations to Mental Disorders. By T. B. HYSLOP. 8vo. pp. 568. Price 18*s.* (J. and A. Churchill, London).

ANALYTICAL KEY TO THE NATURAL ORDERS OF FLOWERING PLANTS. By F. THONNER. Cr. 8vo, pp. 158. Price 2*s.* (Swan Sonnenschein and Co., London.)

EXCHANGE.

[*Notices not exceeding thirty words in length, are inserted free in this column, if they do not partake of the nature of ordinary advertisements. They should be addressed "Editorial Department, 17, Bloomsbury Square, W.C.," and arrive not later than Wednesday.*]

OFFERED.

300 Duplicate Silver English Coins for disposal (singly or otherwise), from William the Conqueror upwards.—Arthur Graeme, Blenheim House, Cotham Brow, Bristol.

Tomes' 'Dental Surgery,' unsoiled, 7s. 6d.; five pairs Maw's tooth forceps, never been used, 4s. each; Griffiths' hand camera, five slides, view finder, 12s. 6d.—Price, 15, Norwood Street Ashford, Kent.

'Æneid,' 1-3, 6d. each; Translation, 1-6, 9d. ditto; Word for word, 1s. 6d.; first volume, parted, 9d.; Smith's 'Principia Latina,' part 3, 2s.—Morgan, 46, Waterloo Road, Waterloo, Liverpool.

Bohn's 'Handbook of Domestic Medicine,' Stark's 'Popular History of British Mosses,' Lindsay's 'Popular History of British Lichens.' Both vols. match, with coloured illustrations, good condition; what offers?—Picken, Newport, Salop.

Wills' 'Pharmacy,' 3s. 3d., post free.—C. A. B., 1A, Trinity Street, S.E.

Twelve Incandescent Gas Lights (Welsbach patent), quite new, complete with mantles, 7s. each, or 72s. the lot.—G. Abbott, 61, Rupert Lane, Everton, Liverpool.

Auto. Still, by Bennett, Son and Shears, in copper, nearly new; cost £6 10s., take £3 15s.. delivered.—Smith, Chemist, Stroud.

'Medulla Medicinæ' (Dispensatory), 1756, 3s. 6d.; Edinburgh 'Dispensatory,' 1810 2s. 6d.; London 'Dispensatory,' 1826, 2s. 6d.; Thorpe's 'Chemistry,' vol. i., 1s. 6d.; Irving's 'Manual of Heat,' 1s.—F. Chalmers, Clifton Dispensary, Bristol.

Michael Faraday's 'Chemical Manipulation'; very scarce book, 7s. 6d.; Liebig's 'Chemistries Translated,' 2 vols., 5s.; Watson's 'Practice of Physic,' 2 thick vols., 6s. 6d. All free.—Davis, "Chestnuts," Gordon Hill, Enfield.

Two pear-shaped carboys, 8 galls., with mahogany stands; outside lamp; 3 ruby lenses; 3 foot iron bracket.—Bevan, care of Mr. Jacks, 161, Gower Street, London.

Binnal Lantern (mahogany), 4 in. condensers, blow-through jets, Oway dissolver, complete in lever lock-up box, with indiarubber tubing, carriers, etc., perfect condition, £5.—J. Cammack, 153, Dawes Road, Fulham.

Unused Portable Assay Balance, with rider to carry 2 grammes each pan, and turn with 0·1 milligramme, fitted in mahogany case, Price £4 4s.—J. Allen, 1, George Street, Plymouth.

Frankland's 'Organic Chemistry,' 1s.; Thorpe's 'Metals,' 2s.; Roscoe's 'Chemistry,' 9d.; Hooker's 'Botany,' 9d.; 'Volumetric Analysis,' 1s.; Pharmacopœia, with "Minor" notes, 7s. 6d.; Minor lectures, 15s. 6d.—F. H. Slynn, Mount Street, Wallsall.

WANTED.

One or two burettes with stand, litre measuring flask, and test mixer. Prices to—Dennis, 11, Minery Lane, Canterbury.

Advertiser would be glad to exchange, a week after publication, 'The Spectator' for the 'British Medical Journal.'—C. M., 1, Stratford Villas, Camden Square, N.W.

Green's 'Botany'; Maisch's 'Materia Medica'; Vines' 'Botany' (latest). Will exchange Taylor on 'Poisons,' or Muter's 'Analysis,' or will send Muter, 3s. 3d., or state lowest price.—Dixon, 164, Aigburth Road, Liverpool.

'B.P., 1885,' Maisch's 'Materia Medica.'—M. H. Tyler, 1, Preston Road, Brighton.

Late Advertisements.

Assistants Wanted.

IMMEDIATELY.—Junior ASSISTANT. WINDLE, 452, Edgware Rd., W.

QUALIFIED, gentlemanly ASSISTANT (in-doors). Experienced. Full particulars and requirements, XERXES, Evans, Gadd & Co., Exeter.

DIARY OF THE WEEK.

Secretaries of Societies are requested to send notices of forthcoming meetings not later than Wednesday in the previous week.

SATURDAY, NOVEMBER 30.

Pharmaceutical Football Club v. Vampires, at Norbury.

SUNDAY, DECEMBER 1.

Liverpool Sunday Society, at 3 p.m.
"The French Revolution," by A. J. Grant.

MONDAY, DECEMBER 2.

Society of Arts (Cantor Lectures), at 8 p.m.
"Mechanical Road Carriages," by W. Worby Beaumont.

Society of Chemical Industry (London Section), at 8 p.m.
"Alkali Manufacture by the Hargreaves Bird System of Electrolysis," by J. Hargreaves.
"The Analysis of Chrome Iron Ore, Ferrichrome and Chrome Steel," by Dr. S. Rideal and S. Rosenblum.

TUESDAY, DECEMBER 3.

Pharmaceutical Society of Great Britain.
Benevolent Fund Committee.
Finance Committee.
General Purposes Committee.

WEDNESDAY, DECEMBER 4.

Pharmaceutical Society of Great Britain.
Council Meeting.

Pharmacy Club at 6.45 p.m.
Dinner at the Café Royal, Regent Street, W.

Society of Arts, at 8 p.m.
"Mural Painting, with the Aid of Metallic Oxides and Soluble Silicates," by Mrs. Anna Lea-Merritt and Professor W. C. Roberts-Austen.

THURSDAY, DECEMBER 5.

School of Pharmacy Students' Association, at 7 p.m.
Inaugural Meeting. Address by the retiring President, Professor Attfield.

Linnean Society of London, at 8 p.m.
"On a new Species of *Bromus* in Britain," by G. C. Druce.
"Notes on New or Rare *Phasmidæ* in the Collection of the British Museum," by W. F. Kirby.

Chemists' Assistants' Association, at 8.30 p.m.
"Some B.P. Infusions and their Concentrated Representatives," by R. A. Cripps.

Chemical Society, at 8 p.m.
"The Constitution of Terpenes," by Professor Armstrong.
"New Derivatives from α-Dibromo-Camphor," by Dr. M. O. Forster.
"The Chemistry of Dibromopropyl Thiocarbimide, and the Action of Bromine and Iodine on Allyl-thio-urea," by Professor A. E. Dixon.

Liverpool Pharmaceutical Students' Society, at 8.30 p.m.
"Ointments," by R. H. Mitchell.
"The Pharmaceutical Society: Is it worthy of Our Support?" by E. Williams.

FRIDAY, DECEMBER 6.

Geologists' Association (London), at 8 p.m.
"Notes on Indian Geology, including a visit to Kashmir," by W. H. Hudleston.

Advertisements in the Pharmaceutical Journal.

ALL ADVERTISEMENTS must be sent to the Office, 5, Serle Street, Lincoln's Inn, W.C., where replies to prepaid advertisements may be addressed, and will be redirected free of charge. Postal Orders should be made payable at Lincoln's Inn, W.C., to STREET BROS. Cheques should be crossed "London Joint Stock Bank."

PREPAID ADVERTISEMENTS.—Advertisements of Assistants Wanted, Apprenticeships, For Sale, Partnerships, Businesses for Disposal, Businesses Wanted, and Premises to Let are charged as follows:—Fifty words or less, 3*s.* 6*d.* Each additional ten words or less, 6*d.*

ADVERTISEMENTS of a general character are inserted at 4*s.* 6*d.* each for seven lines (50 words) or less, and each additional line of seven words, 6*d.*

FREE ADVERTISEMENTS.—Advertisements of Assistants seeking Engagements will be inserted Free of Charge, subject to conditions mentioned in each number of the Journal.

SUPPLEMENT
TO THE
PHARMACEUTICAL JOURNAL.

LATE NEWS.

The Sale of Poisons by Unqualified Men.—The following letter was recently addressed to the editor of the *Leeds Mercury* :—

"Sir,—Will you allow me to call the attention of the local secretary of the Pharmaceutical Society to the above. Poisons are being sold by unqualified men, and patent medicines also, which contain poison. This is a great hardship to the chemists, and if only the Society have the interests of the trade at heart, as they profess to have, they will summon these law-breakers before the magistrates, which is the only way to stop it. When the Society compromises cases by accepting fines, they do no real good, the offenders often go on again selling poisons. I do hope, in justice to the trade, this matter will be taken up, and the Society will oblige a good many chemists all over the country.—Yours, &c., Qualified Chemist."

The following reply appeared in the same paper on December 4 :—

"Sir,—My attention has been directed to your issue of the 30th ultimo, which contains a letter signed 'Qualified Chemist,' stating that the law relating to the sale of poisons is being infringed, presumably by some person or persons in Leeds. I very seldom break my rule of not replying to anonymous letters, but I must in this instance of vague inaccuracies be pardoned if I ask for a little of your space. If there are cases of infringement of the law within the personal knowledge of 'Qualified Chemist,' it is his obvious duty, in the interests of public safety, to inform me of the facts, in order that I might take the necessary steps to enforce obedience to the law. I am the only person authorised to institute proceedceedings under Sections 1-15 of the Pharmacy Act, 1868, and if your correspondent's pseudonym correctly indicates his status, he should be perfectly well aware of the futility of applying to anyone else. The implications cast by your correspondent upon this Society and its local secretaries I pass over as being either the result of a deplorable ignorance of the real facts, or a gross disregard for them.—Yours, etc., Richd. Bremridge, Secretary and Registrar under the Pharmacy Acts, 1852 and 1868. Pharmaceutical Society of Great Britain, 17, Bloomsbury Square, London."

Presentation to a Teacher.—The students of the Manchester College of Pharmacy have shown very practically their kindly feeling and hearty appreciation of the services rendered them by Mr. G. L. Scott, who has been demonstrator during the past year, by presenting him with an elaborate gold watch chain. Mr. Charles Turner acted as Chairman and made the presentation; speeches were made by Mr. Willson, a Major student, and by Mr. Swift, on behalf of the Minor men. Mr. Scott, in replying, thanked all, not only for their valuable gift, but also for the many kindnesses he had received from them, which he said he should ever remember. The evening glided away pleasantly, an excellent musical programme being rendered by students past and present. Microscopes also received a considerable share of attention. At the close a very hearty vote of thanks was accorded to Mr. and Mrs. Charles Turner.

Lanolin and Adeps Lanæ.—The *Pharmaceutische Zeitung*, of 30th ult., states that the long-continued litigation between the German manufacturer of lanolin and adeps lanæ has now been terminated by a compromise which will admit of wool fat being sold and used independently of patent right claims by the manufacturers of lanolin. If that be correct, it may be expected that some authoritative statement will be made to remove any obstacle there may be to the use of wool fat in other forms than that which is the subject of the lanolin patent.

North of England School of Chemistry and Pharmacy.—The students connected with the North of England School of Chemistry and Pharmacy, held their first annual assembly at the Northumberland Hall, Newcastle, on December 3. Mr. George Weddell presided at the concert, and in his opening remarks pointed out that until recently students of pharmacy had to travel to Sheffield, Liverpool, or Edinburgh for instruction. But three years ago Mr. G. F. Merson completely altered that condition. Himself trained at Edinburgh, he brought the best methods from that capital to Tyneside. The school was a speculation, but he never doubted its ultimate success. The increase had been little short of wonderful; and that happy gathering proved how well founded had been his confidence.—The concert was under the direction of Mr. M. B. Dixon. Dancing commenced at nine o'clock, to music provided by Mr. Jackson, and was continued for some hours, the genial and energetic M.C.'s (Messrs. McBryde and Whittle) meeting unqualified success in their efforts to provide general satisfaction. The refreshments, provided by Mr. Greenwell, were on a generous scale.

Royal Institution.—The following are the Lecture Arrangements before Easter:—Professor John Gray McKendrick, Professor of Physiology in the University of Glasgow, Six Lectures (adapted to a Juvenile Auditory), On Sound, Hearing and Speech (experimentally illustrated); Professor Charles Stewart, Fullerian Professor of Physiology, R.I., Eleven Lectures on the External Covering of Plants and Animals: its Structure and Functions; The Rev. Philip H. Wicksteed, Four Lectures on Dante; Professor H. Marshall Ward, Professor of Botany in the University of Cambridge, Three Lectures on Some Aspects of Modern Botany; The Rev. William Barry, D.D, Four Lectures, "Masters of Modern Thought"—Voltaire, Rousseau, Goethe, and Spinoza; Professor C. Hubert H. Parry, Professor of Musical History and Composition at the Royal College of Music, Three Lectures on Realism and Idealism in Musical Art (with Musical Illustrations); The Right Hon. Lord Rayleigh, Professor of Natural Philosophy, R.I., Six Lectures on Light. The Friday Evening Meetings will begin on January 17, when a Discourse will be given by The Right Hon. Lord Rayleigh on More about Argon; succeeding Discourses will probably be given by Professor Burdon Sanderson, Mr. W. S. Lilly, Dr. John Murray, Mr. J. J. Armistead, Dr. Edward Frankland, Mr. A. R. Binnie, Mr. Sidney Lee, Professor T. R. Fraser, Professor Dewar, and others.

Glasgow and West of Scotland Pharmaceutical Association.—A meeting of this Association, largely attended, by the younger men especially, was held in the Rooms, West Regent Street, Glasgow, on the evening of Wednesday, 27th ult. Mr. W. L. Currie, President, occupied the chair, and introduced the lecturer, Dr. Lees, pharmaceutical teacher in Glasgow, who spoke on "Vegetable Histology." His lecture was illustrated with lime-light views, and at the outset the lecturer alluded to the fact that it was no doubt somewhat of a novelty in pharmaceutical education to take advantage of the magic lantern. But, he pointed out, they were progressing in their education, and he said the lantern would aid them considerably in this direction. Dr. Lees then went into his paper proper, and explained certain of the qualities of plants. His lecture, in fact, was a summarised botanical treatise, well and skilfully illustrated by microscopic views thrown on the screen by the lantern, and at the close Dr. Lees was warmly thanked.

Deficient Seidlitz Powders.—John Edward Fisher, patent medicine vendor, Holmfirth, was summoned at the Holmfirth Petty Sessions on Saturday last for selling seidlitz powders containing more tartaric acid and bicarbonate of sodium than the British Pharmacopœia preparation, and he pleaded not guilty.—Mr. C. H. Marshall defended.—Formal evidence was given by Mr. Herbert Newbould, inspector under the Food and Drugs Acts for the West Riding County Council, as to purchasing from the defendant on October 11 nine seidlitz powders, for which he paid 9*d*. He divided them into three parts, and took one of the parts to the public analyst at Sheffield. The analyst (Mr. Allen, of Sheffield) had sent a certificate, which Mr. Newbould now read, and which showed that the powders contained "materially more tartaric acid and bicarbonate of sodium than the British Pharmacopœia preparation."—In reply to Mr. Marshall, the Inspector said he did not ask for "British Pharmacopœia seidlitz powder."—In defence Mr. Marshall pointed out that there were no foreign substances in the powders. The real point at issue was one of quantities, not that the ingredients were not in accordance with the demand of the purchaser. Mr. Fisher made the packets up exactly in the same way as they had been put up for twenty years, and seidlitz powders were a harmless domestic medicine and were not dangerous. —Cases were quoted on each side, and the Bench considered the case in private, after which the Chairman said: We don't think there is any intention on Mr. Fisher's part to supply a wrong article in this matter, but we regard these preparations as not constituting seidlitz powders as ordinarily understood, and we therefore inflict a mitigated penalty of 10*s*. and costs.—Mr. Marshall said that, having regard to the importance of the case, he might find it necessary to take it to the Court of Appeal.

MARKET REPORT.

[Specially compiled for the Pharmaceutical Journal.]

London, December 5, 1895.

A quiet week in the Chemical Market must again be reported, with very few changes. Citric and tartaric acid are still slow of sale at unchanged rates, whilst cream of tartar after a period of inactivity is rather firmer to-day for shipment. Carbolic acid is very firm, and the same applies to coal distillation products generally, which are mostly dearer. Of fine chemicals, glycerin has again advanced in price, whilst santonine and sugar of milk are very firm at full rates. Quinine is lower and very dull of sale, whilst opium alkaloids are flat. Menthol is steady without much inquiry, whilst, on the other hand, German refined camphor has been advanced in price, and a good business has been done in crude camphor at a considerable advance. In the drug market the priucipal points of interest are a good business in copaiba balsam, whilst Peruvian balsam has declined considerably in consequence of fresh arrivals. Of other articles, spermaceti, storax, and cloves are dearer. In the essential oil market star anise oil is steady, whilst cassia has sold at a considerable advance. A fair business has been done in good brands of eucalyptus oil. Full details will be found below :—

Acid, Boracic.—The current quotation is 30s. per cwt. for *crystals*, and 32s. for powder.

Acid, Carbolic.—The market remains very firm without any noticeable change in price. The current quotations are as follows:—*Crystals*, 34° to 35° C., 5⅞d. ; 39° to 40° C., 6¾d. ; 39° to 40° C. (*detached crystals*), 7½d. per lb. *Crude:* 60 per cent. quotes at 1s. 8d., and 75 per cent. at 2s. 2d. per gallon. *Liquefied* and *Cresylic* are unchanged at 1s. and 11½d. per gallon respectively.

Acid, Citric. — The market remains quiet. English makers quote at 1s. 3d. per lb. still, but in second hand the current quotation is 1s. 2¼d. per lb. *Concentrated juice* quotes at £13 5s. to £13 10s. per pipe, *f.o.b.*

Acid, Chrysophanic—The market is very firm. Business has been done during the week at 20s. per lb., and this is about the lowest figure now. Very little can be had for prompt delivery at this price.

Acid, Tartaric.—The market remains flat without change in the quotations. *English* makers' price is still 1s. 2d. per lb. on the spot for B.P. acid, whilst second-hand holders offer at 1s. 1¾d. *Foreign* brands (not guaranteed B.P.) both of *crystal* and *powder* quote at 1s. 1½d. per lb.

Ammonia Salts.—*Sulphate*: Dull of sale at £8 15s. for grey 24 per cent. on the spot, whilst *Hull* quotes at £8 12s. 6d. and *Beckton* at £9. *Carbonate*, 3½d. to 3¾d. per lb. *Liquor*, 3¾d. to 3½d. per lb. less 5 per cent. *Sal Ammoniac*: Firsts, 39s.; seconds, 37s.

Arsenic—Remains steady at £15 10s. to £16 per ton landed terms for best white *powder.*

Borax.—The position is unaltered, the Convention price being still 21s. for *powder*, and 20s. for *crystals*, whilst second-hand holders offer at 20s. 6d. and 19s. 6d. respectively.

Cacao Butter.—At the monthly sales held on Tuesday, 500 cases, representing 50 tons of *Cadbury's* make, sold at a decline of about 3d. per lb., the average being 13⅝d. against 16½d., which was the price paid at the November sales.

Caffeine.—The market is very firm at 18s. to 19s. per lb., according to quantity. The American demand continues to be brisk at a parity of about 27s. per lb.

Camphor (Crude).—A very firm market and a fair business has been done, especially in *Japan* camphor at advanced prices. Closing at 189s. 6d. *c.i.f.* last week, sales of 400 pinculs of *Japan* camphor, near at hand, were made at 187s. 6d., *c.i.f.*, and this was followed by sales at 190s., *c.i.f.* Importers now ask 197s. 6d., *c.i.f.*, and there is every likelihood of a further advance. *Formosan* camphor, in which little business has been done, quotes at 187s. 6d , *c.i.f.*, December to February steamer.

Camphor (Refined).—The position of the crude article has naturally reacted upon refined camphor, and the *German* manufacturers (whose reduction of 1d. per lb. was announced a fortnight ago) have raised their quotations to the same position as before, and now quote in three positions: —*Bells* in parcels of 1 ton or more, 2s. 1½d. ; in parcels of ½ to 1 ton, 2s. 2d., and in lots of from 5 to 10 cwt., 2s. 2½d. per lb. for this year's delivery. Second hand holders of *German* camphor offer at 2s. 1½d. for quantities of not less than ½ ton. *English* refined camphor remains unchanged.

Chamomile.—There is naturally little doing in this article at the present time. Quotations for good *Belgian* flowers range from 36s. to 37s. 6d. per cwt.

Cream of Tartar.—Since our last report there has been little doing in this article, and nominal spot quotations range 97s. to 99s. for *German* brands of powder, whilst best white *French* crystals offer at 95s. 6d. per cwt. To-day, however, the market is firmer, and the shipment quotations from Bordeaux has advanced from 89s., *f.o.b.*, to 90s., *f.o b.*

Coal Distillation Products.—*Benzole*: Continues a very strong market, and both kinds have advanced a further 1d. per gallon since our last report. 50 per cent. now quotes at 2s. 1d., with 90 per cent. at 2s. 3d. per gallon. *Creosote*: In bulk quotes at 1⅛d. per gallon. *Toluol*: Dearer. Now quoted at 2s. 4d. per gallon for *pure*. *Crude Naphtha*: 30 per cent. at 120° C. quotes at 9d. per gallon. *Solvent Naphtha*: 95 per cent. at 160° C., 1s. 8d. ; 90 per cent. at 160° C., 1s. 3½d. ; 90 per cent. at 190° C., 1s. 2d. per gallon. *Anthracene*: 13A, 11½d. ; B, 10d. per unit. *Pitch*: 37s. 6d. per ton, *f.o.b.* *Tar*: *Refined* quotes at 12s. 9d. per barrel.

Coca Leaves.—Good broken greenish *Truxillo* leaves sell privately at 1s. per lb., whilst 1s. 6d. is asked for fair quality *Bolivian* coca.

Copaiba (Balsam)—Very firm. During the week there have been sales of good *Maranham* balsam at full rates, and 1s. 10d. to 1s. 11d. is now the general quotation, but the stock is very small. Of genuine *Para* and *Bahia* balsam there is now none to be had on the spot. The current quotation for ordinary thick balsam is 1s. 7d. per lb.

Copper Sulphate—A weak market with declining prices. On the spot £15 15s. to £16 15s. per ton is quoted, the latter figure being for the *Anchor* brand.

Ergot.—Still neglected in spite of the low prices asked for the new crop, which are respectively 9d. per lb. for *Spanish*, and 7d. to 7½d. for *Russian*, both *c.i.f.* terms.

Galls.—The market in *China* galls remains quiet, but steady. The quotation for arrival is 59s. 6d. *c.i.f.*, December to February shipment, and for *Japan*, 54s. per cwt. *c.i.f.* *Persian* galls are also unchanged. A small business is reported in good blues at 52s. 6d., and fine whites at 45s. per cwt. on the spot, whilst greens quote nominally at 40s. to 47s. 6d. per cwt.

Gentian. — Good quality *French* root offers at 15s. per cwt. on the spot.

Glycerin.—Since our last report quotations are again higher, from 72s 6d up to 80s., for double distilled 1260 German makes, according to brand. Second-hand holders quote at 70s. to 72s.

Golden Seal Root—Very firm. The current spot quotation is now 1s. 2d. per lb. whilst from New York it quotes at 1s. per lb. *c.i.f.* terms.

Guarana—Rather firmer. There have been sales privately at 2s. 3d. per lb. for fair sausage, and 2s. 6d. is now the lowest price at which it can be bought.

Liquorice Root.—Ordinary rough *Persian* root quotes at 7s. to 7s. 6d. per cwt.

Manna.—The market is quiet, and prices have declined. The current quotations are now as follows : Fine selected flake, in 20-lb. boxes, 1s. 7½d. ; good flake, 1s. 2½d. ; small ditto, 8d. ; and sorts at 6½d. per lb.

Marsh-Mallow Root.—The present spot price is 57s. 6d. per cwt., and business has been done at this figure during the week.

Menthol—Quiet. The spot price is 14s. 6d. per lb., whilst for shipment the quotation is 14s. 9d. *c.i.f.* terms.

Oil (Cod Liver).—The market is firm, but there is not much business doing at present. Fine non-freezing *Lofoten* oil offers at 180s. per barrel, although for some brands higher prices are asked. *New Zealand* oil quotes at 5s. 3d. to 5s. 6d. per gallon for good quality.

Oils (Fixed) and Spirits.—*Castor.*—*Italian*: Owing to the marked advance in seed which has taken place, the market is very firm, and quotations may be expected to advance considerably. At present the spot price for fine tasteless oil is 3⅞d. to 4d. per lb. *French* medicinal oil quotes at 3⅞d. to 3¼d. per lb. in tins (packed in cases). *Cotton*: The market is steady on the spot, with a firm forward tendency, although no change has occurred in quotations, which remain £17 to £17 10s. for *refined* oil, according to brand and package. *Coco-nut* : Lower. *Ceylon* now quotes at £22 10s., whilst *Cochin* is dearer at £25 10s. on the spot. *Linseed* : Steady ; oil in barrels is quoted at £20 2s. 6d. *Olive*: The crop in *Sicily* has been a satisfactory one, and prices have consequently declined, with a tendency to a further drop owing to the poor demand for export, which is the result of competition in Spain and the Levant, where prices are lower than in Italy. The current quotations are £29 6s. 6d. to £31

7s. 6d. *f.o.b. Messina*, whilst *Gallipoli* oil quotes at £32 7s. 6d. *Syrian* olive oil quotes at £33, and *Spanish* at £37. *Rape*: A firm market. *Refined* oil quotes on the spot at £24 5s. to £24 10s. *Turpentine*: Dull of sale. *American* spirit quotes at 19s. 10½d. on the spot. *Petroleum*: Firm. *American* oil quotes at 6¾d. to 6⅞d., *water white*, 7¾d. to 8d., and *Russian*, 6½d. to 6⅝d. per gallon. *Petroleum Spirit*: *Ordinary* 9d. to 9¼d., *deodorised* 9¼d. to 9⅜d. per gallon.

OILS (ESSENTIAL).—Reports from *China* state that the market in *Star Anise* oil is very active, with rapidly advancing prices, and this is likely to effect the price of seed, which has already advanced considerably, partly caused by the smallness of the crop. *Cassia* oil is reported quiet, with arrivals of small lots of inferior quality only. On the spot business has been done in *Star Anise* at steady rates, 10s. 3d. having been paid during the week. For shipment the last price we heard was 9s. 8d. per lb. *c.i.f.*, December to January shipment. *Cassia* oil has again advanced. Business has been done on the spot at 10s. 6d. per lb. for 75 per cent. oil, whilst 12s. has been paid for 80 to 85 per cent. oil. Lower grades of oils are held for advanced rates, viz.: 60 to 65 at 10s., and 35 to 40 at 8s. per lb. American *peppermint* oil is steady at 10s. to 10s. 3d. per lb for *H. G. Hotchkiss'*, and 8s. for *McK. & R.'s* brand, whilst *Japan* oil testing 40 per cent. of menthol is steady at 8s. 9d., and *dementholised* at 6s. 9d., with *c.i.f.* quotations at 9s. and 7s. per lb. respetively. A fair business has been done in *Eucalyptus* oil at advanced rates, 2s. 6d. per lb. having been paid for the *Platypus* brand. For *Cajuput* oil of good genuine quality 2s. 9d. has been paid during the week. *Cinnamon leaf* oil is dearer, 4d. per oz. being now asked. Fisher's *Patchouli* oil quotes at 1s. 3d. per oz. *Citronella* oil is much dearer. Business has been done at 1s. 8d. and 1s. 9d. per lb., and 1s. 10d. is now generally asked.

ORRIS ROOT.—The market is rather quiet, but quotations are firm. Best selected *Florentine* root quotes at 70s., and good sorts at 65s. per cwt., *c.i.f.*

PERU (BALSAM)—Lower. A considerable arrival of genuine balsam has come to hand during the week, and prices have delined fully 1s. per lb. There are now sellers at 9s. per lb. on the spot.

PHENACETIN.—The current quotation is 5s. to 5s. 6d. per lb. according to quantity and holder.

POTASH SALTS.—*Chlorate*: Easier. The spot price is now 4½d. per lb., whilst the same figure is quoted in Liverpool *f.o.b.* *Bichromate*: Unchanged at 4⅝d. to 4¾d. per lb. on the spot. *Yellow prussiate*: Steady at 8d. per lb. on the spot. *Cyanide*: Very firm at 1s. 6d. to 1s. 7d. per lb. for 98 per cent. *Permanganate*: Steady at 65s. to 67s, 6d. for small and 70s. to 72s. 6d. for large *crystals*.

QUICKSILVER.—Very quiet. The importers maintain the price at £7 7s. 6d. per bottle, but it can now be bought at £7 4s. in second hand.

QUININE SULPHATE.—Still tending lower. During the week there have been small sales of the best *German* makes at 1s. 0¾d. per oz., but the amount of business done has been only small, and to-day the price has declined still further. with sellers at 1s. 0½d The landings during November were 24,588 ozs., and the deliveries 54,178 ozs., making the stock on November 30 2,040,298 ozs., against 2,840,816 ozs. at the same period in 1894.

ROSE LEAVES.—The current quotation for *French* leaves is 1s. 4d. per lb., whilst 2s. to 2s. 3d. is asked for *Dutch*, according to quality.

SAFFRON.—There is little to report in this article. The *Valencia* market is very firm, and quotations are as follows for the new crop:—Finest, 29s. to 31s.; fine seconds, 27s. to 28s.; and ordinary, 24s. 6d. to 26s. 6d. per lb.

SANTONINE—In steady demand, and the market is firm. The makers still quote 7s. 6d. per lb., whilst 7s. to 7s. 3d. would buy in second hand.

SARSAPARILLA.—Steady. Business has been done privately in *Lima-Jamaica* at 1s. per lb. for sound root, and in genuine *Jamaica* at 1s. 5d. per lb.

SCAMMONY.—*Root* is in small supply and firmly held. There are a few cases of fine *Turkish virgin* resin still offering. The price asked is 32s. per lb. Business has been done during the week in *Skillippe* at 10s. per lb. British makes of *Scammony resin* quote at 9s. 6d. per lb.

SEEDS (VARIOUS).—*Star Anise*: Spot quotations range from 95s. to 100s. per cwt. The former price would generally be accepted. *Caraway*: Good quality *Dutch* seed is still quoted at 25s. 9d. per cwt., *f.o.b.* *Coriander*: In auction low coarse *Bombay* sold at 3s. 6d. per cwt. *Canary*: 11s. per cwt. for *Sicilian* seed.

SHELLAC.—The supplies offered at Wednesday's sales were fairly extensive, and out of 1502 cases offered, 910 sold. With a considerable drop in prices anticipated, the opening sales showed a decline of 5s. to 10s., but a recovery then took place, and the average decline showed by *T. N. Orange* was only about 3s. as compared with last sale rates. *Garnet* was all bought in. *Button* sorts easier, but little sold. The prices paid were as follows:—*Second Orange*: Good bright cakey, 113s. to 114s., fair flat free 110s to 111s., reddish livery free, 109s. to 110s., good bright cakey 108s. to 109s., down to 97s. per cwt. for reddish blocky. Ruby block, G. *Garnet* was bought in at 92s. per cwt. *Button*, *BL*, sold at 100s. to 104s.

SIMAROUBA BARK.—In small supply, The current quotation is 1s. per lb. on the spot.

SODA SALTS.—*Nitrate* is firm at £7 17s. 6d. per ton for *ordinary* and £8 5s. for *refined* on he spot. *Bicarbonate*: Quoted at £7 5s. per ton, landed terms, on the spot, and £6 15s. in Liverpool. *Crystals*: 42s. 6d. ex ship or wharf. The Liverpool price has advanced to 50s. *f.o.b.* *Caustic*: Steady at £7 15s. for 70 per cent. white on the spot, with 60 per cent. £1 less. The Liverpool prices are £7 10s. and £6 10s. respectively *f.o.b.* *Hyposulphite*: Very firm. On the spot, in kegs, 8s. 6d. per cwt. is asked.

SPERMACETI—Dearer. Refined *American* is now quoted on the spot at 1s. 9d. per lb.

SOY.—*Chinese* soy remains quiet, but steady. Fair quality quotes at 1s. 1d. per gallon.

SPICES (VARIOUS).—*Cloves*: Firmer. In auction, about one-third of the *Zanzibar* found buyers at full rates, good bright fetching 2⅛d.; medium dark; 1⅝d., and low dark, 1¾d. per lb. Twenty boxes good picked *Penang* sold at 6¾d. per lb. Privately, steadier rates have been paid, including spot sales at 1 31 32d., less interest, and 2d. per lb. prompt, whilst for delivery, January-March, about 1000 bales have sold at 2 1 16d. to 2 3 32d. *Cayenne pepper*: In auction, yellow *Nepaul* was bought in at 10d. per lb. *Capsicums*: Ordinary thin *Bombay* was bought in at the sales, whilst small brownish off-stalk sold without reserve at 17s. *Chillies*: Dull of sale. Fair mixed *Zanzibar* was bought in at 31s. to 35s., whilst damaged *Sierra Leone* sold at 29s. *Pepper*: Flat. In auction grey *Singapore* sold at 2⅛d.; good clean, 2¼d., whilst *Penang* was bought in at 2d. per lb. *White Pepper*: *Penang* sold in auction at 2⅞d., whilst *Singapore* was mostly bought in, but 24 cases of fine bright bold sold at 5d. to 5⅛d. per lb. *Pimento*: Still slow of sale. In auction ordinary to medium grey and dark sold at 2⅜d., and fair at 2½d. per lb. *Cassia vera*: Ordinary coarse quill and bark was bought in at 26s. per cwt. *Cinnamon chips*: Ordinary coarse *Ceylon* was bought in at 3¼d.; cuttings at 6¾d., and broken quill at 8¾d. *Arrowroot* and *Tapioca* are flat without inquiry.

STAVESACRE SEEDS—Much dearer. Since the sales business has been privately at 90s. per cwt. for good quality seed, and 95s. is now asked.

TOLU (BALSAM).—There is not much business doing in this article at present, but the market is firm. During the week business has been done in genuine "old-fashioned" tolu at 2s. 8d. per lb., at which price it can still be bought, whilst 2s. 2d. per lb. is asked for dark "glassy" balsam. For shipment from the quotation is now 2s. 6d. to 2s. 9d. per lb., *c.i.f.* terms.

TURMERIC—Remains very slow of sale. At the sales on Tuesday 497 bags of *Madras* were all bought in, dull rough bulbs at 6s. 9d. to 7s. 6d., and dull bold wormy finger at 8s. *Cochin* finger was bought in at 8s., and *Chinese* bulby finger at 8s. per cwt.

TRAGACANTH.—There has been much less inquiry during the last few days, but prices are firmly maintained. The current quotations are as follows:—Firsts (good white "druggists" gum), £15 (this price has been paid during the week); seconds, £13 to £14; thirds, £11 to £12 10s.; fourth, £8 to £10 10s., with other grades at 40s. to 140s. per cwt. The present stock is 2085 packages against 2631 at the same time last year.

WAX (JAPAN).—A firm market, with a tendency to higher prices. Good pale Japan *squares* have sold during the week at 28s. 6d. per cwt., and 29s. is now frequently asked.

WINTER'S BARK.—Messrs. Jenkin and Phillips have obtained the opinion of Mr. E. M. Holmes respecting the 5 bales of bark offered at the sales on November 28. He says:—"The sample of bark seems to correspond with true Winter's bark, and to differ from that which was in the market a few years under the name of pepper bark. I fancy the latter came from Chili. It loses its pungency on keeping, which the true Winter's bark does not. The pepper bark also has white lines in the transverse surface when looked at with a powerful lens. These I do not see in your sample." The bark in question is certainly not one of the *Cinnamodendrous*.

LIVERPOOL MARKET REPORT.

[*From our own Correspondent.*]

DECEMBER 4, 1895.

LINSEED: Lower. *Turkish*, 34s. 3d. to 35s. per 416 lbs. CANARY SEED: *Turkish*, 33s. per 464 lbs. CHILLIES: *Sierra Leone*, 25s. to 32s. 6d. GINGER: *Sierra Leone*, 26s. HONEY: *Californian*, 30s. CASTOR OIL: "Seconds," *Calcutta* and *French* 1st pressure, 2¼d.; *Madras*, 2 5/16d. to 2¼d. OLIVE OIL: *Levant*, £30 10s. LINSEED OIL: Liverpool makes, 20s. 9d. to 21s. 6d. COTTON-SEED OIL: *Liverpool* refined, 17s. 6d. to 18s.; *American*, 18s. to 18s. 3d. SPIRITS OF TURPENTINE: 20s. 6d. PETROLEUM: *American* refined, 7⅛d. to 8¼d.; *Russian*, 6¼d. SAL AMMONIAC: 39s. "First"; 37s. "Second." SULPHATE OF AMMONIA: £8 18s. 9d. BLEACHING POWDER: £7. COPPERAS: *Lancashire*, 38s. SULPHATE OF COPPER: £16 5s. to £16 10s. PRUSSIATE OF POTASH: 8d. to 8¼d. CHLORATE OF POTASH: 4½d. BICHROMATE OF POTASH: 4⅝d. SODA CRYSTALS: £2 10s. BICARBONATE OF SODA: £7. CAUSTIC SODA: 70 per cent., £7 15s. to £8; 60 per cent., £6 15s. to £7. BORAX: *Lump*, 20s.; *powder*, 21s. SULPHUR: *Roll*, £5 10s.; *flour*, £7 10s. NITRATE OF SODA: 7s. 7½d. to 8s.; *Cream of Tartar*, 97s.

NEWCASTLE CHEMICAL REPORT.

[*From our own Correspondent.*]

DECEMBER 3, 1895.

This special branch of local trade continues to lessen down in the shape of over-sea business. Home and inland orders keep dropping in sufficient to prevent any accumulation of stocks. Bleaching powder and sulphur are in special demand, with one or two other articles still scarce. Sulphate of ammonia at one time showed signs of mending, but the spurt was short-lived. However, makers are firm and will not sell far ahead Carbolic acid and pitch steady. Prices are:—BLEACHING POWDER, £6 15s. in softwood casks, £7 5s. to £7 10s. in hardwood casks. CAUSTIC SODA: 70 per cent., £7 15s. SODA ASH: 48 per cent., £3 15s. ALKALI: 48 per cent., £4 10s. SULPHUR: £3 17s. 6d. to £4. SALTCAKE: 25s. SULPHATE OF AMMONIA: £8 15s. to £8 17s. 6d. PITCH: 38s. to 40s. SOUTH DURHAM SALT: 9s. 6d. to 10s. per ton.

Late Advertisements.

Assistant Wanted.

IMMEDIATELY.—Qualified JUNIOR. London, E.C. Salary £55. In-doors. Short hours; no night or Sunday duty. Apply, stating age, experience, &c., P. S., "Pharm. Journal" Office, 5, Serle St., W.C.

Engagement Wanted.

PART-TIME. Situation. Abstainer. Good references. FERRUM, 5, Serle St., Lincoln's Inn, W.C.

Business for Disposal.

CHEMIST'S old-established BUSINESS for quick Sale, on most advantageous terms. Has done £2000. Present owner (medical man) has not time to supervise. Well stocked. Profits good. Present returns £8 per week, and improving every week. ALPHA, care of 357, Commercial Rd., E.

EXCHANGE.

[*For the convenience of readers, suitable notices, not exceeding thirty words in length, are inserted free in this column, if they do not partake of the nature of ordinary advertisements. They must relate to books, apparatus, shop fittings, etc., and arrive not later than Wednesday, addressed "Editorial Department, 17, Bloomsbury Square, W.C."*]

OFFERED.

One 3-pint and one 5-pint Soltzogene, perfect condition, offered cheap, together or separate.—Woodward, pharmacist, Reigate.

Churchill's 'Diseases of Females' and 'Midwifery,' 100 fine wood engravings, published 12s. 6d. each, and Lees' 'Diseases of Females.' Three vols., 7s. 6d. free. No cards.—Davies, 33, Eglinton Road, Bow, E.

What price offered for 'Chemists' and Druggists' Diary,' 1896, quite new.—"Exalgin," 19, Merrick Square, Trinity Street, S.E.

Latest editions, post free, Wills' 'Volumetric,' 1s. 8d.; Wootton's 'Problems,' 1s. 6d.; 'Roscoe,' 1s. 9d.; Wills' complete 'Minor Lectures,' 10s. 6d. B.P. with Minor Notes, 6s. 6d.—Dispenser, 23, Fulham Road, S.W.

Biunial Lantern (mahogany), 4 in. condensers, safety jets, dissolver, two sets lenses (medium and short focus), curtain, and rod Complete in box, £5.—Doble, chemist, Tavistock.

Receipt for Safe Aperient Biscuits for Children. Testimonials from doctors and parents. Address—Mrs. Elliott, 133, Sumatra Road, West Hampstead.

Lancaster ¼-plate Instantograph, latest improvements, instantaneous shutter, special lens, D. S. slide, and focussing cloth. What offers? exchange auto-harp and cash; cost £4.—W. F. P., 2, Queen Street, Exeter.

"Keystone" Tablet Machine, in perfect working order, almost new, price £10; making room for larger machine.—G., 23, Colliergate, York,

Sutton's 'Analysis' 'Pharmacographia' (F. & H.); Prantl and Vines' 'Botany'; Wills' 'Materia Medica.' All recent editions, equal to new.—Macdonald, 124, Crown Street, Aberdeen.

Wills' 'Materia Medica,' with plates; Wills' '300 Problems in Chemical Physics, etc.'; 'Greek Testament'; 'Pharmacopoea Londinensis,' 1851; Roscoe's 'Chemistry,' last edition. Offers?—Chemist, 151, Lillie Road, Fulham, S.W.

Cash, or exchange anything useful for window enclosure (glass sliding); 5 by 2-gallon pear shaped carboys, two ditto 1-gallon cut stoppers; two small mahogany cases.—Cullen, chemist, Norwich.

Pereira's 'Selecta è Præscriptis,' 1s. 6d.; Roscoe's 'Elementary Chemistry,' 1s 6d. (in excellent condition, and carriage paid).—B., 45, Bull Ring, Ludlow.

Scoresby-Jackson's 'Materia Medica and Pharmacology,' 3rd edition, by Dr. Macdonald, published 12s. 6d., 6s. 6d. free; Bell's 'Anatomy,' 4 vols., full of plates, only 3s. 6d. free.—Davis, "Chestnuts," Gordon Hill, Enfield.

WANTED.

Polarising apparatus for microscope, standard size.—E. W. Male, The Cross Pharmacy, Gloucester.

THE ELECTRO-CHEMICAL COMPANY, LIMITED, held its second ordinary general meeting at St. Helen's, last month. Col. T. J. Holland, C.B., presided, and placed before the shareholders an account of the arrangements made for manufacturing operations, contracts entered into for electrolytic and electrical generating plant. They had now got to work, and were daily demonstrating to the chemical and electrical professions that purer and better bleach and caustic soda could be made by their electrolytic process than by any of the older processes, and at 50 per cent. less cost. He also referred to the foreign and colonial patents and various other matters of interest.

DIARY OF THE WEEK.

Secretaries of Societies are requested to send notices of forthcoming meetings not later than Wednesday in the previous week.

SATURDAY, DECEMBER 7.

Pharmaceutical Football Club v. 1st London Engineers, at Highgate.

MONDAY, DECEMBER 9.

Imperial Institute, at 8.30 p.m.
"Our Deep-Sea Fisheries" (illustrated), by Captain Ed. Stubbs.

Society of Arts (Cantor Lectures), at 8 p.m.
"Mechanical Road Carriages" (Lecture II.), by W. Worby Beaumont.

Royal Geographical Society, at 8.30 p.m.
"Exploration in the Central Alps of Japan," by Rev. Walter Weston.

TUESDAY, DECEMBER 10.

Royal Photographic Society, at 8 p.m.
"The Recording of High Temperatures by Photographic Means," by Professor W. C. Roberts-Austen.
"A New Form of Apparatus for Measuring the Densities of Photographic Plates," by Chapman Jones.

Royal Colonial Institute, at 8 p.m.
Ordinary Meeting.

WEDNESDAY, DECEMBER 11.

Pharmaceutical Society of Great Britain.
Library, Museum, School, and House Committee.
Evening Meeting in London.
"Chinese Opium," by Frank Browne.
"Note on a Fluorescent Constituent of Calumba," by Alex. Gunn.

Society of Arts, at 8 p.m.
Adjourned Discussion on Mr Cunynghame's paper: "Locomotive Carriages for Common Roads."

Sunderland Chemists' Association.
Annual Dinner.

Sheffield Pharmaceutical and Chemical Society, a 8.30 p.m.
"Relations Between Contagion and Sanitation," by T. Airde-Murray.

Manchester Pharmaceutical Association, at 7.30 p.m.
"The Methods of Reproduction in Plants," by Charles Turner.

THURSDAY, DECEMBER 12.

Imperial Institute, at 4.30 p.m.
"British Life Assurance Companies and Colonial Legislation," by H. R. Harding.

Liverpool Pharmaceutical Students' Society, at 8.30 p.m.
"A Sylvan Sketch," by Miss E. M. Wood.

Glasgow and West of Scotland Pharmaceutical Association, at 9.15 p.m.
Open Meeting.

FRIDAY, DECEMBER 13.

Royal Astronomical Society, at 8 p.m.
Ordinary Meeting.

Sheffield Microscopical Society, at 8 p.m.
"On Recent Natural History Studies in the S.E. of England," by Dr. H. C. Sorby.

Cambridge Pharmaceutical Association.
Discussion on "Pharmaceutical Politics."

Edinburgh Chemists', Assistants', and Apprentices' Association, at 9.15 p.m.
Open Meeting—"Notes and Queries," conducted by Wm. Duncan.

Aberdeen Junior Chemists' Association, at 9.30 p.m.
"The Tendency to Over-Concentration in Pharmacy," by P. Boa.

MARRIAGE.

BUTTON—DOVEY.—On November 28, at Holy Trinity Church, Stroud Green, London, by the Rev. E. A. Graham, Arthur Edward Button, pharmaceutical chemist, Alderley Edge, was married to Lilian, daughter of Mr. William Dovey, of Stroud Green.

SUPPLEMENT
TO THE
PHARMACEUTICAL JOURNAL.

CHRISTMAS HOLIDAYS.

In consequence of Christmas Day falling upon Wednesday this year, matter intended for publication in the "Pharmaceutical Journal" for that week must arrive not later than Tuesday, December 24.

MISCELLANEOUS NEWS.

Mr. W. H. Symons, M.D. (Bruxelles), M.R.C.S., and D.P.H. (Durham), who has just retired from the Pharmaceutical Board of Examiners for England and Wales, has been the first candidate to present himself for the diploma of Public Health of the University of Oxford, under the new conditions by which qualified medical men not associated with the University are entitled so to present themselves.

Midland Chemists' Assistants' Association.—At the first meeting of the above Association, held on Friday, December 6, it was resolved that the Association shall hold weekly meetings on Wednesdays, commencing at 9 p m., and consist of members (employés or students of pharmacy) and honorary members (employers and others interested in pharmacy); also that the general meeting should be held on Wednesday, December 11, at the Exchange Rooms, Stephenson Place, at 9 p.m., when the above resolutions would be confirmed and adopted, and officers of the Association elected. Mr. H. M. Bindloss, 17, Bull Street, Birmingham, is the Acting Secretary (*pro tem.*). From the substantial support already received, the promoters have good reason to think that their endeavours will meet with great success.

Pharmaceutical Football Club v. 1st London Engineers.—This match was played at Highgate on Saturday, December 7, amid wind and some snow. During the first half the "Square" were one man short, a fact which largely influenced the result of the match, since the Engineers obtained their only goal in the first few minutes, and the "Square" failed to scor at all, though throughout they had all the best of the game.

Cambridge Pharmaceutical Association.—A most successful smoking concert was held at Messrs. Dale's Assembly Rooms, on Friday, November 29, Mr. Alderman Deck, F.C.S., in the chair. A capital programme of songs and instrumental music was arranged by Mr. E. H. Church, and greatly enjoyed by all present, especially those of Messrs. Rider and Spencer. A hearty vote of thanks to the President and the performers, proposed by Mr. A. S. Campkin, J.P., and seconded by Mr. White, was carried with acclamation.

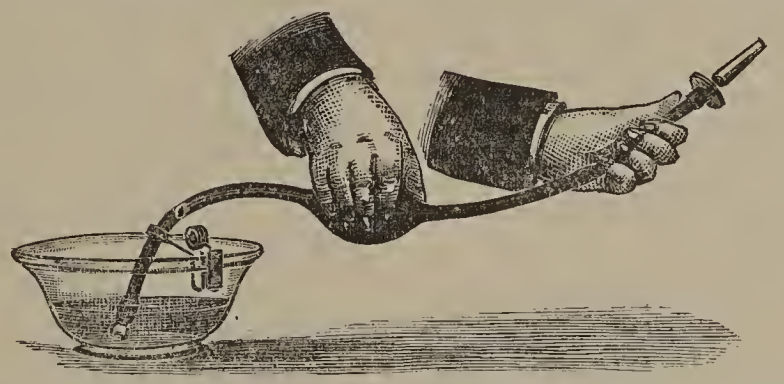
A Pharmacist's Success.—The name of Mr. E. Saville Peck, M.P.S., Hon. Secretary of the Cambridge Pharmaceutical Association, appears second in the 1st Class of the Chemistry Special, Part I., for the Cambridge B.A. degree.

Business Change in Edinburgh.—The business of the late John Macdonald, pharmaceutical chemist, at 56, Newington Road, Edinburgh, has been purchased by Mr. Blair Hill, of J. F. Macfarlan and Co.'s, and Mr. J. Mackintosh Cameron, President of the Edinburgh Chemists' Assistants' Association.

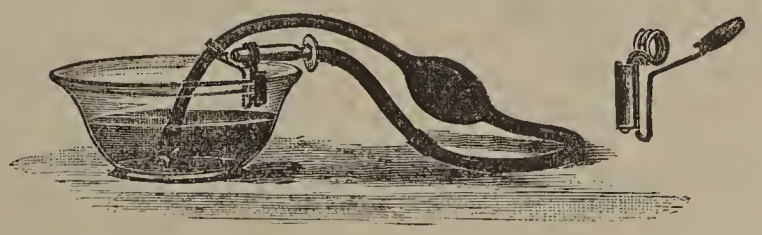
Business Change at Sheffield.—Mr. C. H. Hewitt, chemist and druggist, St. Philips Road, Sheffield, has sold his business to Mr. Highfield, who was for many years with Mr. W. Ward, Sheffield Moor. Mr. Hewitt, who is the son of Mr. J. P. Hewitt, Devonshire Street, intends to take a larger business.

TRADE NOTES AND NEWS.

Messrs. Reynolds and Branson, of Leeds, provide a real convenience in their Basin Enema Clip (Registered No. 265536).



This ingenious little instrument holds the tail of any enema syringe firmly at the bottom of the basin, beneath the liquid, making the entrance of air impossible. It also has another very great advantage, in



acting as a rest for the bone rectal (or vaginal) pipe after the enema has been used, and so avoiding the wetting of bed linen or making a mess on the floor or table. The clip is sold at sixpence.

Messrs. Burroughs, Wellcome and Co., claim that the "Perfected Wyeth Beef Juice" in its improved form is the most highly nutritious and pre-eminently pleasant restorative food in the prostration that accompanies influenza, consumption, typhoid and other fevers, and during the progress of, or in convalescence from, debilitating diseases. It is said to be invaluable in the brain-fag of busy professional men, and does not cloy patients, as do the ordinary beef-teas, etc., of the kitchen.

Mr. H. T. Butler, the Secretary of the Chemists' Aërated and Mineral Waters Association, Limited, asks to be allowed to state that he is requested by the directors of "Camwal" to thank the very many shareholders for their kind congratulatory letters respecting the working of this Association for the past year.

J. Durst, of the Anglo-American Pharmacy, Naples, publishes an attractive price-list of 120 pages for 1896. The lists of English and American, French, German, and Italian specialties are each printed in the respective languages, so that the little book appeals to a wide circle of possible clients.

Messrs. Thomas Christy and Co., 25, Lime Street, London, E.C., are the makers of "Neo-Kola," a preparation which possesses some very special features. In this, the kola is unmixed with foreign substances of any kind, beyond the merest trace of vanilla flavouring, and it is accordingly of great purity. The objectionable flavour so difficult to remove from the Kola-nut is entirely eliminated in this preparation by a special process to which the fresh undried nuts have been subjected, thus it is entirely absent and not simply covered by the vanilla flavouring. Neo-Kola is also supplied without any flavouring. In spite of the Kola having been thus rendered perfectly palatable, it has lost none of its active properties, this being proved by the amount of pure caffeine, free from theobromine, which can be extracted from Neo-Kola. A specimen subjected to chemical examination was found to contain 9·15 per cent. of hygroscopic moisture, and yielded the following proportion of alkaloids and other important constituents the figures given having been calculated upon the dry substance for convenience of comparison:—

Caffeine (or Theine)	3·202
Theobromine	·214
Other alkaloids	·065
Total alkaloids in "Neo-Kola"	3·481
"Kola-Red" and "Kola-Orange"	3·874
Fatty matter	1·142
Mineral matter (Ash), containing phosphates, etc.	3·955

The Secretary of Thomas Powell, Limited, intimates that Mr. Thomas Platt, of the firm of Messrs. Clarke, Son, and Platt, Advertising Agents, 85, Gracechurch Street, E.C., has been appointed a director of the former Company.

The Iron and Steel Plant Co., Ltd., has been awarded a Gold Medal at the Middlesbrough Exhibition, 1895, for Caird's stamped steel barrels.

SHEFFIELD PHARMACEUTICAL AND CHEMICAL SOCIETY.

The members of the above Society opened the present session on Wednesday evening, when an interesting and instructive lecture was given by Mr. T. Aird Murray, C.E., Sanitary Specialist, on "The Relations between Contagion and Sanitation." The chair was taken by the President, Mr. J. F. Eardley, and amongst those present were Dr. Pearson, Mr. G. T. Ellinor, Mr. W. Ward, Mr. J. Austin, Mr. C. H. Hewitt, Mr. G. Squire (Hon. Sec.), Mr. L. N. Sedingham, and a number of ladies.

The President in introducing the lecturer, spoke on the importance of the subject he had chosen, and said they might expect from him some advice upon it.

Mr. Aird Murray, who was received with applause, in the course of his paper dealt with some of the modern views on the subject of disease contagion; the relation between disease contagion and sanitation; and circumstances under which sanitation may be the means of conveying disease contagion to humanity.

A very cordial vote of thanks was passed to Mr. Murray at the close.

THE POSITION OF IODINE.

By the Iodine Convention an important circular has been issued during the week to wholesale buyers, the text of which is as follows:—

"31 and 32, St. Andrew's Hill, E.C.

"Dear Sir,—There is a large amount of uncertainty at the present moment in the iodine market on account of parcels being offered outside the Convention. Under these circumstances we feel it our duty to notify the fact to you. We shall, of course, continue to invoice at present prices, and you are guaranteed to the extent fully explained to you in our recent circular. We also wish to warn you against any low offers that you may hear of, and we cannot but feel that it would be unwise for our friends to touch them under present circumstances"

With reference to the above, it may be said that for some time the large offers of second-hand parcels of iodine have led to the belief that the Convention would be forced to take some steps in the matter, and the opinion of those in the best position to judge is that the Syndicate rates will be reduced within the next few days. It is extremely probable that those who have bought lately from second-hand holders will find they have had considerably the worst of the deal. For some time past it has been recognised that in view of the extent to which iodine is now obtained from Chili and the other producing centres, the rates fixed by the Convention are out of all proportion.

MARKET REPORT.

[Specially compiled for the Pharmaceutical Journal.]

London, December 12, 1895.

Acacia.—At to-day's sales 206 packages were offered. Of the *Trieste* gum the majority was bought in, but two cases of medium palish grain sold cheaply at £5 7s. 6d.; medium greyish was bought in at £7; yellowish grain at £6, and medium yellowish at 90s. per cwt. *Soudan* sorts were mostly bought in, but for four cases of medium glassy yellow gum offered without reserve, 74s. to 75s. per cwt. was paid, and for another parcel of medium palish, fair quality sorts, 65s.. In addition, 36s. 6d. was paid for 6 casks of medium dark brown *Barbary* gum, 32s. for a bag of lump gum, and 35s. 6d. for one cask of bold brown lump. Privately a moderate business has been done in Persian so-called "insoluble" gum, with sales of fair sorts at 13s. to 13s. 6d., and good block at 9s. 6d. per cwt.

Acid, Carbolic.—This market continue very firm, and the quotations for *crystal* have further advanced since our last report The current rates are now as follows:—*Crystals*, 34° C. to 35° C., 6d.; 39° C. to 40° C., 6½d.; 39° C. to 40° C. (*detached crystals*), 7½d. per lb. *Crude*, 60 per cent. still quotes at 1s. 8d., and 75 per cent. at 2s. 2d. per gallon. *Liquefied* and *cresylic* are unchanged at 1s. and 11½d. per gallon respectively.

Acid, Citric.—The market is quiet but steady. The makers of *English* acid still quote 1s. 3d. per lb., whilst it can be bought in second-hand for 1s. 2d. to 1s. 2¼d. per lb. *Concentrated juice* quotes at £13 5s. to £13 10s. per pipe *f.o.b.*

Aloes.—*Cape* aloes was represented at to-days sales by 27 packages, and the rates paid show an advance of 6d. to 1s. per cwt, good bright hard being held for 23s. 6d. to 24s. per cwt., whilst 22s. to 22s. 6d. was paid for medium to good hard, and 20s. to 20s. 6d., for ordinary rather dull and part drossy. *Barbados* aloes, of which 150 boxes were shown wat mostly bought in, but 42s. was paid for a few cases, subject to seller's approval, of medium hard, 26s. for ordinary ditto, and 4s. for small pieces. Of *Curacoa* aloes 186 packages were offered, the majority of which was bought in, but twenty boxes of ordinary capey quality sold at 18s. per cwt. No fine grades of *East Indian* aloes were offered, 27s. to 30s. being paid for 4 barrels of ordinary grade quality, and 16s. for two kegs of very ordinary mixed.

Ammoniacum.—No inquiry was shown for eighteen packages offered to-day, good almondy block being bought in at 35s., and ordinary, rather drossy ditto, at 20s. per cwt.

Areca nuts.—Steady. In auction to-day ten bags fair *Colombo* nuts sold at 12s. per cwt.

Argol.—In auction 15 bags of *Cape* argol sold at 56s. to 57s. per cwt.

Benzoin.—A total of 236 cases was offered to-day, but the demand shown at the last auctions was not maintained, and the majority was bought in. *Siam* gum was bought in at prices ranging from £25 for good, pale, loose almonds, £19 for medium ditto, rather dusty, £17 for small ditto, £11 for medium bright almonds in brown block, and 70s. for dull loose siftings. *Sumatra* gum sold at steady rates, £8 5s. being paid for 6 cases of good pale almondy centred seconds, fairly packed. *Palembang* gum was bought in at 30s. for fair seconds.

Buchu.—Lower. An average supply of 42 bales was offered in auction to day, but only 7 sold. Of good bright *round* leaves, 1 bale only sold at 5d., showing a decline of 1d. per lb., whilst 3¾d. was paid for medium greenish, offered without reserve.

Calumba.—In auction 100 bags of ordinary wormy *Bombay* sorts sold at 7s. 6d. to 8s. per cwt.

Cannabis Indica—Still slow of sale. In auction 2d. per lb. was the price asked for brownish stalky tops.

Cardamoms.—At to-day's sale a considerable supply was offered. Of 263 packages the majority sold at fully steady rates as follows:—*Ceylon-Mysore* bold pale plump, 2s. 7d.; medium pale ditto, 2s. to 2s. 2d.; small to medium pale, 1s. 8d. to 1s. 10d.; small to medium fair, pale to brownish, 1s. 7d. down to 1s. 2d. per lb. *Ceylon-Malabar*: Medium pale, 1s. 4d. per lb. *Seed* sold at full rates, 2s. 2d. being paid.

Coal Distillation Products.—*Benzole*: Continues to advance steadily in price. For 50 per cent., 2s. 2d. per gallon is now quoted, whilst 2s. 6d. is asked for 90 per cent. *Creosote*: Unchanged at 1½d. per gallon. *Toluol*: Steady at 2s. 4d. per gallon for *pure*. *Crude Naphtha*: Dearer, and now quoted 11d. per gallon for 30 per cent. at 120° C. *Pitch*: 37s. 6d. per ton *f.o.b.* *Tar*: Refined quotes at 12s. 9d. per barrel.

Colocynth.—The supply of both *Turkish* and *Spanish* colocynth shown to-day was considerably above the average, but the only parcel which met with any inquiry consisted of 5 casks of medium to small, part damaged, *Turkey* apple, which sold subject to seller's approval at 2s. to 2s. 0½d. per lb. *Spanish* was bought in at 1s. for broken seedy apple.

Castoreum.—The annual sale of the Hudson's Bay Company was held on Wednesday, when the large supply of 1826 lbs. was offered. Contrary to expectation, the prices paid show a decline of about 50 per cent., the following being the quotations:—*N. W.*: Firsts, very good bold and dry, 57s., mouldy, 50s.; seconds, 50s. to 51s., mouldy, 50s.; thirds, 38s. to 39s.; pickings, 35s., cuttings and dry pods, 18s. *Y.F.*: Firsts, 53s., ditto mouldy, 45s.; seconds, 47s., ditto mouldy, 45s.; thirds, 38s., mouldy ditto, 34s.; pickings, 32s. *M.R.*: Firsts and seconds, 42s. to 45s., good thirds, 32s. to 34s., mouldy ditto, 29s. to 31s., pickings, 27s. *Canadian*: Good firsts, 55s., seconds, 47s., mouldy firsts and seconds, 41s., thirds, 38s. to 39s., mouldy ditto, 34s., pickings, 29s. In addition to the above, 19 packages were offered in public sale, and of these 12 sold, 37s. to 39s. being paid for firsts, 30s. to 31s. 6d. for seconds, and third pickings, 22s. 6d. to 23s.

Cinchona.—At the last auctions of the year, held on Tuesday last, only 1071 packages were offered, against 1499 at the November sale. Ordinary qualities sold well, and of the total amount offered, about two-thirds found purchasers at very steady rates, the average unit remaining, however,

at 5/8d. per lb. The prices paid were as follows:—*Ceylon*: Natural *Ledger* stem chips, 2⅝d.; *Indian. Succirubra*: Natural stem chips and shavings, 1½d. to 1⅝d.; extra bold quill, 3d.; good bold ditto, 2¾d.; renewed stem chips and shavings, 1¼d. to 3½d. *Officinalis*: Fair to good, 1¾d. to 2⅞d.; ordinary, 1⅜d. to 1½d.; renewed ditto, 1¾d. to 3d.; natural ledger stem chips, 2⅛d. *Java*: Ledger stem chips, 2⅛d. to 3¼d.; branch, 2⅜d. to 2¼d.; root, 2⅞d. *South America*: Sound cultivated *Calisaya* quills, 4½d. *African*: Quills, 2⅛d. to 2¼d. *Cuprea*: A parcel of old import was bought in. At to-day's drug sales a considerable amount of *Loxa* and *Huanoco* bark was offered. Twelve sero̲ns from Payta, sold at prices ranging from 7¾d. for mixed Huanoco down to 5d. for damaged ditto. Another parcel of mixed *Loxa* and *Huanoco* bark sold at 10½d. to 11d., for fair *Loxa* quill, 6½d. to 7d. for mixed, down to 4d. for damaged *Huanoco*. Of flat *Calisaya* bark, of which 31 bales were shown, a few bales sold at 1s. 6d. per lb.

Cream of Tartar—Slow of sale, and a trifle easier in price; the nominal spot quotations range from 97s. to 98s. for *German* brands of powder, whilst best white *French* crystals offer at 94s. 6d. to 95s. per cwt.

Cubebs—Still slow of sale. In auction to-day thirteen bags of fair quality berries from *Bombay* sold at 23s. per. cwt. subject. Good *Singapore* were bought in at 35s. per cwt.

Dragons' Blood.—*Singapore* gum in reed showed a further decline of 2s. 6d. per cwt. to-day, £5 17s. 6d. to £6 being paid for eight cases of dark finger, partly broken and separated. Another parcel of finger in reed was bought in at £10, whilst £9 10s. was the buying in price of good bright block, and £6 of dark saucers.

Ergot of Rye.—In better inquiry to-day. Four bags of mixed round ergot from Las Palmas, of *Russian* character sold at 7¾d. to 8d. per lb., whilst 7½d. was paid for 2 bags of old mixed, sifted ergot. Twelve bags of dry mixed ergot offered as of the "new crop" were bought in at 8d. per lb.

Gum Tragacanth.—A fair inquiry still continues, but business is lessened by the scarcity of fine qualities on offer. The current quotations are:—Firsts, £15; seconds, £13 to £14; thirds, £11 to £12 10s.; fourths, £8 to £10 10s.; other qualities £2 to £7 per cwt.

Honey.—A total of 122 cases were offered in auction, and a better inquiry was shown. Of *Jamaican* honey 18 barrels of good clean amber-coloured sold at 24s. to 25s., whilst 22s. was paid for another parcel not so nice, and 19s. 6d. down to 15s. for medium orange and brown. *Californian* honey was bought in at 42s., *New Zealand* at 22s., and a parcel from the *South Sea Islands* at 22s. 6d. to 30s.

Insect Flowers.—In auction a parcel of 10 bales sold without reserve "on account of whom it may concern" at 70s. per cwt. for fair quality, from which the damaged part had been separated, whilst 2s. was paid for the dirty pickings.

Ipecacuanha.—*Carthagena* (Columbian) root was in good supply to-day, and steady prices were paid. Out of 14 packages, 6 sold at 4s. 2d. to 4s. 3d. for good plump, and 4s. 1d. for damaged, but sound quality. *Rio* (Brazilian) root, of which 76 packages were shown, was slow of sale, and only a few bales changed hands, 5s. 8d. being paid for fine picked annulated; 5s. for good ditto, down to 4s. 8d. for fair, rather thin root.

Kola.—Fairly steady, but rather slow of sale. Of 32 packages, 1s. was paid for medium *West Indian*, 8d. for ordinary ditto, and 6d. for damaged quality.

Liquorice Root.—In auction 11 bales of ordinary rough root sold without reserve at 6s. 6d. per cwt.

Menthol.—Rather slow of sale at easier rates. On the spot 14s. 3d. to 14s. 6d. is quoted according to holder. In auction to-day two cases of good white *crystals* were bought in at 14s. 3d. per lb.

Myrrh (Gum).—In rather better enquiry. Out of an average supply of 95 packages, 45s. to 50s. per cwt. was paid for ordinary sorts slightly drossy, and 37s. for siftings.

Nux Vomica.—Of 78 packages offered to-day, 5s. was paid for *Coconada* nuts, and 4s. for *Bombay*, which shows an improvement at the last sale prices.

Oils (Essential).—*Star Anise* is quiet, but steady, at 10s. 3d. per lb. on the spot. *Cassia* oil has sold at 10s. 6d. for 70 to 75 per cent. oil, whilst 10s. is asked for oil testing 60 to 65 per cent. of aldehyde. There are a few cases still to be had of oil testing 80 to 85 per cent., for this the holder asks 12s. per lb. *Cinnamon leaf* oil is firmly held, and 5½d. per oz. is now asked *Lime* oil sold in auction at 2s. 3d. to 4s. per lb. *Bay* oil is held for 10s. (Dodge and Oldcott's brand). *Nutmeg* oil was bought in at 2¾d. *Eucalyptus* oil was bought in at 4s. for Miller's brand (Mcarthurdale Distillery, Hobart), and 1s. 4d. for the *Kangaroo* brand. *Cinnamon* oil sold at 10¼d. to 11¼d. per lb.

Oils (fixed) and Spirits.—*Castor:* Owing to the scarcity of the raw material the price of *Italian* oil has been advanced, and 30s. 9d. per cwt. *c.i.f.* is now quoted for fine tasteless oil. Reports from *Calcutta* continue to advise a very strong market with a considerable advance in price. Stocks, both of oil and seed, are very light and quite inadequate for requirements. On the spot *Calcutta firsts* are quoted at 2¾d. to 2⅞d., and *seconds* at 2⅝d. to 2½d. per lb. *Cotton:* The market is dull and featureless. *Refined* oil quotes at £17 to £17 10s. according to make and package. *Coco-nut*: Very firm. *Ceylon* now quoted at £22 10s. to £22 15s., whilst *Cochin* is steady at £25 10s. on the spot. *Linseed:* Lower by 2s. 6d., and oil in barrels is now quoted at £20. *Olive* much lower, and *Spanish* now quotes at £34, with *Syrian* at £32. *Rape*: A firm market. *Refined* oil still quotes at £24 5s. to £24 10s. *Turpentine*: Rather firmer. *American* spirit now quotes at 20s. on the spot. *Petroleum*: Steady. *American* oil is quoted at 6¾d, to 6 15/16d.; *water white* at 7¾d. to 8d.; and *Russian* at 6½d. to 6⅝d. per gallon on the spot.

Orris Root.—*Florentine* root is firmer, and now quotes at 72s. 6d. *c.i.f.* for good selected root, whilst *Veronese* is in good demand. On the spot the latter is quoted at 68s. per cwt., whilst picked *Florentine* root was bought in at to-day's drug sales at 80s. per cwt. For *East Indian* orris imported from Aden, 35s. is asked for ordinary dark quality.

Patchouli.—In auction 15 bales sold at 6½d. per lb.

Quinine Sulphate—Very quiet. Since our last report there have been some sales of the best *German* brands at 1s. 0⅝d., Now however, there are sellers at 1s. 0½d. per oz. In auction 10,000 ozs. of *Brunswick* and *B. & S.* quinine were bought in at 10¾d. per oz. The price asked was 1s. 0¼d. per oz.

Rhubarb.—There was no alteration noticeable in to-day's prices, when of 169 chests about 50 sold as follows:—*Canton*: Fine flat, even pinky fracture, 1s. 1½d.; fair medium round ditto, 9½d.; small round trimmings, rather wormy, 8¾d.; medium wormy, round, 6d. to 6¾d.; mixed wormy, 4¼d. to 5¾d., down to 1d. for very wormy flat. *High-dried*: Seventeen cases of dull-coated root, black fracture, sold at 6½d. per lb. No *Shensi* was sold.

Seeds (Various).—*Anise. Russian* seed sold in auction at 23s., whilst *Spanish* was held for 35s. per cwt. *Strophanthus*: One bag of ordinary *Kombé* seed sold at 1s. 5d per lb. *Stavesacre*: Lower. A single bag bag sold at 66s. per cwt. *Star aniseed: Japan* seed was bought in at 25s. per cwt.

Senna.—The supply of Tinnevelly leaves at to-day's auctions consisted of 421 bales, mostly in first hand. The bulk consisted of common grades, for which full to slightly dearer prices were paid, whilst for medium qualities steady rates were paid.

Shellac.—The demand privately is slow, with only small sales resulting. In auction on Tuesday, *Second Orange* was again in large supply, although the quality was unsatisfactory. In spite of this, a good demand was shown for about two-thirds of the catalogue. The prices paid show a decline of 1s. to 2s. at the beginning of the sale, which was increased later on to 5s. and 6s., and the average drop is about 3s. on the last sale prices, *TN* being quoted at 105s. to 106s. *Garnet* sold steadily, whilst *Button*, blocky descriptions, although rather cheaper for dark, were dearer for fine kinds.

Spices (Various).—*Cloves*: *Zanzibar* were in small supply in auction, when medium dark sold steadily at 1 5/16d. Picked *Penang* were bought in at 7½d. *Cassia lignea*: Lower. In auction ordinary mixed sold at 30s. 6d., whilst ordinary to good bright was bought in at 31s. to 32s., and broken at 22s. *Cassia vera*: Ordinary coarse quill and bark was bought in at 26s. *Pimento*: Quiet, but steady. Ordinary dark sold at 2 1/16d.; medium, 2⅜d., and clean at 2½d. per lb. *Chillies*: Very fine clean bright red *Japan* sold at 71s. to 71s. 6d. in auction. *Ginger*: *Cochin* is dull of sale, but steady. In auction fair washed rough sold at 34s., and small native, part cut, at 41s. *Bengal* bought in at 18s. 6d. to 19s. per cwt.

Squills.—In auction about 35 packages of brownish "seconds" sold at 1d. to 1½d. per lb.

Taraminds.—Twenty-four packages from *Antigua* sold at 13s. to 13s. 6d. per cwt.

Wax (Bees).—*Jamaican* wax sold at an advance of about 2s. 6d. per cwt., £7 10s. to £8 being paid; *Mozambique* sold at £6 17s. 6d. to £7; *Cape* at £7 12s. 6d.; *Madagascan* at £6 10s.; *Mogador* at £4 16s.; *Honolulu* at £7 5s.; and *Australian* at £6 15s. to £7.

Wax (Japan).—50 cases of pale *squares* were bought in at 33s. per cwt.

LIVERPOOL MARKET REPORT.

[*From our own Correspondent.*]

DECEMBER 11, 1895.

LINSEED: *Turkish*, 35s. 6d. per 416 lbs. *ex* store. CANARY SEED: *Turkish*, 33s. per 464 lbs.; *Spanish*, 46s. KOLA NUTS: 6d. to 7d. CARNAUBA WAX: 132s. 6d. CASTOR OIL: *Calcutta*, good seconds, 2½d.; *Madras*, 2¼d.; *French*, 1st pressure, 2⅜d. OLIVE OIL: Steady, and but little is offering. LINSEED OIL: *Liverpool* makes, 20s. 9d. to 21s. 6d. per cwt. COTTON-SEED OIL: 17s. 6d. to 18s. for *Liverpool* refined; *American*, 18s. 3d. SPIRITS OF TURPENTINE: 20s. 6d. PETROLEUM: *Russian*, 6¾d. *American*, 7⅛d. to 8¼d. SAL AMMONIAC: "Firsts," 39s. CARBONATE OF AMMONIA: 3½d. to 3⅝d. SULPHATE OF AMMONIA: £8 15s. BLEACHING POWDER: £7 10s., *f.o b.* COPPERAS: *Lancashire*, 37s. 6d. SULPHATE OF COPPER: £15 17s. 6d. to £16. PRUSSIATE OF POTASH: 8d. CHLORATE OF POTASH: 4½d. SALTPETRE: 23s. 6d. kegs; 23s. barrels. BICARBONATE OF SODA: £6 15s. SODA CRYSTALS: £2 10s. CAUSTIC SODA: 70 per cent., £7 10s.; 60 per cent., £6 10s. HYPOSULPHITE OF SODA: £7 5s. to £7 10s. BORAX: *Lump*, 20s.; *powder*, 21s. NITRATE OF SODA: 7s. 7½d. to 7s. 10½d.

NEWCASTLE CHEMICAL REPORT.

[*From our own Correspondent.*]

DECEMBER 10, 1895.

The home trade continues fairly steady for all makes of chemicals, and with near over-sea shipping orders stocks are kept small. Bleaching powder is still well inquired after with caustic soda following closely in the wake. Soda crystals are also standing well in at late values. Sulphur is still scarce, and, if anything, the turn dearer. Saltcake holds its own. Other classes go unchanged. Shipments for last month and compared with the same month of 1894 are as follows:—

	1894. Nov. Tons.	1895. Nov. Tons.	Increase. Tons.	Decrease. Tons.
Alkali and soda ash	989	788	—	201
Bleaching powder ..	1586	1582	—	4
Caustic soda	1089	699	—	390
Manure	533	508	—	25
Soda crystals.....	1288	948	—	340
Sulphate of soda ...	481	1112	631	—
Sulphur	1468	977	—	491
Other chemicals ...	1255	890	—	365
Total chemicals	8689	7504	—	1185

Prices are:—BLEACHING POWDER, in soft-wood casks, £6 15s.; in hardwood casks, £7 5s. to £7 10s. SODA CRYSTALS, in casks, 37s. 6d.; in 2-cwt. bags, 42s. 6d. to 45s. CAUSTIC SODA: 70 per cent., £7 15s. SODA ASH: 48 per cent., £3 15s.; 52 per cent., £4. ALKALI: 48 per cent., £4 10s.; 52 per cent., £4 15s. SULPHUR: £4. SALTCAKE: 25s. SULPHATE OF AMMONIA: £8 15s. to £9. PITCH: 38s. to 40s. BORAX LUMP: 20s.; powder, 21s. BICARBONATE OF SODA: £7 to £7 5s. DURHAM SALT: 9s. 6d. to 10s. per ton.

MARRIAGE.

GRAHAM—ISHERWOOD.—At the Burgh Halls, Govanhill, on the 5th inst., by the Rev. R. K. Monteath, Hutchesontown Parish Church, David Graham, chemist (Singapore), to Mary, eldest daughter of Mr. Alfred Isherwood, 447, Rutherglen Road, Glasgow.

EXCHANGE.

[*For the convenience of readers, suitable notices, not exceeding thirty words in length, are inserted free in this column, if they do not partake of the nature of ordinary advertisements. They must relate to books, apparatus, shop fittings, etc., and arrive not later than Wednesday, addressed "Editorial Department, 17, Bloomsbury Square, W.C."*]

OFFERED.

Alcohometer, 1s. 6d.; copper water-oven, about 7 inches square, 12s.; Bunsen's filter pump, 1149, Townson's list, 5s.; spark coil, 3/8th inch, 12s.—Weddell, Colchester.

Frankland's 'Organic Chemistry,' 1s.; Thorpe's 'Metals,' 2s.; Hooker's 'Botany,' 9d.; Pharmacopœia, with "Minor" notes, 7s. 6d.; Minor lectures, 15s. 6d.—F. H. Slynn, Mount Street, Walsall.

Opaque Specie Jar, full size, with emblems in heraldic colourings. Price only £3 3s. Can be seen at Birts and Son, Green's End, Woolwich. A bargain.

The 'Iliad of Homer,' translated by A. Pope. Published. London, 1818. Paper covers, very clean. The 'Practical Kennel Guide,' by Gordon Stables, published at 3s. 6d. What offers.—Picken, Newport, Salop.

Gray's 'Supplement,' 6th edition, fair condition; 'Lexicon Medicum' (Hooper), 7th edition, fair; Beasley's 'Receipt Book,' 5th edition, moderate; Kelly's 'Chemists' Directory,' 3rd edition, good condition. Offers?—Blinkhorn, Chemist, Salisbury.

Pharmaceutical Curios: Roy. Coll. Physicians; 'Dispensatory,' 1746, translated. 2s. 6d.; Aikin's 'Lectures, Chemistry,' 1799, 1s.; Wilkinson's 'Druggists' Price Book,' 1837; 'Opera Pharmaceutico Chymica,' 1686, 3s. 6d.—Davies, 33, Eglinton Road, Bow.

Bell's 'Principles of Surgery,' many plates, some coloured, 4 vols., 6s.; Faraday's 'Chemical Manipulation,' very scarce, 7s. 6d.; Carpenter's 'Human Physiology,' 5s.; Winslow's 'Brain Disorders,' 5s.—Davis, "Chestnuts," Gordon Hill, Enfield.

Unused Portable Assay Balance, with rider to carry 2 grammes each pan, and turn with 0·1 milligramme, fitted in mahogany case Price £4 4s.—J. Allen, 1, George Street, Plymouth.

Mirror, 42 by 27 inches, in black frame windows inclusive, with four sheets embossed glass. Two Pear-shaped Carboys, 8 gals., with mahogany stands. What offers?—Bevan, Harwich, Essex.

'Postal Lectures for the Minor,' complete; also Southall's Materia Medica Cabinet. What offers?—Spinks, 97, Westminster Road, Liverpool.

Taylor on 'Poisons,' Thomé's 'Botany,' Ganot's 'Philosophy.' all new. Muter's 'Analysis.' Will exchange for Maisch's Mat. Medica,' Green's 'Botany,' Oliver's 'Systematic Botany' (latest.)—Dixon, 164, Aigburth Road, Liverpool.

Two Pear-shaped Window Carboys with very handsome glass stoppers; also mahogany nest of drawers, with glass knobs (cut in two.) Offers to—J. Hill, Norton Villa, Britonferry, South Wales.

WANTED.

'Year-Book of Pharmacy' from 1883 to 1895, inclusive, cheap.—Buckpitt, 6, Silver Street, Trowbridge.

Chemist and Druggist posted on Saturdays, exchange *Pharmaceutical Journal* posted on Saturdays.—Palmer, Norfolk Street, Lynn.

'Year-Book of Pharmacy' from 1891 onwards; also Hehner's 'Complete Alcohol Tables," from vol. v. of 'Analyst,' or a copy of them.—T. F. Harvey, Sileby, Loughborough, Leicestershire.

Clarke's Syphon Gas Stove, must be cheap; state fully how long in use, what kind, condition, and very lowest price, carriage paid to—Griffin, Chemist, Kidderminster.

Burettes and stand; test glasses, pipettes, etc., for volumetric analysis. Send full particulars to—R. H. Brackenbury, 32, Upper Baggot Street, Dublin.

Last editions of Hale White's 'Mat. Med.'; Muter's 'Analytical Chemistry' or Clowes' 'Analytical Manual.'—Pax, 17, Bloomsbury Square, W.C.

*** **The attention of readers is directed to the conditions printed at the head of this column. Notices cannot be inserted unless they are in accordance with those conditions.**

DIARY OF THE WEEK.

Secretaries of Societies are requested to send notices of forthcoming meetings not later than Wednesday in the previous week.

MONDAY, DECEMBER 16.

IMPERIAL INSTITUTE.
"Progress of Work at the Imperial Institute," by Lord Herschell, at 3 p.m.
"How they Rear Oysters in France" (Illustrated), by Professor W. A. Herdman, at 8.30 p.m.

SOCIETY OF ARTS (CANTOR LECTURES), at 8 p.m.
"Mechanical Road Carriages" (Lecture III.), by W. Worby Beaumont.

TUESDAY, DECEMBER 17.

ROYAL PHOTOGRAPHIC SOCIETY, at 8 p.m.
"Notes on Three-Colour Printing," by E. J. Wall. Including a Note on the Printing Inks by C. G. Zander.

SOCIETY OF ARTS (FOREIGN AND COLONIAL SECTION), at 4.30 p.m.
"Jamaica," by Frank Cundall.

MIDLAND PHARMACEUTICAL ASSOCIATION.
Members' Night and Social Meeting.
Discussion on Trade Topics.

WEDNESDAY, DECEMBER 18.

WESTERN CHEMISTS' ASSOCIATION (of London).
Meeting at the Westbourne Restaurant, Craven Road, W., at 9 p.m.
Inaugural Address by the President, J. C. Hyslop.

SOCIETY OF ARTS, at 8 p.m.
"Machines for Composing Letter-press Printing Surfaces," by John Southward.

ABERDEEN JUNIOR CHEMISTS' ASSOCIATION.
Annual Ball at 9.30 p.m.

GEOLOGICAL SOCIETY OF LONDON.
"The Tertiary Basalt-Plateaux of North-Western Europe," by Sir Archibald Geikie.
"The British Silurian Species of *Acidaspis*," by Philip Lake.

THURSDAY, DECEMBER 19.

LINNEAN SOCIETY OF LONDON, at 8 p.m.
"A Revision of the Genus *Vanilla*," by R. A. Rolfe.
"On the Cephalopoda Collected during the Voyage of H.M.S. 'Investigator,'" by E. S. Goodrich.

CHEMISTS' ASSISTANTS' ASSOCIATION, at 8 p.m.
Cinderella Dance at the Portman Rooms, W.

LIVERPOOL CHEMISTS' ASSOCIATION, at 7 p.m.
"Some Relations of Pharmacy to Mythology," by Edward Cox.
Note on "The Strength of Commercial Blaud's Pills," by R. C. Cowley.
Note on "Commercial Vinegar," by R. C. Cowley.

EDINBURGH PHARMACY ATHLETIC CLUB.
Fourth Annual Smoking Concert at the West End Café, Princes Street, at 8.30 p.m.

FRIDAY, DECEMBER 20.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN (NORTH BRITISH BRANCH), at 8.30 p.m.
"Simple Calculations for Analysis of Certain Mixtures," by J. A. Forret.
"A Convenient Arrangement for Continuous Percolation," by J. A. Forret
Exhibition of Lantern Slides of Micro-Organisms of Water, by J. Rutherford Hill.

Late Advertisements.

Assistant Wanted.

A QUALIFIED Assistant as SENIOR, must be gentlemanly and good counterman. Liberal salary. Comfortable and permanent berth for good man. Apply, with usual particulars or call. J. W. WEBBER, 202, High Rd., Chiswick.

Business for Disposal.

TRIAL allowed.—Price £400; a great bargain. Two miles from City. Very profitable light Retail Dispensing trade. Old-established. Fortune to a good prescriber. Rent could be nearly covered by letting off. Good 12-roomed house. Cutting man could take £30 weekly. No agents. Address, HONORABLE, "Pharm. Journal" Office, 5, Serle St., W.C.

SUPPLEMENT

TO THE

PHARMACEUTICAL JOURNAL.

CHRISTMAS HOLIDAYS.

On account of the Christmas holidays the "Pharmaceutical Journal" will go to press on Tuesday next week, instead of Thursday. Reports of meetings, Exchange notices, etc., must therefore arrive not later than Monday, but news can be received by post on Tuesday morning or by telegraph until 5 p.m. on that day.

LATE NEWS.

The Sale of Strychnine for Phenacetine.—The following telegram was received just as the Supplement was going to press: "The hearing of the phenacetine case (see page 524 of this week's Journal) was resumed this (Thursday) morning, and at the conclusion of plaintiff's case a consultation took place, and Mr. Darling announced that the record would be withdrawn, Wyleys to pay plaintiff's solicitors £2800 and taxed costs, Brown to bear his own costs, and to undertake to bring no action against Wyleys. Mr. Jelf for Wyleys said they had acted on his advice, believing the course to be the best, wisest, and most generous. They could trace no negligence in their works, and were unable to account for the mystery. All imputations against Mr. Brown were withdrawn. Mr. Parfitt, for Brown, accepted the course proposed, and said that Brown was satisfied with the honourable conduct of Messrs. Wyleys. His Lordship expressed satisfaction with the terms stated."

A Terrible Death.—An accident of a peculiarly painful character occurred on Monday, December 16, in the mills of Messrs. S. Higginbotham, Limited, M'Neill Street. Glasgow, which were a couple of months ago the scene of a fire by which four women were burnt to death. James Bell, seventeen years of age, who only started work in the mills that morning, was sitting on a wooden shaft above the outside ledge of a dyeing tank filled with weak solution of arseniate of soda heated to about 180 Fahrenheit, when he overbalanced himself and fell into the tank. He was frightfully burned, and died a few hours after his admission to the Royal Infirmary.

Everbon and Co., Limited, has been registered by H. C. Barker, 8, Union Court, Old Broad Street, with a capital of £15,000 in £1 shares. Objects: To acquire the business, trade mark, and secrets of manufacture of Routly's India Liver Pills and other proprietary preparations, and to carry on business as chemists, druggists, drysalters, oil and colour men, etc. Registered without articles of association.

TRADE NOTES AND NEWS.

Messrs. Barclay and Sons, Limited are introducing a useful novelty in their Perforated Court Plaster. The sheets of plaster are perforated like postage stamps, pieces of different sizes being thus separated from the bulk, so that strips of any required size can be detached readily. The advantages of the idea are obvious.

Boots, Limited.—The profit and loss account of this company for the year shows a net trading profit of £9251 19*s.* 5*d.* for the year (against £8121 9*s.* 2*d.* last year), which, added to £1240 9*s.* 10*d.*, balance of profits brought from last year, gives an available total of £10,492 9*s.* 3*d.* This, on the directors' recommendation, has been applied as follows:—Carry to the general reserve fund, £1137 8*s.*; write off special expenses connected with businesses acquired during the year, £578 3*s.* 2*d.*; confirm dividends already paid, viz, on preference shares 6 per cent. per annum, free of income tax, £3361 15*s.* 7*d.*; on ordinary shares 10 per cent. per annum, free of income tax, £2313 14*s.* 4*d.* (making a total of £5675 9*s.* 11*d.*); pay a dividend of 10 per cent. per annum on deferred shares, free of income tax, £1500; pay management expenses for one year, including managing director's remuneration and directors' fees, free of income tax, £750; carry forward to next year, £851 8*s.* 2*d.*—total, £10,492 9*s.* 3*d.*

The Damian Drug and Specialty Company, Limited, was registered on November 20, by Jordan and Sons, 120, Chancery Lane, W.C., with a capital of £6000 in 5*s.* shares. Objects: To enter into an agreement with F. A. and E. Johnson, and to carry on the business of chemists, druggists, drysalters, oil and colourmen, and makers of and dealers in proprietary articles of all kinds in all its branches. The directors are to be elected by the signatories. Qualification not specified. Remuneration to be fixed by the company. Registered office: Bertram Road, Manningham, Bradford, Yorkshire.

The Pectakos Company, Limited, has been registered by Waterlow Brothers and Layton, Limited, Birchin Lane, E.C., with a capital of £10,000 in £1 shares, to acquire the business of a chemist and druggist (manufacturing), as now and hitherto carried on by Edmund Jones at Hanley, Staffordshire, and to carry on and extend the same. The directors are A. C. Bourne, A. Wenger, R. H. Sherwin, D. Jones, and E. Jones. Qualification, £100. Remuneration to be fixed by the company.

Spratt's Patent, Limited, is publishing an illustrated hanging wall calendar for 1896, which gives useful information regarding the various breeds of dogs, delineated practical advice as to the rearing of poultry and cage birds, and a glossary of technical terms used by dog and poultry fanciers. A copy will be posted to any applicant enclosing a penny stamp, and early application is requested.

Morris, Little and Son, Limited.—This company was registered on November 18, by Maddisons, 1, King's Arms Yard, E.C. with a capital of £100,000 in £100 shares, to acquire, as a going concern, the business of chemists and druggists soap boilers and manufacturers, importers of and dealers in pharmaceutical, medicinal, chemical, and other preparations and articles, and compound soaps, sheep dips, disinfectants, oils and drugs, and makers of and dealers in proprietary articles of every description. The directors are Richard Morris, Paul Ewens, Wm. G. Little and H. Morris. Qualification, £500, Remuneration £5 5*s.* each for each Board meeting attended.

NEW BOOKS AND NEW EDITIONS.

[*Publishers are requested to send particulars of new publications, addressed "Editor, 17, Bloomsbury Square, W.C."*]

The Student's Practical Materia Medica. By Grace H. Giffen. Cr. 8vo. (Livingstone, Edinburgh.) Pp. 92. Price 2*s.* net. (Simpkin, Marshall and Co., London.)

Photography, Artistic and Scientific. By R. Johnson and A. B. Chatwood. With 54 Illustrations. 8vo., pp. 256. Price 10*s.* 6*d.* (Downey.)

Milk: its Nature and Composition. By C. M. Aikman. A Handbook on the Chemistry and Bacteriology of Milk, Butter, and Cheese. Cr. 8vo., pp. 194. Price 3*s.* 6*d.* (A. and C. Black, London.)

Elements of Practical Medicine. By A. H. Carter. 7th edit. Crown 8vo, pp. 568. Price 10*s.* (H. K. Lewis, London.)

A Short Manual of Analytical Chemistry: Qualitative and Quantitative, Inorganic and Organic. Following the Course of Instruction given in the Laboratories of the South London School of Pharmacy. By J. Muter. 6th edit. Illustrated. Roy. 8vo, pp. 226. Price 6*s.* 6*d.* (Simpkin, Marshall and Co., London.)

A Portobello Worthy's Freak.—According to the Edinburgh *Evening News*, a well-known Portobello worthy has had a curious experience, which, for the time being, considerably alarmed his friends and neighbours. It appears that he had been drinking, "not wisely, but too well," during the day, and while in his "cups" was seized with a morbid desire to discover the effects of oxalic acid upon the human body. Remembering a tragic suicide in Portobello by oxalic acid poisoning, he went to a druggist and asked for twopence worth of the article. As he would take no denial, the druggist, to get rid of him, supplied, not oxalic acid, but an extra strong seidlitz powder. This the man took home, dissolved in water, and drank the liquid under the impression that it was the acid. After drinking, he assumed a tragic attitude, and, throwing himself to the ground in the most approved stage fashion, cried out: "Now you've seen the last of poor Jimmy." Various remedies were applied, and the invalid soon recovered. Inquiries at the druggist, however, elicited the fact that Jimmy had been supplied with nothing more hurtful than seidlitz powder. Jimmy's adventure is the talk of the town, and is creating much amusement among those who know him.

Market Report.

[*Specially compiled for the Pharmaceutical Journal.*]

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

London, December 19, 1895.

The close proximity to Christmastide has had its usual effect on the course of business, and, with one or two exceptions, business has been exceedingly quiet. In the Chemical Market market carbolic acid continues to advance in price, and coal distillation products generally are very firm. On the other hand, citric and tartaric acids are neglected, without change in price. Cream of tartar has declined still further in value, whilst chrysophanic acid is steady. Acetanilid is very firm, with a tendency to higher prices. Caffeine and glycerin do not claim especial notice. The principal feature of the market in fine chemicals has been the advance in quinine, in which a large business has been done, and seems likely to go higher. Opium alkaloids, though unchanged in price, have a firmer tendency, whilst one of the makers of cocaine hydrochlorate is now asking advanced prices. Of other fine chemicals sugar of milk is tending higher, and santonin is firmly held at full rates. In the drug market orris root is rather firmer, whilst coca leaves, ergot, and cascarilla siftings have sold during the week at firm rates. Of heavy oils and spirits, rape oil is much dearer, and petroleum has also hardened in price. There is nothing of interest to report in the essential oil market. Shellac sold at a further decline in auction, but since then has been rather firmer. Full details will be found below:—

Acacia.—Privately there has been less inquiry for *Persian* gum, although prices are steady. Fair *Bushire* sorts quote at 12s. 6d. to 13s. 6d., and pale selected at 20s. per cwt.

Acetanilide.—The market is very firm; the general quotations being 1s. 3d. to 1s. 4d. per lb., although the first figure might be shaded in second hand.

Acid, Carbolic.—The market continues very firm, and quotations for *crystals* have again advanced since our last report. The current rates are now as follows:—*Crystals*: 34° to 35° C., 6¼d.; 39° to 40° C., 6¾d.; 39° to 40° C. (*detached crystals*), 7¼d. per lb. *Crude*: 60 per cent. still quotes at 1s. 8d., and 75 per cent. at 2s. 2d. per gallon. *Liquefied* has advanced 1d. to 1s. 1d. per gallon, whilst *cresylic* is unchanged at 11½d.

Acid, Chrysophanic.—The market remains firmer. One of the *British* makers quotes 21s. for quantities of 28 lbs. It is doubtful if any could be had under 20s. per lb.

Acid, Citric.—The market is quiet and featureless. Makers of *English* acid still quote 1s. 3d., but it can be bought in second hand at 1s. 2d. per lb. *Concentrated juice* quotes at £13 5s. to £13 10s. per pipe, *f.o.b.*

Acid, Tartaric.—Steady, with little inquiry at present. For *English* brands of acid 1s. 2d. per lb. is still asked, whilst in second-hand 1s. 1¾d. would be accepted. *Foreign* makes (not guaranteed B.P.) of both *powder* and *crystal* quote at 1s. 1¼d. to 1s. 1½d. per lb.

Ashes.—Best *Montreal* potashes are quiet at 22s. 6d., and *pearlashes* at 37s. 6d. per cwt.

Ammonia Salts.—*Sulphate*: Dull of sale at a decline, £8 12s. 6d. being now quoted for grey 24 per cent., whilst *Hull* has sold at £8 11s. 3d., and *Beckton* still quotes at £9. *Carbonate*: 3½d. to 3¾d. per lb. *Liquor*: 3¼d. to 3½d. per lb., less 5 per cent. *Sal Ammoniac*: Firsts, 39s.; seconds, 37s.

Arsenic.—Firm at £15 10s. to £16 per ton landed terms for best white *powder*.

Caffeine.—The market is firm without change in quotation. The makers quote 18s. to 19s. per lb., according to quantity.

Camphor (crude).—The market has been quiet, with a moderate business doing at lower rates for arrival. *China* camphor has sold at 180s., per cwt. *c.i.f.* (December-February and January-March steamer), and *Japan* at 185s. *c.i.f.*, same shipment.

Camphor (Refined).—The position is unchanged. *German* refiners quote *bells* in quantities of 1 ton or more, 2s. 1½d.; half to 1 ton, 2s. 2d.; and 5 to 10 cwt., at 2s. 2½d. per lb., with second-hand quotations at ½d. per lb. less. *English* camphor is unaltered.

Cascarilla.—A fair business has been done privately in *siftings* at 26s. per cwt.

Coal Distillation Products.—*Benzole*: Very firm. For 50 per cent. 2s. 2d. per gallon is still asked, whilst 2s. 6d. is still quoted for 90 per cent. *Creosote*: Unchanged at 1⅝d. per gallon. *Toluol*: Quoted at 2s. 4d. per gallon for *pure*. *Crude Naphtha*: 30 per cent. at 120° C. quotes at 9d. per gallon. *Solvent Naphtha*: 95 per cent. at 160° C. quotes at 1s. 8d., 90 per cent. at 160° C. at 1s. 3½d., and 90 per cent. at 190° C. at 1s. 2d. per gallon. *Anthracene*: 13A, 11½d.; B, 10d. per unit. *Pitch*: 32s. per ton, *f.o.b.* *Tar*: *Refined* and *crude* quote at 12s. 9d. and 12s. 3d. per barrel respectively.

Coca Leaves.—Good greenish *Truxillo* leaves have sold privately during the week at 1s. per lb. For fair *Bolivian* cocas 1s. 6d. per lb. is asked.

Cocaine.—One of the makers of *hydrochlorate* has raised his quotation and now asks 15s. 6d. per oz. for 100 oz. lots in tins, but the move is not a general one.

Cochineal.—A small business has been done privately in black *Teneriffes* at 1s. 2d., and fair grey at 1s. 4½d. per lb.

Colocynth: Very firm. Good *Turkey* apple is held on the spot for 2s. 6d. per lb., and there is a tendency to higher prices, as the supplies to come forward are very small, so much so, that 2s. 10d. per lb. *c.i.f.* is the latest arrival quotation.

Condurango Bark.—The current quotation is 6d. per lb.

Copper Sulphate.—Again a weak market at a further decline. On the spot £15 10s. to £16 10s. is now quoted, the latter figure being for the *Anchor* brand.

Cream of Tartar.—Since our last report the market has again declined about 2s. per cwt., and the spot quotations are now 95s. to 97s. for *German* brands of powder, whilst best white *French* crystals offer at 93s. per cwt. For shipment from Bordeaux the quotation is now 87s. per cwt. *f.o.b.*

Ergot.—Privately there have been sales of bold wormy ergot imported *via* Bordeaux at 9d. per lb. The prices asked for the new crop are 9d. and 7½d. per lb. respectively for *Spanish* and *Russian*.

Galls.—The market in *Persian* galls is unchanged, and in spite of the poor demand holders are firm. Quotations are 50s. to 52s. 6d. for blues, with greens at 42s. 6d. to 47s. 6d., and whites, 42s. to 45s.

Glycerin.—There has been no further change in the quotations but the market is firm. Second-hand holders quote at 70s. to 72s. 6d. per cwt on the spot for 1·265 gravity.

Menthol.—Quiet at 14s. 3d. to 14s. 6d. per lb. on the spot. The shipment quotation is 14s. 9d. *c.i.f.* terms.

Oil (Cod-Liver)—Very firm. The *Bergen* market is reported very bare of good oil, 180s. being the lowest quotation. On the spot 180s. to 200s. is asked, according to holder, whilst for good *Newfoundland* oil 5s. to 5s. 3d. per gallon is asked.

Oils (Essential). — *Star Anise* oil is quiet, but steady at 10s. 3d. per lb. on the spot. *Cassia* oil, of 80 to 85 per cent. aldehyde strength has sold during the week at 11s. 6d. per lb. *Lemon-grass* oil is firm at 2½d. per oz., and *Citronella* at 1s. 11d. to 2s. per lb. on the spot.

Oils (fixed) and Spirits. — *Castor: Italian* is very firm, and best quality tasteless oil quotes at 30s. 9d. per cwt. *c.i.f.* *French* medicinal oil quotes at 3¼d. to 3¼d. in tins (packed in cases), whilst for *Calcutta* oil, 2¾d. to 2⅞d. is asked for *firsts*, and 2⅝d. to 2½d. for *seconds*. *Cotton*: Rather easier. *Refined* oil now offers at £6 17s. 6d. to £7. 7s. 6d. according to brand and package. *Coco-nut*: Steady. *Ceylon* still quotes at £22 10s. to £22 15s., whilst *Cochin* is firm at £25 10s. *Linseed:* Lower by 5s., and oil in barrels is now quoted at £19 15s. *Rape*: Much dearer. For *refined* oil £24 15s. to £25 is now asked. *Olive*: *Syrian*, £32; *Spanish*, £34. *Turpentine*: Steady. *American* spirit quotes at 20s. on the spot. *Petroleum*: Rather firmer. *American* oil is now quoted at 7d. to 7⅛d.; *water white* at 8d. to 8¼d., and *Russian* at 6¾d. to 6⅞d.

Opium.—There has been a good inquiry for *Turkey* opium, especially *soft shipping* varieties, during the week, and the market is very firm. The current quotations are as follows:—*Soft shipping*, 11s. to 12s. *Smyrna*, good to fine, 7s. 6d. to 8s. 6d. *Constantinople*, good to fine, 8s. to 9s.; *druggists' seconds*, 7s. to 8s. The market in *Persian* opium is very firm, and fine *bricks* are held for 13s. 6d. per lb., and there is very little to be had even at this price. Ordinary *ball* quotes at 11s. to 12s. 6d. per lb.

Opium Alkaloids: Firmer. There is no absolute change in the manufacturers' quotations, although there is a decidedly stronger tendency. *Morphine* quotes at 4s. per oz. for 1000-oz. lots for *powder*, with *crystals*, 2d. per oz. more. *Codeine*: Still quoted at 10s. per oz. in first-hand for 100-oz. lots.

Orris Root.—The market continues to improve, and the spot quotations are now 75s. for *Florentine* root, 70s. for *Veronese* (which is in but small supply), and 35s. for

East Indian. For delivery, best selected *Florentine* root quotes at 69s. 6d., and good sorts at 65s. per cwt., *c.i.f.* terms.

POTASH SALTS.—*Chlorate*: Rather firmer. The spot price is now 4⅝d. per lb. The Liverpool price remains 4½d. *f.o b. Bichromate*: Unchanged at 4⅝d. to 4¾d. per lb. on the spot. *Yellow prussiate*: Steady at 8d. per lb. on the spot. *Cyanide*: Firm at 1s. 6d. to 1s. 7d. per lb. for 98 per cent. *Permanganate*: *Small* crystals quote at 65s. to 67s. 6d.; *large* ditto at 70s. to 72s. 6d. per cwt.

QUASSIA WOOD—Quiet. Privately a small business has been done at £3 15s. per ton.

QUICKSILVER—Firmer. The importers' price is still £7 7s. 6d. per bottle, but there are now no second-hand sellers under £7 6s.

QUININE SULPHATE.—A very strong market at a considerable advance. At the end of last week there were sales of *B. & S.* and *Brunswick* to the extent of about 15,000 ozs. on the spot at 1s. 0⅝d. Owing to the fact that manufacturers in America have raised their quotation from 25 to 28 cents, *i.e.*, to a parity of 1s. 2½d. per oz., the home market is now still firmer, and about 15,000 ozs. of *B. & S.* and *Brunswick* sold yesterday at 1s. 0¾d. to 1s. 1d., whilst to-day 5000 ozs. of the best *German* brands have sold at 1s. 1½d., and 1s. 1¾d. is now asked. *Auerbach* has sold at 1s. 1¼d. The 5000 ozs. of *Brunswick* (1891 make) and the same quantity of *B. & S.* (1893 make), which were bought in at the last drug sales, have since been sold at 1s. 0½d. per oz.

SANTONINE.—Very firm. The makers' price is still 7s. 6d., whilst second-hand holders ask 7s. 3d. to 7s. 4½d.

SOY.—Fair *China* is quiet but steady at 1s. to 1s. 1d. per gallon.

SPERMACETI.—Refined *American* quotes at 1s. 9d. per lb. on the spot.

SHELLAC.—Privately the demand has been only small, but prices show a slight improvement on last week's sale rates, *TN Orange* selling at 103s. The weekly sales produced only small supplies, and in spite of a fair demand prices declined 3s. to 4s. for fine *Second Orange*, good ditto and *TN Sorts*, 2s. to 3s., cakey *A C Garnet*, 3s., and *Button* 4s. to 5s. The following prices were paid:—*Second Orange*: Fine pale flat *SSO*, 113s. to 114s.; good bright cakey, 106s. to 108s.; fair to good bright strong, 103s. to 106s.; fine palish, 103s. to 104s.; and dark red 100s. to 102s. *Garnet*: Cakey *AC*, 96s. to 97s.; *Button*, *BL*1, 91s. to 93s.; fair cakey, 88s. to 89s.; *BL* 3, 83s. to 84s. Since the sales there has been a better demand on the spot for *TN Orange*, with fair sales at 103s. The arrival market is unchanged and quiet.

SPICES (VARIOUS).—*Cloves*: At the sales a small supply only was offered, and *Zanzibar* was bought in at 2½d., and *Amboyna* at 5d. A fair amount of business has been done privately at 2d. per lb. For delivery the market is quiet, with nothing doing. *Pimento*: At the sales fair quality sold at 2½d. per lb., but the inquiry was very moderate. *Ginger*: *Cochin* is still dull of sale, and all was bought in at the sales. Limed *Japan* sold at 21s., whilst medium to good washed *Jamaica* was bought in at 95s. to 100s. per cwt. *White pepper*: None was sold in auction. *Penang* was bought in at 3d., and *Singapore* at 4¼d. to 4⅜d. *Arrowroot*: In auction *St. Vincent* was bought in at 2¾d., and fine *Natal* at 6d. Previous to the auction a fair business had been done in *St. Vincent* at 1½d. to 1⅝d. per lb.

SUGAR OF MILK.—The market is very firm, with spot quotations ranging from 82s. 6d. to 85s. per cwt. for *crystals* in first hand. For shipment, 80s. *f.o.b.* is quoted.

TOLU (BALSAM).—The stock at present on the spot has been increased during the last few days by an arrival from *Savanilla*. The demand has slackened off lately.

TRAGACANTH (GUM).—There has been a steady demand, with fair business done at full rates. The current quotations are:—Firsts, £15; seconds, £13 10s. to £14 10s.; thirds, £11 10s. to £12 10s.; fourths, £9 to £11, with lower grades £2 to £8 per cwt. Quotations for *hog* are nominal at 40s. to 80s.

WAX (JAPAN)—Firm. The spot quotation for good pale *squares* is 30s. per cwt.

PATENT OFFICE BUSINESS.

APPLICATIONS FOR PATENTS.

[From the *Illustrated Official Journal.*]

No. 15,998.—An improved vaccination shield. August 26.

No. 16,009.—A new or improved antiseptic and preservative preparation. August 26.

No. 16,011.—A device for delivering the contents of flasks or bottles in drops. August 26.

No. 16,045.—Improvements in and connected with photographic dry (or wet) plates and films. August 27.

No. 16,054.—Kennedy's improved sanitary feeding-bottle, patent fittings, sanitary screw, combined with milk or food regulator, also sanitary fittings. August 27.

No. 16,127.—Medical appliance or germicide respirator. August 28.

No. 16,128.—Improvements connected with teats for feeding-bottles. August 28.

No. 16,187.—A new and improved artificial sponge for the bath and domestic purposes. August 29.

No. 16,281.—Improvements in feeding-bottles. August 30.

No. 16,285.—A salve. August 30.

No. 16,296.—Improvements in syringes. August 30.

No. 16,300.—Improvements in atomisers and sprays. August 30.

No. 16,341.—A new or improved antiseptic accouchement or menstruual pad, applicable also for surgical dressings. August 31.

No. 16,811.—Metallic wrapper for bottle labels and the like. September 9.

No. 16,856.—An improved medicine for horses and cattle. September 9.

No. 16,951.—Improvements in treating cod-liver and castor oils to render the same palatable and medicinal. September 10.

No. 16,984.—An improved washing liquor. September 11.

No. 17,060.—Improvements in preserving alimentary and pharmaceutical substances. September 12.

No. 17,061.—Improvements in concentrating alimentary or pharmaceutical liquids or other substances, and in apparatus therefor. September 12.

No. 17,121.—An improved powder for destoying insects and a method of manufacturing same. September 13.

PATENT SPECIFICATIONS PUBLISHED.

Sterilising milk, cream, etc. (Mason, T. R., and Alsing, G. V.).—Consists in heating the milk, etc., to about 168° F. for from twenty to thirty minutes, or several times for shorter periods, a current of positive electricity being passed through at the same time. The latter is stated to remove a portion of the oxygen from the milk, etc., and to reduce its tendency to decomposition. No. 7695 of 1895.

Extracting gold and silver from ores (Sulman, H. L., and Teed, F. L.).—In the MacArthur and other processes in which the precious metals are removed from ores, by the solvent action of an alkaline cyanide, such as that of potassium, free oxygen from the air or other source is required, and owing to the length of time occupied by the reaction, secondary changes occur which introduce base metals into the solution and also increase the quantity of cyanide required. The inventors employ the alkaline cyanide in association with the bromide, iodide, or chloride of cyanogen, which acts as in the following equation:— $CNBr + 3KCN + Au = 2KAu(CN)_2 + KBr$. The action is similar in the case of silver. It is sufficiently rapid to minimise the amount of base metal which passes into solution, and takes place without the presence of oxygen. The above-mentioned solution may also be prepared by acting upon an excess of alkaline cyanide in solution, with free chlorine, bromine, or iodine as in the equation— $Cl_2 + KCN = KCl + CNCl$. The precious metals are precipitated from solution by any suitable means. No. 18,592 of 1894.

[This patent has been bought by a company, and is now being worked on a large scale.—ED. *P.J.*]

Trusses (Calantariento, J. A.).—The pads of trusses, etc., are made of woven metal wire so interlaced as to give the necessary elasticity. No. 20,151 of 1894.

Digestive compound (Carnrick, J.).—This lengthy specification refers to a preparation which the inventor terms "peptenzyme," and which may be described as a pepsin obtained from the "stomach, pancreas, spleen, hepatic, salivary, and Brunner's glands and Lieberkuhn's follicles" of animals. The preparation of this substance is described, and it is said to be particularly adapted for assisting the digestion of fat. No. 20,263 of 1894.

Applying local anæsthetics (Broillet, C.).—The ethyl chloride or other anæsthetic employed by dentists, etc., is contained in a small reservoir, to which either of a number of nozzles may be screwed according to requirements. A valve adjusted by a thumb-screw adjusts the supply. No. 13,710 of 1895.

Artificial musk (Abel, C. D., communicated from the Fabrique de Produits-Chimiques de Thann et Mulhouse).—Refers partly to the cyanide of butyl-toluene prepared by Efiront (*Ber. der Deutsch. Chem. Ges.*, xvii., 2337 and 2343), and consists in converting it or the cyanide of butyl-xylene or of butyl-methyl-cresol into a nitro-derivative having a musk-like odour. This is effected by treating it with fuming nitric acid, or a mixture of nitric and sulphuric acids, and crystallising the product from alcohol after precipitating it by pouring the acid mixture into water. No. 20,521 of 1894.

NEWCASTLE CHEMICAL REPORT.

[*From our own Correspondent.*]

December 18, 1895.

Business in chemicals at this market are commencing to tone down, which is not unusual at this time of year, seeing that stocktaking time is approaching. However, movements in bleaching powder and caustic soda continue fair, with soda crystals moving steadily against interior orders. Saltcake and sulphur remain scarce. Sulphate of ammonia is again on the weak side, buyers for present and forward delivery being fewer, and holding, Tar products are steady to firmness. Pitch easy. South Durham salt is still in fair request. Prices:—Bleaching Powder, in softwood casks, £7 to £7 5s.; in hardwood casks, £7 5s. to £7 10s. Soda Crystals, in casks, 37s. 6d.; in bags, 42s. 6d. to 45s. Caustic Soda: 76 and 77 per cent., £9 5s. to £9 10s., 70 per cent. £7 15s. Alkali: 48 per cent., £4 10s. Soda Ash: 48 per cent., £3 15s. to £3 17s. 6d. Recovered Sulphur: £4. Hyposulphite: In casks, £6 10s.; in kegs of 1 cwt., £7 5s. Sulphate of Ammonia: Leith, £8 11s. 3d. to £8 12s. 6d. Benzole: 90 per cent., 2s. 4½d.; 50 and upwards, 2s. 2d. Carbolic Acid: 6¼d. to 1s. 7½d. Saltcake: 27s. 6d. Alum: In bulk, £5 10s. Pitch: 37s. Salt: 9s. 6d. per ton on board Tees.

LIVERPOOL MARKET REPORT.

[*From our own Correspondent.*]

December 18, 1895.

Canary Seed: *Turkish*, 33s. 6d. to 34s. per 464 lbs.; *Spanish*, 46s. Linseed: *Bombay*, 37s. 6d.; *Turkish*, 34s. to 36s. 6d. per 416 lbs. Beeswax: *Gambia*, £7; *Sierra Leone*, £6 10s. Kola Nuts: Dried, 6d. to 7d.; fresh, 5½d. Quillaia Bark: £12 10s. per ton. Cochineal: Teneriffe "black grain" at late rates. Carnauba Wax: Yellow, 143s. 3d. to 150s. 9d. Balsam of Copaiba: *Maranham*, 1s. 8½d. Castor Oil: Good seconds, *Calcutta*, 2½d. *French*, 1st pressure, 2⅝d.; *Madras*, 2 7/32d. to 2¼d. Olive Oil: *Candia*, £31 10s. Linseed Oil: 20s. 9d. to 21s. 6d. for *Liverpool* makes. Cotton-seed Oil: *Liverpool* makes, 17s. 3d. to 17s. 9d.; *American*, 18s. to 18s. 3d. Spirit of Turpentine: 20s. 6d. Petroleum: *Russian*, 7d.; *American* refined, 7⅜d. to 8½d. Sal Ammoniac: 39s. "firsts"; 37s. "seconds." Prussiate of Potash: 8d. Chlorate of Potash: 4½d. Caustic Soda: 70 per cent., £7 15s. to £8; 60 per cent., £6 15s. to £7. Bicarbonate of Soda: £7. Soda Crystals: £2 10s. Borax: *Lump*, 20s.; *powder*, 21s. Nitrate of Soda: 7s. 7½d. to 7s. 10½d. Bleaching Powder: £7 in hardwood casks *f.o.b.* Liverpool. Copperas: *Lancashire*, 38s.; *Welsh*, 37s.

G. G. Stern, Limited.—This company has been registered with a capital of £10,000 in £1 shares, to acquire and carry on the business of a manufacturer of pharmaceutical preparations and manufacturing chemist carried on by S. Bergheim as "G. and G. Stern," at 62, Gray's Inn Road, W.C., including his rights in Pepsalia and Pumiline.

EXCHANGE.

[*For the convenience of readers, suitable notices, not exceeding thirty words in length, are inserted free in this column, if they do not partake of the nature of ordinary advertisements. They must relate to books, apparatus, shop fittings, etc., and arrive not later than Wednesday, addressed "Editorial Department, 17, Bloomsbury Square, W.C."*]

OFFERED.

Microscope, Hartnack's Pattern, ⅛, ¼, and 1 inch objectives, 2 eye-pieces in first-rate condition. Seen any time. Price £3 15s.—Burge, 2, Fernhead Road, W.

Muspratt's 'Chemistry,' 2 vols.; Attfield's 'Chemistry,' 9th edition; 'Vegetable Materia Medica,' Wills', 6th edition; 2 Squire's 'Companion,' 1882; Gerrard's 'Materia Medica'; 'British Pharmacopœia,' 1885. What offers?—Hayes, Haywards Heath, Sussex.

Twelve 60 candle power incandescent gas burners, with glass chimneys and new mantles, consume 3 c. feet per hour, 5s. 6d. each, net cash.—J. Hughes, 54, Beaumont Street, Liverpool.

Coins: Silver Pennies of Henry III. and Edward I., in good state of preservation, guaranteed genuine, 1s. each.—Arthur Graeme, 54, Fremantle Road, Cotham Brow, Bristol.

Dr. Fleetwood Churchill's works on 'Midwifery and Diseases of Women,' published 12s. 6d. each; and Lees' 'Diseases of Females,' plates, the three vols., post free, 7s. 6d.—Davies, 33, Eglinton Road, Bow.

"Eclipse" Copying Apparatus, complete in good condition, cost 30s. Will exchange for a good work on simple analyses and a useful hand book on common ailments.—Tovey, Chemist, Shanklin, I. of W.

New, Professor Baillon's 'Natural History of Plants,' translated complete, 8 large vols., hundreds of beautiful engravings, 50s., published £10, 1881.—Davis, "Chestnuts," Gordon Hill, Enfield.

Unused Portable Assay Balance, with rider to carry 2 grammes each pan, and turn with 0·1 milligramme, fitted in mahogany case. Price £4 4s.—J. Allen, 1, George Street. Plymouth.

Taylor on 'Poison,' Thomé's 'Botany,' Wanklyn's 'Water Analysis,' Ganot's 'Philosophy.' all new. Muter's 'Analysis'. Exchange for Green's or Oliver's 'Systematic Botany,' Maisch's 'Materia Medica' (latest). — Dixon, 164, Aigburth Road, Liverpool.

'Year-Book of Pharmacy,' 1870 to 1884, 1888, and 1891 to 1895, all inclusive. What offers?—T. R., 18, Colville Terrace, Bayswater, London, W.

WANTED.

Set of Dental Forceps, second-hand, in good condition. Particulars to Dentist, care of F. Coates, New Basford, Nottingham.

Chemist and Druggist or *British and Colonial*, posted Mondays in exchange for *Pharmaceutical Journal*, posted Mondays.—White, Chemist, Dacre Hill, Rock Ferry.

Green's recent 'Botany.' State price to—A. J. H., 23, London Road. Dover.

'Chemists' and Druggists' Diary,' 1896. Price to—Palmer, St. Nicholas Street, Ipswich.

Nest of sixty or eighty small drawers, to go in space about 3 feet by 2 feet.— Woodhouse, Chemist, Ludlow.

*** **The attention of readers is directed to the conditions printed at the head of this column. Notices cannot be inserted unless they are in accordance with those conditions.**

Late Advertisement.

Assistant Wanted.

Qualified Assistant and Dispenser, about 24. Good references. Apply, first in writing, to Blake, Sandford & Blake, 47, Piccadilly.

DIARY OF THE WEEK.

Secretaries of Societies are requested to send notices of forthcoming meetings not later than Wednesday in the previous week.

Thursday, December 26.

Glasgow and West of Scotland Pharmaceutical Association, at 9.15 p.m.
"The Poison Laws," by D. Watson.

Friday, December 27.

Aberdeen Junior Chemists' Association at 9.30 p.m.
Short Papers by A. Gilchrist.

Saturday, December 28.

Royal Institution of Great Britain, at 3 p.m.
"Sound, Hearing, and Speech" (Experimentally Illustrated), by Professor John Gray McKendrick.

TRADE MARKS APPLIED FOR.

No. 188,386.—Medicinal Oils, for outward application, for human use.—Eli Smith, 33. Prout Road, Upper Clapton, London, N.E. June 25, 1895. The essential particular is the portrait of a man with sash.

No. 188,589.—Medicinal Preparations for human use, but not including preparations for affections or diseases of the heart or any preparations of a like kind.——Mayfield Archibald Lilly, Botanic Hall, 35, Colston Street, St. Augustine's, Bristol. July 4, 1895. The word "Heartsease," and address of applicant.

No. 188,643.—Chemical Substances used in manufactures, photography, or philosophical research and anti-corrosives.—Albert Alston, 9, Grimshawe Street, Burnley, Lancashire, July 9, 1895. Fac-simile signature of applicant.

No. 188,665.—A Medicine for human use namely, a corn salve.—Alfred Verity, Akroydon Villas, Halifax, Yorkshire. July 10, 1895. Device of Cross-bones, surrounded with the Letters V.C.C.C. The essential particular is the device.

No. 188,920.—Pills and Ointment, all being for human use.—James Dewar and Co., 16, Stuart Road, Walton, Liverpool. July 26, 1895. The word "Trilby."

No. 188,979.—Chemical Substances prepared for use in medicine and pharmacy. Octavius Stunt, 135, Seven Sisters Road, Holloway, London, N., July 29, 1895. Fac-simile signature of applicant on a label.

No. 189,002.—A Patent Medicine for human use, being an ointment for the cure of piles.—Henry Wells Buer, Mul'la House, Maidenhead, Berks. July 31, 1895. Figure of a donkey with the words "Buer's Mul'la Cures Piles" on its saddle. The essential particular is the device.

No. 189,153.—Meat Juice, being a food.—Valentine's Meat Juice Company, 601, 603, and 605, E. Cary Street, Richmond, Va., U.S.A. August 9, 1895. Signature: Mann G. Valentine.

No. 189,239.—Syringes (surgical) and douches (surgical), being in the nature of syringes.—Arthur Benjamin Cruikshank, c/o Chancery Lane Safe Deposit, 62, Chancery Lane, London, W.C. August 14, 1895. Word: "Onah."

SUPPLEMENT

TO THE

PHARMACEUTICAL JOURNAL.

MISCELLANEOUS NEWS.

THE PHARMACIST AND HIS PERSONAL GUARANTEE.—The following editorial note from the *Daily News* for December 23, points an obvious moral, which should be taken seriously to heart by all who are anxious to see the pharmacist receive due recognition from the public:—"'I am very sorry, but I sold it to you as I received it from my wholesale druggist,' seems to have been the answer of a Birmingham chemist to an unhappy widow whose husband had been poisoned by taking strychnine sold to him in mistake for a comparatively harmless drug known as phenacetine. Mrs. Harrop, the widow, was not satisfied with this excuse; she therefore brought an action conjointly against both the wholesale and the retail dealers. In the evidence it appears that a bottle labelled 'Phenacetine,' which had been supplied by the wholesale house, contained by some mischance a mixture consisting of strychnine and phenacetine in the proportion of nearly one-third of the former to two-thirds of the latter. It seemed probable that the fatal error had been made in filling the bottles at the wholesale house, since a small bottle, labelled 'Strychnine' ordered by the same chemist at the same time, was found to contain phenacetine only. The result was that not Mr. Harrop only but another unfortunate customer also took the poisonous mixture and died—the latter within an hour—in great agony. The case was compromised in Court by the wholesale druggist agreeing to a verdict for £2800 with costs—the chemist being absolved on agreeing to pay his own costs only. The latter amount will probably be considerable; but the notion that a chemist can entirely shift responsibility in a matter of this kind would not be agreeable to contemplate. Clearly a pharmacist ought to be bound to know what he is selling."

EDINBURGH PHARMACY ATHLETIC CLUB.—The fourth Annual Smoking Concert of the Club was held in the West End Café, Princes Street, on Thursday evening, 19th inst. There was a very large and representative attendance, and Mr. David Maclaren, Honorary President, occupied the chair. Among others present were Mr. Richard Clark, Chairman of the Edinburgh Parish Council; Mr. Boa, Chairman, and Mr. Bowman, Vice-Chairman of the Edinburgh District Chemists' Trade Association; Dr. Aitchison, Dr. Leith, and Dr. James; Mr. J. A. Forret, Divisional Secretary for Central Edinburgh; Messrs. George Coull, B.Sc., J. R. Young, jun., W. R. Cunningham, J. Rutherford Hill, etc. During the evening Dr. Leith proposed the toast "Success to the Edinburgh Pharmacy Athletic Club," which was replied to by the hon. secretary, Mr. J. P. Gibb. The Chairman proposed "The Pharmaceutical Society," which was responded to by Mr. J. Rutherford Hill, and Mr. Richard Clark proposed the toast of the "Chairman." There was a very full and exceptionally high-class programme of vocal and instrumental music, to which the following medical and pharmaceutical performers contributed:—Dr. James, Messrs. J. A. Y. Bowman, George Jamieson, A. Donaldson, John Brown, J. P. Gibb, G. Radford, and George Melville. This popular annual reunion seems to have thoroughly established itself, and great credit is due to the Committee, and especially the Secretary, for the admirable way in which all the arrangements were carried out. The large company broke up at an early hour amid somewhat hilarious testimonies as to the pleasant evening that had been spent.

THE ANTI-CUTTING AGITATION.—The following report was received too late for publication last week, owing to misdirection:—

A meeting for the purpose of forming an Association of Manufacturers and Distributors of Proprietary Articles was held on Friday, December 13, at Anderton's Hotel. A large number of manufacturers and representatives of the wholesale trade were present, and the following resolutions were unanimously agreed to:—

1. That an Association of Manufacturers and Distributors of Proprietary Goods be formed for the protection of their mutual interests.

2. That the following be the objects of such Association:—(*a*) The discussion of matters of common interest to the branches of the trades represented, with a view to decision, and, if necessary, concerted action. (*b*) To take such steps as the Association may be advised are legal to deal with extreme cutting of prices. (*c*) To give advice and render assistance to its members in preventing substitution. (*d*) To do all such other things as may appear to be of benefit to the trade.

3. That this meeting resolves itself into a committee to frame rules, etc., to be submitted to a general meeting of the Association for adoption.

4. That a meeting of the Association be held in January to adopt rules, and elect officers and a governing council.

5. That the secretary (*pro tem.*) be authorised to submit copies of the resolutions passed at this meeting to manufacturers and others, with a view to enrolling members.

Mr. W. S. Glyn-Jones, 2 and 3, Stonecutter Street, London, E.C., who is acting as secretary (*pro tem.*), will be glad to give owners and distributors of proprietary goods any information with regard to the Association.

THE HUXLEY MEMORIAL.—Since the first meeting of the General Committee, on November 27, two meetings of the Executive Committee have been held. At the first of these, at which Lord Shand accepted the office of Chairman, it was reported that a number of foreigners of eminence had expressed a wish to be associated with the proposal to commemorate Mr. Huxley's distinguished services to humanity. It was resolved in the first instance to invite subscriptions from the members of the General Committee. At the second meeting, held on the 18th inst., it was reported that the subscriptions, which at the general meeting had amounted to £557, had been increased to about £1400, and it was resolved that a wider appeal for subscriptions should now be made to the friends and admirers of Mr. Huxley amongst the general public. The Hon. Secretary stated that in America Committees were in the course of being formed to promote the realisation of an adequate fund. The Committee resolved to communicate by means of a Sub-Committee of their number with Mr. Onslow Ford, R.A., who had the advantage of being well acquainted with Mr. Huxley, in reference to the statue, which it is proposed to be erected beside those of Darwin and Owen, in the Natural History Museum, South Kensington. The extent to which the Committee may be able to carry out the other intended objects of founding exhibitions, scholarships, and medals for biological research, and lectureships, and possibly in assisting the re-publication of Mr. Huxley's scientific works, will of course, depend on the subscriptions which may now be received. These may be sent to the Treasurer, Sir John Lubbock, or to the bankers, Messrs. Robarts, Lubbock, and Co., 15, Lombard Street, E.C.; or to the Secretary, Professor G. B. Howes, Royal College of Science, South Kensington. The amount received to date is £1535.

THE DANGERS OF CHLORODYNE.—At the police court on Monday, before Dr. Pike, John Chapman, 31, Southfield Street, Worcester, an Army pensioner, was charged with attempting to commit suicide by taking a large quantity of chlorodyne on Saturday. Evidence having been given, Dr. Pike said that, as a medical man as well as a magistrate, he should strongly advise the defendant to leave off the habit of taking drugs. It was a gross fault of the law that chemists should have the power to sell dangerous drugs to any one who asked for them. He did not blame chemists as the law now stood, but he considered that they should use great discretion in supplying "patent" drugs. With regard to the present case he did not think there was sufficient evidence that defendant took the chlorodyne with a felonious intent. He would, therefore, have the benefit of the doubt and be discharged.

NEW LIGHT ON THE GROVE BATTERY.—Chemists used to be very fond, observes the *Electrical Review*, of ascribing reactions, which they experienced some difficulty in explaining, to "catalytic action"—a conveniently vague term which is almost Gladstonian. We have not quite done with it yet, although the time is probably not far distant when this rather weak term will be supplanted by something more understandable. For the present, however, it is still thought desirable to retain it. In a recent issue of the *Electrotechnik und Elektrochemie*, 1895, ii., p. 174, Ihle calls attention to a form of catalytic action which, apparently, can be recognised in the Grove cell. He finds that if the concentrated nitric acid in a cell of this type be gradually diluted with water, the E.M.F. of the cell remains approximately constant and equal to 1·8 volt until 38 per cent. of nitric acid is present. A little below this concentration the cell gives an E.M.F. roughly corresponding to that of a Smee cell (0·7 volt), although at first it only

exhibits this lower E.M.F. for a short time. When the amount of nitric acid present is reduced to 27-28 per cent., the E.M.F. of the cell remains permanently at the lower value. Ihle is of opinion that this remarkable phenomenon is due to the action of nitrous acid, which is either contained in the nitric acid to start with or else is formed in it when the circuit is closed. Support for this view may be found from the following experiments:—If a Grove cell be used, which contains less than 28 per cent. of nitric acid and therefore, exhibits permanently an E.M.F. equivalent to that of a Smee cell, and a small quantity of potassium nitrite be added, the E.M.F. instantly rises to that of the normal Grove cell. On removing the nitrous acid by adding potassium permanganate or urea, the E.M.F. again sinks to that of the Smee cell. And even with more concentrated nitric acid the depolarising power can be annulled if the nitrous acid be removed by similar chemical means, the E.M.F. then falling to that of a Smee cell. With acid containing over 50 per cent. of nitric acid, this can only be done for a short time, but with acid containing 38 to 50 per cent. the effect is permanent. From these observations Ihle argues that depolarisation in the Grove cell takes place, seemingly by a catalytic action of nitrous acid.

Hydrochloric Acid in a Medicine Bottle.—On December 20 Mr. A. Braxton Hicks, the Mid-Surrey coroner, held an inquiry at Battersea with reference to the death of George Arthur Head, aged 23 years, of 33, St. Andrew's Street, Battersea, who died on December 17 from the effects of hydrochloric acid, purchased at an oilshop in the neighbourhood.—The coroner said the bottle, an ordinary eight-ounce medicine bottle, bore the following label:—"One tablespoonful to be taken three times a day, after meals." The oilman had not even taken the ordinary precaution of putting the word "Poison" on the bottle, and the landlady was much to blame for leaving the bottle in a cupboard where anybody might pick it up by mistake.—Dr. Sutcliffe said that the deceased died from the effects of hydrochloric acid poisoning.—The jury returned an open verdict: "That the deceased died from poisoning, but that there was not sufficient evidence to show for what purpose the acid was taken." They also requested the coroner to caution the oilman to be more careful in future.

Acetic Acid for White Wine Vinegar.—At the Hanley County Police Court, on Monday, before the Stipendiary (Mr. Harold Wright), Messrs. Boots, Limited, of Nottingham, and Frederick William Whitwell, the manager of one of Messrs. Boots' shops at Burslem, were summoned under the Food and Drugs Act for selling diluted acetic acid for white wine vinegar on November 15.—Mr. E. W. H. Knight, inspector under the Act, prosecuted; Mr. Hinde, solicitor, Nottingham, defended the firm of Boots; and Mr. F. W. Harris appeared for Mr. Whitwell.—It was stated that Messrs. Boots and Co. sold drugs at Nottingham, having branch shops to the number of about fifty throughout the country. On the date mentioned Charles Frederick Grocott, an assistant to the Inspector, went to the Burslem shop and asked for a quart of white wine vinegar, and was supplied, 4*d.* being paid. The county analyst certified that the article was not vinegar at all, but diluted acetic acid.—The Stipendary, in giving his decision, said both parties were, to his mind, very culpable in this case, and he would have taken a more lenient view of Whitwell's case had he not been a qualified chemist. He should impose a fine on Messrs. Boots of £10 and costs for this fraud on the public, and their manager Whitwell would have to pay £5 and costs. The Stipendary having refused to grant a case for the Queen's Bench, Mr. Hinde said he should appeal to the Court of Quarter Sessions.—The Stipendary said he might take what course he thought fit.

Alleged Chemical Combination.—According to the *Newcastle Daily Chronicle*, it is now stated with authority that the chief producers of chemicals in this country have agreed upon what may be called a combination, though neither its nature nor its extent are known. The great producing firms have, however, agreed upon a course of common action in regard to the chemicals they produce. This is all that is known yet, but it is certain that that "common action" will have for its aim the advantage of the producers.

The Limited Company Question in Ireland.—At Dublin, on December 20, in the Queen's Bench Division, before Mr. Justice O'Brien, Mr. Justice Johnson, Mr. Justice Holmes, and Mr. Justice Gibson, the case of Cleeland *v.* the Pharmaceutical Society of Ireland came on for argument on a motion by counsel for Mr. Cleeland to make absolute a conditional order for a mandamus to compel the Society to admit him to their examination for the licence as a pharmaceutical chemist. The conditional order had been granted on affidavits showing that Mr. Cleeland had served six years' apprenticeship with Grattan and Co., of Belfast, and afterwards was five years with them as an assistant, and that he had attended all the requisite lectures, besides passing the Preliminary examination, but that the Council of the Society had refused to accept a certificate from Grattan and Co., because they were a limited company, all the members of which were not pharmaceutical chemists. The arguments, which were of a purely legal character, occupied the entire day; and at their conclusion Mr. Justice O'Brien said that judgment would be given on the second day of next sittings.

Chemists' Assistants' Association.—The first of the series of three Cinderella dances which have been arranged to take the place of the usual monthly musical meeting was held in the smaller room of Portman Rooms. The gathering was in some way exclusive, as the tickets were strictly limited to seventy-five, to avoid overcrowding. Dancing commenced at eight, and lasted until shortly before twelve. Among those present were Mr. and Mrs. Tanner, Mr. Mackey, Senr. (Bouverie Street), Mr. and Mrs. W. Semple Cooper (Oxford Street), Mr. and Miss Taylor, Mr. John Matthews, and Mr. Want. Mr. T. C. W. Martin acted as M.C. The gathering was a pronounced success, and in every way redounds to the credit of Mr. H. H. Robins, who is acting as the Secretary for the three dances.

LEGAL INTELLIGENCE.

Butler and Crispe v. *G. H. Doveton.*
Idris Water Co. v. *Same.*

These two actions were tried together before Mr. Justice Kennedy in the Queen's Bench Division, on Saturday last. In each case the plaintiffs sought to recover a sum of money, amounting together to some £40 odd, in respect of goods alleged to be supplied to the defendant while trading as chemist under the style of Christmas and Co. at 818, Holloway Road. It appeared that Mr. Doveton* had paid off a mortgage which the late Mr. Christmas had on his business. At the date of Mr. Christmas' death last year, a considerable sum was due for interest on the mortgage, and Mr. Doveton, in order to secure himself, had paid a sum of £50 to the widow for the chattels not secured by the mortgage. Mr. Doveton then entered into an agreement with a qualified chemist, a Mr. Worfolk, whereby Worfolk was to have a salary of two guineas a week, for which he was to use his best endeavours to carry on the business, to keep down the expenses out of the receipts, and to share with Mr. Doveton at the end of the year the surplus, if any, after paying out to Mr. Doveton interest on the capital he had in the business. There was a clause in the agreement that Mr. Worfolk was not in any way to pledge Mr. Doveton's credit. When notice was given to Mr. Worfolk to determine his engagement, it was discovered by the defendant that there were unpaid creditors of the business to the extent of some £160.—The defence was that Mr. Worfolk was not carrying on the business in partnership with the defendant, nor had Mr. Worfolk any authority to pledge the defendant's credit.

His Lordship postponed his decision until the first day of next sittings.

NEW BOOKS AND NEW EDITIONS.

[*Publishers are requested to send particulars of new publications, addressed "Editor, 17, Bloomsbury Square, W.C."*]

Handbook of Grasses: treating of their Structure, Classification, Geographical Distribution and Uses; also describing the British Species and their Habitats. By W. Hutchinson. Cr. 8vo., pp. 92. Price 2*s.* 6*d.* (Swan Sonnenschein and Co., London.)

Simple Methods for Detecting Food Adulteration. By J. A. Bower, 36 Illus. Cr. 8vo., pp. 118. Price 2*s.* (S.P.C.K., London.)

Pioneer Work in Opening the Medical Profession to Women. By Elizabeth Blackwell. Autobiographical Sketches. Cr. 8vo., pp. 276. Price 6*s.* (Longmans, Green and Co., London.)

Principles of Physics: a Text-book for High Schools and Colleges. By A. P. Gage. 12mo. (Boston) London. Price 7*s.* 6*d.* (Sampson Low and Co., London.)

A Manual of Veterinary Physiology. By F. Smith. 2nd edit., rewritten, 8vo., pp. 606. Price 15*s.* (Baillière, Tindall and Cox, London.)

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* The name of G. H. Doveton does not appear in the Register of Chemists and Druggists.

MARKET REPORT.

[*Specially compiled for the Pharmaceutical Journal.*]

[*The quotations here given are in all cases the lowest net cash prices for bulk quantities, and often the articles quoted have to be sorted in order to suit the requirements of the retail pharmacist. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.*]

LONDON, DECEMBER 28, 1895.

There is naturally but little to report this week, and the amount of business done has been but nominal. In the chemical market, carbolic acid remains firm, and the same applies to coal distillation products. Citric and tartaric acids remain dull of sale, without change in price. Cream of tartar is slightly easier, whilst chrysophanic acid is steady. Acetanilide and phenacetine are both very firm. Tartar emetic has advanced in price, and tarterated soda is also very firm. Caffeine and glycerin do not call for special note, but the manufacturers' quotations for morphine and codeine have been advanced. Of other fine chemicals, quinine has declined in price, whilst sugar of milk and santonin are firm. In the drug market a good inquiry for copaiba balsam is reported, gentian root is dearer, and senega is firming up. A good business has been done in some varieties of Turkish opium, and the stock of Persian continues firmly held. Of heavy oils and spirits, rape is rather easier, whilst turpentine is considerably dearer in sympathy with the American market. There is nothing to report in the essential oil market, except that lemon and orange oils seem likely to advance in price. Full details will be found below:—

ACID, CARBOLIC.—The market remains firm at the following quotations, although business is necessarily restricted:—*Crystals*: 34° to 35° C., 6¼d.; 39° to 40° C., 6¾d.; 39° to 40° C. (*detached crystals*), 7¼d. per lb. *Crude*: 60 per cent. quotes at 1s. 8d. and 75 per cent. at 2s. 2d. per gallon. *Liquefied* is unchanged at 1s. 1d., and *cresylic* at 11½d. per gallon.

ACID, CHRYSOPHANIC.—The market is firm, and *English* makers still quote at 21s. for 28 lb. quantities.

ACID, CITRIC.—Firm, but quiet. *English* acid still quotes at 1s. 3d. in makers' hands, whilst second-hand holders offer at 1s. 2d. per lb. *Concentrated juice* £13 10s. to £13 15s. per pipe, *f.o.b.*

ACID, OXALIC.—The long-established Convention rate of 3⅝d., delivered free in London, remains unchanged.

ACID, TARTARIC—Unchanged, with little doing. For *English* brands of acid 1s. 2d. per lb. is the makers' price, and in second hands, 1s. 1¾d. per lb. *Foreign* makes of acid (not guaranteed B.P.). both in *powder* and *crystal*, quote at 1s. 1¼d. to 1s. 1½d.

AMMONIA SALTS — *Sulphate*: Dull but steady at £8 12s. 6d. on the spot for grey 24 per cent., whilst *Hull* still quotes at £8 11s. 3d., and *Beckton* at £9. *Carbonate* 3½d. to 3¾d. per lb. *Liquor* 3¼d. to 3½d. less 5 per cent. *Sal ammoniac*: Firsts 39s., seconds, 37s.

ARSENIC.—Very firm at £16 per ton for best white *powder*.

ASHES. — Best *Montreal* potashes still quote at 22s. 6d. and *pearlashes* at 37s. 6d. per cwt.

CAMPHOR (CRUDE).—The market remains quiet, with a moderate business done at steady rates. There have been sales of *Japan* at 185s. to 187s. 6d. per cwt., *c.i.f.*, for shipment (December-February, and January-March steamers), and of *China*, at 180s. per cwt, *c.i.f.*, same shipment.

COAL DISTILLATION PRODUCTS.—*Benzole*: Very firm. For 50 per cent. 2s. 2d. is still asked, whilst 2s. 6d. is quoted for 90 per cent. *Creosote*: Unchanged at 1⅛d. per gallon. *Toluol*: Quoted at 2s. 4d. per gallon for pure.

CREAM OF TARTAR—Barely steady. The spot quotation for *German* brands of powder are now 95s. to 97s. per cwt., whilst best white *French* crystals offer at 92s. 6d. For shipment from Bordeaux the quotation is now 87s. per cwt. *f.o.b.*

COCAINE.—No further change has occurred in the position of this article, but there is every likelihood of a distinct advance shortly.

COPAIBA (BALSAM).—A good demand has been shown during the last few days with sales of good *Maranham* at fully steady rates.

COPPER SULPHATE.—Quiet at £15 10s. to £16 10s. on the spot.

MENTHOL.—Rather firmer. The spot quotation is 14s. 6d. to 14s. 9d. per lb. For shipment, 14s. 9d., *c.i.f.*, is asked.

OIL (COD-LIVER).—The market is very firm. The *Bergen* is still reported bare of new oil. On the spot fine non-congealing *Norwegian* oil quotes at 180s. to 200s. per barrel, according to holder, although a small quantity could be had at 175s. *Newfoundland* oil sells privately at 5s. to 5s. 3d. per gallon.

OILS (ESSENTIAL).—There is no change to report in *Star Anise* oil, which quotes at 10s. 3d. per lb. on the spot, and this quotation could perhaps be shaded. *Cassia* oil is also unaltered, with nominal quotations of 70 to 75 per cent. oil at 10s. 6d. per lb. *Peppermint* oils are unchanged, *American* oil being quoted at 10s. to 10s. 3d. for the *H. G. Hotchkiss'* brand, whilst 8s. 6d. to 8s. 9d. is asked for *Japan* oil testing 40 per cent. of menthol and *dementholised* at 7s. 9d. to 8s. per lb. A firmer tendency is reported in *Italian* essences, and an advance is expected to occur shortly in the value of *lemon* and *orange* oils.

OILS (FIXED) AND SPIRITS. — *Castor* is firm with *Italian* quoting at 30s. 9d. to 31s. per cwt. for fine tasteless quality. *French* medicinal oil is still quoted at 3⅛d. to 3¼d. per lb. in tins (packed in cases) *Cotton*: Firm. *Refined* oil quotes at £16 17s. 6d. to £17 7s. 6d., according to brand and package. *Coco-nut*: *Ceylon* is steady at the unchanged quotation of £22 10s. to £22 15s., whilst *Cochin* is rather easier at £25 5s. *Linseed*: Firmer, with a better inquiry shown. Oil in barrels now quotes at £19 17s. 6d. *Rape*: The market is dull, and prices have declined 5s. to 10s. *Refined* oil now quotes at £24 5s. to £24 15s. *Olive*: *Syrian*, £32; *Spanish*, £34. *Palm*: The spot quotation for *Lagos* oil is £22 10s. *Turpentine*: The market is very firm, in sympathy with advances from America. *American* spirit is now quoted at 20s. 9d. to 21s. on the spot. *Petroleum*: Firm. *American* oil quotes at 7d. to 7⅛d., and *Russian* at 6¾d. to 6⅞d. per gallon.

OPIUM ALKALOIDS — Dearer. *Morphia* has advanced in price 3d. per oz. since our last report, and manufacturer's quotations are now 4s. 3d. for *powder*, and 4s. 3d. for *crystals* in 1000-oz. lots. *Codeine* has also advanced in sympathy with *morphine*, and now quotes at 10s. 6d. per oz. for 100-oz. lots.

OPIUM.—The market continues very firm, especially for *Manufacturing* and *Druggist's* varieties, for which a good inquiry has been shown. The current quotations are as follows:—*Soft shipping*, 10s. to 12s; *Symrna*, 7s. 6d. to 8s. 6d.; *Constantinople*, good to fine, 8s. to 9s.; *Druggists' Seconds*, 7s. to 8s. The market in *Persian* opium continues very firm, and fine *bricks* are held for 13s. 6d., and *ball* for 12s. 6d. to 13s. per lb.

POTASH SALTS.—The current quotations are as follows:—*Chlorate*: 4⅝d. per lb. on the spot, and 4½d. in Liverpool. *Bichromate*: 4⅝d. to 4¾d. per lb. *Yellow Prussiate*: Steady at 8d. per lb. on the spot. *Cyanide*: Firm at 1s. 6d. to 1s. 7d. per lb. for 98 per cent. *Permanganate*: *Small* crystals quote at 65s. to 67s. 6d., and *large* ditto at 70s. to 72s. 6d. per cwt.

QUICKSILVER,—Steady. Importers quotations remain £7 7s. 6d. per bottle, and in second hand £7 5s. 6d. is asked.

QUININE SULPHATE.—Decidedly easier. There are now sellers of *B & S* and *Brunswich* at 1s. 1¼d. per oz.

SENEGA.—An improved demand is reported from the States, and prices seem likely to advance. On the spot good quality root is quoted at 1s. 3d. to 1s. 4d. per lb.

SHELLAC.—The amount of business done has been but trifling, but prices are steady.

SODA SALTS. — *Bicarbonate*: The spot price is £7 5s., and in Liverpool £6 15s. is quoted *f.o.b.* *Soda* 42s. 6d. ex ship. *Nitrate*: *Ordinary* quotes at £7 12s. 6d., and *refined* at £8 5s.

SODA-TARTARATA.—The current quotation for *crystals* is now 100s., and for *powder* 105s. per cwt.

SOY.—Quotations remain unchanged at 1s. to 1s. 1d. per gallon for fair *China*.

TARTAR EMETIC.—Due to the steady rise in the cost of the raw material, a decided advance has taken place in the price of commercially pure *crystals* and *powder*, which now quote at 9¾d. per lb.

WAX (JAPAN).—Steady. The spot quotation for good pale *squares* remains 30s. per cwt.

PATENT SPECIFICATIONS PUBLISHED.

Vaccination shield (Steele, J. E., and Stafford, H.).—A perforated plate of celluloid or other like material is fixed within a tubular indiarubber or other ring, which is placed around the vaccination marks and secured by straps. No. 14,555 of 1895.

Dentifrice box (Millington, C.).—Comprises an air-tight box having a sliding drawer or other arrangement which each time that it is drawn out, contains sufficient of the powder, etc., for use. No. 22,578 of 1894.

TRADE NOTES AND NEWS.

Messrs. Maw, Son and Thompson, 7–12, Aldersgate Street, E.C., have now in their show rooms several articles which deserve the attention of the trade. First of all may be mentioned a novel form of sponge-bag which is likely to become popular with the public. The outside of the bag itself is made of sateen in a variety of fancy patterns, whilst instead of the ordinary string or tape it is opened by means of expanding lattice work which, when closed, is secured by a hinged cap, the whole of the metal work being gilded. The bag is thus very attractive and the retail price being moderate it seems likely to be a very saleable article, especially at this season of the year. Another toilet adjunct is a nail and tooth brush stand, the support being made of white metal, whilst the tray is of fancy earthenware, pansy pattern on a white ground. This retails at 1*s.*, and the trade price yields a good margin of profit. An innovation in the style of bed pans and urinals really fills a want. No doubt many chemists will have thought the white colour an objection on the score of unsightliness. This has now been obviated by introducing a series of all sizes and shapes the colours of which are variegated patterns of blue, grey, and lavender, similar to some kinds of china. The result has been very satisfactory, the idea having been favourably received already in many quarters. The use of cachets having now become so general in this country necessitates a large assortment being kept in stock of all colours, the name of the drug being impressed if required. The firm are agents for some of the prominent makes of machines. The ball enema is now made in all sizes down to one holding two drachms. Mr. Carter states that the sale of manicure sets has much increased lately, and there is a large assortment at prices to suit every pocket. Of these, two kinds claim special attention. The first, which retails at 4*s.* 6*d.*, is of excellent workmanship, the brushes and polishers being mounted in ebony, and every requisite is included, the case being made of dark green leather with nickel clasp. The expressive name "manicurette" has been registered by the firm for a handy *multum in parvo*, which supplies nail trimmer, file, and polisher for the sum of 6*d.* Bertrand Frère's well-known brand of perfumes, for which Maw's are agents, are now supplied in white glass-stoppered bottles holding 1 lb., which are suitable for stock purposes, the labels being vitrified, no extra charge being made. The tendency amongst the sponge-buying public seems now in favour of those already bleached, the fact that the process by no means improves their durability being ignored. A large pile was seen ready for the use of those people who like to know the exact size of the sponge they are buying, and do not care for the trouble of getting rid of the sand. A series of articles rather out of the run of a pharmacist's needs, but which are nevertheless suitable for presents, comprised oak cabinets in nickel mounts, intended for cigars, cigarettes, and stationery. Celluloid seems to be used as much as ever for every variety of toilet requisite. A dispensing scale may be seen in the warehouse at present which is a curiosity in its way. It has been sent to the firm by one of their customers —a pharmaceutical chemist—for repair. In outline it resembles the hand variety sold at about 2*s.* 6*d.*, and the owner has displayed remarkable ingenuity in preserving its equilibrium by means of lead soldered to the arms. At last, however, it appears to have defied all his efforts, and has been sent up for repair. It has been considered more suitable for a museum, however, than for further active service in the cause of pharmacy.

Messrs. Evans, Gadd and Co., of Exeter, have submitted to our notice specimen copies of their office calendar for 1896, which, besides being embellished with illustrations of their warehouses, laboratories, and drug mills, contains the usual amount of postal information. They will be pleased to forward copies to any chemist who makes application for one.

Messrs. Burroughs, Wellcome and Co. have sent a copy of their 'Chemists' Vest-Pocket Diary and Ready Reference Book for 1896.' The diary and memorandum portion of this handy little book is retained in the same form as last year, but the remainder of the book has been compiled afresh so as to make it of real value as a reference book for the pharmacist, by adding abstracts of the history of sero-therapy and animal substance, medication, therapeutic notes on new remedies, and a number of useful tables. We understand that the publishers would be glad to receive practical hints and suggestions from pharmacists for the next year's issue. A copy will be forwarded to every pharmacist, assistant, and apprentice of whose address the firm are cognisant. Any omission in this direction will be remedied on receipt of a post-card.

Thomas Christy and Co., 25, Lime Street, E.C., have submitted to our notice a sample of the "N.W.K." hydrous adeps lanæ. The special features claimed for this variety of wool-fat are its absolute purity, soft consistency, non-stickiness, and especially its low melting point. The sample under notice appears to fulfil these requirements, and to be perfectly satisfactory in every detail. A number of useful recipes, derived from those of Dr. Unna, are also supplied, in which suitable combinations with various medicaments and other ointment bases are indicated.

The Liquor Carnis Company inform us that they still have some of the handsome show cards left, which have recently been distributed to the trade, and they will be glad to send one to those who have not yet availed themselves of their offer. The cards draw attention to the merits of the Company's preparations in a striking manner, and are likely to lead to business.

PATENT OFFICE BUSINESS.

Applications for Patents.

[From the *Illustrated Official Journal.*]

No. 17,189.—Improved sanitary utensils for sick rooms, hospitals, and other places. September 14.

No. 17,305.—Improvements in and relating to bottles and other vessels for containing poisons. September 17.

EXCHANGE.

[*For the convenience of readers, suitable notices, not exceeding thirty words in length, are inserted free in this column, if they do not partake of the nature of ordinary advertisements. They must relate to books, apparatus, shop fittings, etc., and arrive not later than Wednesday, addressed "Editorial Department, 17, Bloomsbury Square, W.C."*]

OFFERED.

Bell's 'Principles of Surgery,' many plates, some coloured, 4 vols., 6s.; Faraday's 'Chemical Manipulation,' very scarce, 7s. 6d.; Carpenter's 'Human Physiology,' 5s.; Winslow's 'Brain Disorders,' 5s.—Davis, "Chestnuts," Gordon Hill, Enfield.

A Six-light Albo-carbon Burner—Ratcliffe's Patent—perfect condition, cost £2 2s.; price only 15s.—Nunn, Chemist, Lower Sydenham.

Scoresby Jackson's 'Materia Medica,' 5s.; Silver's 'Practical Medicine' (12s. 6d.), 4s.; Graily Hewitt's 'Diseases of Women' (18s.), 6s.; Knowlson's 'Yorkshire Cattle Doctor,' a famous book, 5s.—Davies, 33, Eglinton Road, Bow.

Air or Water bed, 48 by 72, by Hooper, good condition. Price £3.—Weddell, Colchester.

'Pharmaceutical Journal,' 1886–1895, unbound, for sale or exchange for other pharmaceutical literature.—Millar, 121, Almack Road, Clapton, N.E.

Bi-unial lantern (mahogany), 4-in. condensers, blow-through jets, six-way dissolver, complete in lever lock-up box, with I.R. tubing carriers, perfect condition, £5.—Cammack, Dawes Road, S.W.

WANTED.

Wanted to exchange 5 past years of 'Chemical Society's Journals,' for similar years of 'Linnean Society's Journals' (botany).—Bond, 77, Netheredge Road, Sheffield.

'Chemist and Druggist' for Jan. 26, Feb. 9, Feb. 16, 1895; Aug. 4, Aug. 18, Nov. 3, Oct. 13, Oct. 27, Dec. 1, Dec. 8, 1894.—Antcliffe, Vestry Offices, Sheffield.

*** **The attention of readers is directed to the conditions printed at the head of this column. Notices cannot be inserted unless they are in accordance with those conditions.**

DIARY OF THE WEEK.

Secretaries of Societies are requested to send notices of forthcoming meetings not later than Wednesday in the previous week.

Tuesday, December 31.

Royal Institution of Great Britain, at 3 p.m.
"Sound, Hearing, and Speech," by Professor J. G. McKendrick.

Wednesday, January 1.

Society of Arts (Juvenile Lectures), at 7 p.m.
"Earthquakes, Earth Movements, and Volcanoes," by Professor John Milne.

Thursday, January 2.

Royal Institution of Great Britain, at 3 p.m.
"Sound, Hearing, and Speech," by Professor J. G. McKendrick.

Friday, January 3.

Geologists' Association (London), at 8 p.m.
"On the Lake-Basins of Lake-Land," by J. E. Marr.

Saturday, January 4.

Royal Institution of Great Britain, at 3 p.m.
"Sound, Hearing, and Speech," by Professor J. G. McKendrick.